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**DYSART DRAIN IMPROVEMENT PROJECT**

**90% PLANS SUBMITTAL  
DRAFT SPECIAL PROVISIONS**

**BRIDGES AND CARRIER PIPES  
DETENTION BASIN AND COLLECTOR CHANNELS**

**NBS**  
**LOWRY**

ENGINEERS & PLANNERS

**DYSART DRAIN IMPROVEMENT PROJECT**

**90% PLANS SUBMITTAL  
DRAFT SPECIAL PROVISIONS**

**BRIDGES AND CARRIER PIPES  
DETENTION BASIN AND COLLECTOR CHANNELS**

**Prepared For:**

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
AND  
LUKE AIR FORCE BASE**

**- PRELIMINARY - NOT FOR CONSTRUCTION -**

**Prepared By:**

**NBS/LOWRY, ENGINEERS & PLANNERS  
2600 North 44th Street  
Phoenix, Arizona 85008**

**AUGUST, 1994**

<b>FLOOD CONTROL DISTRICT RECEIVED</b>	
<b>AUG 22 '94</b>	
<b>CHENG</b>	<b>P &amp; PM</b>
<b>DEP</b>	<b>HYDRO</b>
<b>ADMIN</b>	<b>LMGT</b>
<b>FINANCE</b>	<b>FILE</b>
<b>C &amp; O</b>	
<b>ENGR</b>	
<b>REMARKS</b>	

**BRIDGES AND UTILITY CROSSINGS**

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
CONTRACT FCD 94-15  
DYSART DRAIN IMPROVEMENTS PROJECT**

**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, latest revision, together with the Maricopa County Department of Transportation (MCDOT) Supplements to the Uniform Standard Details.

**PRECEDENCE OF CONTRACT DOCUMENTS**

In case of a discrepancy or conflict, Project Plans will govern over the MAG Standard Specifications and Details, and the Maricopa County Department of Transportation Supplements to the Uniform Standard Details. The Supplementary General Conditions and Construction Special Provisions will govern over the MAG Standard Specifications and Details, the Maricopa County Department of Transportation Supplements to the Uniform Standard Details, and the Project Plans, and Change Orders will govern over the Supplementary General Conditions, Construction Special Provisions, MAG Standard Specifications and Details, Maricopa County Department of Transportation Supplements to the Uniform Standard Details, and Project Plans.

**Subsection 101.2 - Definitions and Terms:**

1. Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the Flood Control District of Maricopa County.
2. Change the definition of the phrase "Budget Project" to being a project financed by funds set aside in the annual budget or otherwise approved by the Flood Control District of Maricopa County Board of Directors.
3. Add to the definition of the phrase "Contract Documents", the phrase "Supplementary General Conditions".
4. Change the definition of the term "Engineer" to being the person appointed by the Flood Control District of Maricopa County Board of Directors to the office of Chief Engineer and General Manager of the Flood Control District of Maricopa County acting directly or through its authorized representative, the Chief of the Flood Control District of Maricopa County Construction and Operations Division.
5. Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that it is the successful bidder and the Flood Control District of Maricopa County has accepted its proposal.
6. Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through its legally constituted officials, officers, or employees.
7. Whenever the word "District" is used in these Specifications, it shall mean the Flood Control District of Maricopa County.

8. 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.
9. 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 102.5 - Preparation of Proposal:** Add the following:  
Proposals, including the Bidding Schedule, must be legibly written in ink or typed.

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, **must 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 and show appropriate changes to the Bidding Schedule, and receipt of addenda acknowledged in the Proposal shall be invalid.**

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

**Subsection 102.6 - SubContractors' List:** Add the following:  
A list of subContractors to be employed on the project shall be submitted with the bid, on the form provided in the Proposal. No change of the subContractors named therein will be made unless first approved in writing by Owner.

**Subsection 102.7 - Irregular Proposals:** Add the following :

(F) If bidder fails to complete and submit the Maricopa County Minority and Women-Owned Business Enterprises Assurances Affidavit, the bid will be considered nonresponsive and rejected.

(G) If bidder fails to acknowledge AND attach any addendum issued, if addendum is not already bound into the Specifications, the bid will be considered nonresponsive and rejected.

(H) If bidder fails to utilize Owner's bond forms, the bid will be considered nonresponsive and rejected.

(I) If bidder fails to return the entire specifications document, the bid will be considered nonresponsive and rejected.

**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 or one of equal wording, that names the additional insureds as set out in the Certificate. The Certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form.

**Subsection 103.6.1(D) - Contractor's Insurance:** Add 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 on Page 30 of 30 of the Contract Documents.

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

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

Add the following to 104.1.2:

El Mirage Road and Dysart Road may be closed for up to 120 days each for bridge and roadway construction, however, El Mirage Road and Dysart Road cannot be closed concurrently. The Contractor shall submit a traffic control and signing and striping plan for approval by MCDOT and the Engineer prior to road closure.

Reconstruction of the Morton Salt bridge cannot occur concurrently with the reconstruction of the Dysart Road bridge, and must be completed and reopened to traffic within 150 days after its closure for demolition. The Morton Salt bridge must be open for use by Morton Salt while the Dysart Road bridge and associated roadway is under construction.

The existing access to the Amerigas Facility off of Dysart Road at the southwest corner of the Amerigas Facility must be maintained and open to Amerigas traffic at all times during construction. The Contractor will provide a 20 foot wide access gate immediately east of the existing Amerigas access gate off Dysart Road in the construction fencing along the north side of the Temporary Construction Easement through the Amerigas facility. The Contractor must contact the Amerigas Facility Manager at least 7 calendar days in advance of any access onto the Amerigas Facility to determine and establish the access requirements.

**Subsection 104.2 - Alteration of Work:** Add the following to 104.2.2:

The soil boring logs and geotechnical report are available for review at the District, and the Contractors are encourage to do so. No guarantee is made of the accuracy of the boring logs in the soils report. The Contractor shall make his own determination as to soil and subsurface conditions and shall complete his work in whatever material and under whatever condition he may encounter or create, without extra cost (except as modified in MAG). 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 105.1 - Authority of Engineer:** Add the following:

105.1.1 - Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subsections 105.3.1 and 106.4. 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 105.3 - 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 105.6 - Cooperation with Utilities:** Add the following:

An attempt has been made to determine the location of all underground utilities and drainage pipes, culverts, and structures; however, it shall be Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. Should Contractor's operations result in damage to any utility the location of which has been brought to its attention, he shall assume full responsibility for such damage. Contractor shall contact Arizona Blue Stake (telephone number 263-1100) a minimum of two (2) working days before beginning any underground work. In addition, Blue Stake notification(s) shall be maintained on a current basis.

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

Santa Fe Pacific Pipeline Partners, L.P.	
Mr. Dan Tarango (local)	(602) 278-2320
Mr. G.T. Reed (Los Angeles)	(213) 486-7736
Arizona Public Service Company	
Mr. John Herrera	(602) 371-6942
Insight Communications	
Mr. Kenny Taggart	(602) 780-2222
Southwest Gas	
Mr. Terry Hughes	(602) 484-5257
U.S. West Communications (USWest)	
Mr. Curt Sayer	(602) 831-4777
Ms. Beth Wood	(602)395-2402
Amerigas	
Mr. David Harbushka	(602) 935-2661
Morton Salt Company	
Mr. Gary McFarlin	(602) 247-3000
Luke Air Force Base	
Mr. Bill Meloche	(602) 856-6394
Mr. Zane Hoit	(602) 856-7634

In addition to the utility coordination normally required, the following specific utility coordination is required:

**SANTA FE PACIFIC PIPELINE PARTNERS, LTD:** A jet fuel pipeline owned and operated by Santa Fe Pacific Pipeline Partners crosses the channel alignment at Dysart Road. The pipeline has been temporarily relocated by others to a point approximately 80 feet east of Dysart Road, and approximately 3 feet under the existing channel, as part of the recent MCDOT improvements to Dysart Road. Upon completion of the reconstruction of the Dysart Road bridge, and prior to construction of the new roadway pavement approaches to the bridge, the pipeline will be permanently relocated and attached to the bridge by others. The permanent relocation and attachment to the bridge must be coordinated with Santa Fe Pacific Pipeline Partners, Ltd (SFPL). Following completion of the bridge reconstruction, and prior to construction of the new roadway pavement approaches to the bridge, SFPL must be given 45 days advance notice to allow final relocation and attachment to the bridge. It is anticipated that the relocation and attachment of the new pipeline by SFPL will require

approximately two weeks once the relocation work begins. The relocated pipeline must then be protected in place during the duration of construction. Access must be provided for SFPL under the bridge and in the vicinity of the work for the relocation of the pipeline.

**ARIZONA PUBLIC SERVICE (APS):** Existing APS 12kV overhead lines are located along the east side of Dysart Road and El mirage Road, and over the Morton Salt bridge. Temporary shooflys of the existing 12kV overhead electrical service may be required during construction of the drilled shafts for the El Mirage Road and Dysart Road bridges, and the Morton Salt bridge. The Contractor will determine the need for such temporary shoofly's based on his anticipated equipment and procedures for drilled shaft construction. In the event a temporary shoofly is deemed necessary, APS must be contacted to coordinate the construction of the shoofly's. 45 days advance notice must be given to APS to allow for shoofly construction at each location, with approximately 30 days required for the installation of each shoofly.

USWest overhead teleco service is under-built on the 12kV power poles at the Morton Salt bridge. USWest will also be contacted in advance when APS is contacted to ensure the relocation of the USWest service with the shoofly installation.

Insight Communications CATV service is under-built on the 12kV/69kV power poles along Dysart Road. Insight Communications will also be contacted in advance when APS is contacted to ensure the relocation of the CATV service with the shoofly installation.

Existing APS 69 kV overhead power lines are located along the east side of Dysart Road and have approximately forty feet of ground clearance. The Contractor must determine the safe existing overhead clearance available and abide by all appropriate APS and other applicable safety requirements when working under these overhead lines, including adequate clearances from the lines. The Contractor will determine the need for a temporary shoofly of these lines based on his anticipated equipment and procedures for drilled shaft and bridge construction. In the event a temporary shoofly is deemed necessary, APS must be contacted to coordinate the construction of the shoofly. 45 days advance notice must be given to APS to allow for shoofly construction of the shoofly, with approximately 30 days required for the installation of each shoofly.

If the Contractor elects to utilize any of the above described shoofly's, the cost of the shoofly will be included in the Contractor's bid per Section 502 of the Special Provisions.

**MORTON SALT FACILITY AND AMERIGAS:** Two existing steel pipe overchutes within the Morton Salt facility east of Dysart Road contain utility pipelines within the overchutes as follows:

Station 59+56	8" SDR11 HDPE brine line
	8" SDR11 HDPE salt slurry line
	6" SDR11 HDPE brine line
	2" SDR11 HDPE water line
Station 65+71	6" SDR11 HDPE water line
	6" carbon steel brine line
	2" PVC electrical conduit

The utilities in the existing pipe overchutes must remain in service and shall be protected in place until the new replacement overchute pipes are constructed and approved by the Engineer. The existing utilities will be relocated to the new replacement overchute pipes by Morton Salt.

The existing utility pipelines cross the channel at the two existing overchutes (near station 59+56 and 65+71), and have very shallow cover at the north and south sides of the existing channel. The Contractor will exercise extreme caution when working in the area of the Amerigas and Morton Salt Facilities so as not to damage any of

the existing or relocated pipelines. Any damage to the pipelines, and associated environmental clean up costs should the salt brine enter the channel, will be corrected by the Contractor solely at the Contractor's cost.

**IRRIGATION AND FARM FACILITIES:** Two existing overchute pipes located near Stations 71+99 and 72+74 (east and west sides of the Dysart Road bridge) shall be removed by the Contractor and the pipes delivered to Mr. John Roach. The Contractor will contact Mr. Roach at 935-9018 at least 14 calendar days in advance of the removal of the pipes to obtain instructions on where to deliver the pipes.

**Subsection 105.7- Cooperation Between Contractors** Add the following:  
APS crews, an SFPL Contractor, and Morton Salt crews and Contractor will be required to perform certain work within the project limits concurrently with the project. The Contractor shall cooperate as necessary with these various crews and the associated activities and coordinate his work accordingly.

**Subsection 105.8 - Construction Stakes, Lines, and Grades** Add the following:  
\*\*\*\*\* NEED INPUT FROM C&O \*\*\*\*\*

- A. The Engineer will set the project survey control line which the construction Contractor will use to set line and grade for all construction. The control line shall consist of one (1) alignment staking at an interval appropriate to the project requirements and two (2) equivalent controls, both of which shall be at frequent enough intervals to maintain a line of sight between staking. 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.

**Subsection 106.1 - Source of Materials and Quality:** Add the following:  
Select Material, Aggregate Base, Mineral Aggregate, concrete, steel products and pipe shall be obtained from commercial sources. Contractor shall pay all royalties, or any other charges or expenses, incurred in connection with the securing and hauling of the material. Contractor will be required to furnish Engineer with a list of its proposed commercial sources prior to use, and shall present certificates stating that the material produced from any commercial sources is in accordance with the Uniform Standard Specifications and these Supplementary General Conditions.

**Subsection 106.4 - Trade Names and Substitutions:** Replace with the following:  
Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quantity required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be accepted by Engineer under the following circumstances:

A) "Or-Equal": If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

B) Substitute Items: If in Engineer's sole discretion an item does not qualify as an "or-equal" item under subparagraph 106.4 (A), it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by Engineer will include the following and may be supplemented in the Special Provisions and as Engineer may decide is

appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

C) Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or substitute item will be at Contractor's expense.

**Subsection 106.5 - Contractors Marshaling Yards:** Add the following:

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

The Contractor will grade all Temporary Construction Easements (TCE) to a condition similar to or better than the pre-existing condition. Where TCE's exist on agricultural lands, the Contractor will exercise extreme care to not interrupt or interfere with agricultural activities. This may include the need to reconstruct existing irrigation features and farm roads, etc.

**Subsection 107.1 - Laws to be Observed:** Add the following Paragraph (G):

(G) Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations (29 CFR Part 5). Contractor shall also comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including CFR Parts 35 and 36.

**Subsection 107.2 - Permits:** Replace with the following:

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

**Subsection 107.4 - 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 authorized officer and the Engineer. An evaluation of the discovery will be made by the authorized officer and 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 107.8 - Use of Explosives:** Add the following:

Because of the Amerigas and Morton Salt Facility operations, the following restrictions shall be adhered to:

1. The use of explosives will NOT be permitted for any construction activities within or near the Morton Salt and Amerigas facilities, including but not limited to the demolition of the existing Dysart Road and Morton Salt bridges.
2. No "OPEN FLAMES" will be permitted within 50 feet either side of the north permanent right-of-way line of the Dysart Drain channel, from Station 72+00 to Station 55+00.
3. The Contractor shall provide both Amerigas and Morton Salt 45 days advance notice before beginning work within the limits of the Amerigas and Morton salt Facilities, and specifically between Stations 72+00 and 55+00.

**Subsection 107.9 - Protection and Restoration of Property:** Add the following:

At the Amerigas and Morton Salt facilities all existing valves, protective pipe barriers, etc. will be protected-in-place.

The Contractor shall protect-in-place the existing Morton Salt Facility evaporation ponds and associated berms between stations 55+00 and 60+00. Only light vehicular traffic (small pickup trucks, etc.) and pedestrian foot traffic shall be permitted on the pond berms within the Temporary Construction Easements. Any damage to the ponds and berms, and associated environmental clean up costs should the salt brine enter the channel, will be corrected by the Contractor solely at the Contractor's cost. Extreme care shall be used by the Contractor so as not to damage the evaporation pond berm when constructing the gabion wall along the north side of the channel, at the south side of the evaporation pond described above.

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

Contractor is advised that the Dysart Drain channel functions as an outlet for agricultural irrigation tailwater and storm water runoff. Owner assumes no responsibility for notifying Contractor of any anticipated flows in these features, nor for any damages incurred by Contractor to its equipment or to any of the Contractor's work as a result of any flows of water, as described below:

- A. The Contractor shall be responsible for controlling and handling stormwater and other flows throughout the construction site, both surface drainage and channel flows, except channel flows which exceed \*\*\*\*\* 150 cfs \*\*\*\*\* as measured by gages as described below. When measured channel flows exceed \*\*\*\*\* 150 cfs \*\*\*\*\* and result in damage to the work site, the owner will pay actual cost of damage repair. Actual cost is defined as materials, labor, and equipment utilized to restore damaged work area(s). Payment for damage repair work will be in accordance with Section 109.5 of MAG Specifications, titled Actual Cost Work. No other compensation will be considered or allowed, including home office or job site overhead.

- B. Various gages will be installed by the District in the Dysart Drain channel to monitor flows. The gages will be the basis of measuring and determining the flow rate in the canal. The gages will be installed and located as follows:
1. Temporary gages will be in place at the time of construction at the existing spillway upstream of El Mirage Road near Station 30+50, and on the existing Dysart Road bridge.
  2. After completion of the new bridge and channel construction at El Mirage, the temporary gage at the spillway will be relocated to the bridge as a permanent gage.
  3. The Contractor shall provide the District with a minimum 30 days advance notice of the need to install and/or relocate the temporary or permanent gages as described above. The contract shall contact Mr. Tom Donaldson at the District at 506-1501 or 506-4798.
- C. The Contractor shall take all necessary precautions to protect existing structures and facilities from storm water runoff in the Dysart Drain channel, such as but not limited to bridges, culverts, Morton Salt and Amerigas facilities, irrigation facilities, and utilities.
- D. An existing irrigation tailwater ditch near Station 98+50 serves "G-Farms". The Contractor may wish to contract "G-Farms" at 935-6232 regarding the anticipated use of and discharge of flows from this ditch into the Dysart Drain channel.

**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 \*\*\*\*\* \_\_\_\_\_ (XXX) \*\*\*\*\* 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 progress schedule to Engineer for review before starting work. Weekly updates shall be submitted to Owner's Inspector at the weekly coordination meeting.

**Subsection 108.5 - Limitation of Operations:** Add the following:

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

**Subsection 108.9 - Failure to Complete on Time:** Add the following:

The actual cost per calendar day incurred by Owner for 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.

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

(C) Contractor's pay estimates will be initially processed by Owners's Construction and Operations Division on a Tuesday, Tuesdays being the only day Contractor may submit a pay estimate.

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
CONTRACT FCD 94-15  
DYSART DRAIN IMPROVEMENTS PROJECT**

**SPECIAL PROVISIONS**

**SECTION 201 - CLEARING AND GRUBBING**

**Subsection 201.5 - Payment**

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

**SECTION 202 - MOBILIZATION**

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.

**Subsection 202.1 - Payment**

Payment shall be made at the contract lump sum price bid and shall be full compensation for supplying and furnishing all materials, facilities, and services for performing all the work involved as specified herein.

**ITEM 202 - MOBILIZATION**

**SECTION 205 - ROADWAY EXCAVATION**

**Subsection 205.2 - Unsuitable Material**

In bituminous paved areas, the moisture content of the subgrade and backfill should be maintained at 2 percent below optimum or lower during site grading to reduce the potential for pumping. If in-situ moisture contents are higher than this at the time of construction, pumping may occur, and special precautions should be taken to prevent disturbance, equipment mobility problems, and loss of shear strength in the subgrade. These precautions may include spreading and drying of wet soils, removal and replacement of wet soils, construction of temporary gravel roads at channelized traffic areas, and/or use of lighter compaction equipment.

**Subsection 205.8 - Payment**

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

**SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL**

**Subsection 206.2 - Foundation Material Treatment**

Foundation bearing surfaces shall be free of debris and water softened materials prior to placing

concrete and reinforcing steel. All foundation excavations shall be reviewed by the Engineer prior to placing the foundation material. Any loose or disturbed zones should be removed and replaced with compacted fill or lean concrete.

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

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

The design of bracing systems shall be reviewed by the Engineer prior to use.

#### **Subsection 206.4 - Structural Backfill**

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

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

Backfill behind subsurface walls designed to support utilities, pavement, channels, or other facilities should be compacted to density criteria from Section 211. Backfills should consist of granular soils, free of vegetation, debris, organic contaminants, and fragments larger than 6 inches in size, which exhibit low expansive potentials. On-site soils may be used in structural fills or backfills more than 3 feet below the final grade. High plasticity on-site soils may not be used in structural fills or backfills.

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

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

Maximum Particle size: 6 inches\*  
Maximum percent expansion: 1.5\*\*

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

\*\* Performed on sample remolded to 95 percent of the maximum ASTM D698 density and 2 percent below optimum moisture under a 100 psf surcharge pressure.

#### **Subsection 206.5 - Payment**

No payment will be made for structure excavation and backfill as such; the cost thereof shall be

included in the price bid for the construction or installation of the items to which such excavation and backfill are incidental or appurtenant.

**SECTION 301 - SUBGRADE PREPARATION**

**Subsection 301.1 - Description**

In addition to the items described in Section 301.1 of the MAG Standard Specifications, the work includes preparation of surfaces and compaction of dirt farm roads and maintenance access roads.

**Subsection 301.8 - Payment**

Payment for subgrade preparation shall be made on the basis of price bid per square yard.

**ITEM 301 - SUBGRADE PREPARATION**

**SECTION 310 - UNTREATED BASE**

**Subsection 310.4 - Payment**

Payment for untreated base shall be made on the basis of the price bid per ton.

**ITEM 310 - AGGREGATE BASE COURSE**

**SECTION 315 - BITUMINOUS PRIME COAT**

**Subsection 315.2 Materials**

The bituminous material shall be Grade MC-70 or MC-250 liquid asphalt as determined by the Engineer. Prime coat shall be applied to the total width of the aggregate base material at the rate of 0.40 gallons per square yard unless otherwise specified by the Engineer. Prime coat shall be allowed to penetrate for not less than forty-eight (48) hours prior to beginning asphalt concrete paving.

**Subsection 315.5 Payment**

Payment for bituminous prime coat shall be made on the basis of price bid per ton.

**ITEM 315 - BITUMINOUS PRIME COAT**

**SECTION 321 - ASPHALT CONCRETE PAVEMENT**

**Subsection 321.2 - Materials and Manufacture**

Type	C-3/4
Mineral Filler	Portland Cement (1-1/2% by weight)
Asphalt Cement	AC-20. ***** <b><u>GET RECOMMENDATION FROM GEOTECH*****</u></b>

In addition to pugmill type mixing plants, drum dryer mixers will be allowed in accordance with Standard Specification 710.9. The moisture content of the bituminous mixture immediately behind the paver shall not exceed three (3%) percent.

The proper proportioning of the material at the cold feed shall be determined by the Contractor and approved by the Engineer prior to production of asphaltic concrete. Production shall not commence until calibration tests indicate an acceptable product can be obtained.

The correct proportions of each aggregate size introduced into the mixer shall be drawn from the storage bins by an approved type of continuous feeder which shall supply the correct amount of aggregate in proportion to the bituminous material and shall be so arranged that the proportion of each aggregate size can be separately adjusted. The continuous feeder for the aggregate may be mechanically or electrically activated.

The plant shall be equipped with a sampling device to take representative composite samples of the cold feed. If tests indicate non-compliance with specifications, operation shall cease until proper corrections have been made.

The production of the plant shall be governed by the rate required to obtain a thorough and uniform mixture of materials. Mixing shall continue until the uniformity of coating, when tested in accordance with AASHTO T-195, is at least ninety-five (95%) percent.

The Contractor will be required to furnish to the Engineer certified weight tickets covering all of the asphalt concrete placed on the project.

Where the compacted thickness of the asphaltic pavement course is designated as three (3) inches or less, the asphalt may be placed in one lift.

**Subsection 321.9 - Payment**

Payment for asphaltic concrete shall be made on the basis of price bid per ton.

**ITEM 321 - ASPHALTIC CONCRETE PAVEMENT (C-3/4)**

**SECTION 329 - TACK COAT**

**Subsection 329.7 - Payment**

Payment for the emulsified bituminous tack coat will be by the ton, diluted.

**ITEM 329 - BITUMINOUS TACK COAT**

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

**Subsection 340.6 - Payment**

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

**ITEM 340-1 - CONCRETE CURB AND GUTTER**

Payment for concrete driveway entrance shall be made on the basis of price bid per square foot.

**ITEM 340-2 - CONCRETE DRIVEWAY ENTRANCE**

**SECTION 345 - ADJUSTING FRAMES, COVERS, VALVE BOXES AND WATER METER BOXES**

**Subsection 345.5 - Payment**

Payment for adjusting frames, covers, valve boxes and water meter boxes shall be made on the basis of price bid per each.

**ITEM 345 - ADJUST FRAMES, COVERS, AND BOXES**

## **SECTION 350 - REMOVAL OF EXISTING IMPROVEMENTS**

### **Subsection 350.1 - Description**

Removal of existing improvements shall conform to Section 350 of the MAG Standard Specifications except as modified herein. The work includes the removal and disposal of existing structures, concrete channel lining, the existing bridges at Dysart Road, El Mirage Road, and Morton Salt, pavement, and any other obstacles to construction. The work also includes removal, salvage, and/or relocation of miscellaneous fence, gates, and other items as necessary for construction and as called out on the plans. Holes, cavities and trenches resulting from the removal of structures shall be backfilled in accordance with Sections 206 and 211.

The disposal of all waste material removed under this item shall be the responsibility of the Contractor. The disposal site shall be approved by the Engineer.

If a Maricopa County landfill is selected for disposition of waste materials and/or debris, a Maricopa County Landfill Use Permit will be required. Application for permit can be made at the Maricopa County Landfill Office, located at 3325 West Durango Street, Phoenix, Arizona 85009 (telephone (602) 269-2661). Charges will be levied on a volume basis for each load delivered to the landfill in accordance with the current fee schedule.

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

Weigh tickets from all landfill disposal must be furnished to the Engineer.

### **Subsection 350.2 - Construction Methods**

No projection of any kind will be allowed above the finished grade in the channel bed as a result of the removal of the existing bridges and concrete slab. The Contractor shall safeguard against contaminating water in the channel during construction.

### **Subsection 350.4 - Payment**

Payment for removal and disposal of the existing structures shall be made on the basis of the lump sum price bid, and shall include full payment for removal and disposal of the Dysart Road, El Mirage Road, and Morton Salt bridges, channel lining, and other structures to be removed as shown on the plans or encountered in the field.

#### **ITEM 350-1 - REMOVE STRUCTURES**

Payment for removal and disposal of existing AC pavement shall be made on the basis of the lump sum price bid.

#### **ITEM 350-2 - REMOVE AC PAVEMENT**

Payment for all miscellaneous removals required for construction of the project shall be made on the basis of the lump sum price bid, and shall include as a minimum, removal and disposal of pipe culverts, concrete channel lining at bridges, curb and gutter, steel carrier pipes, miscellaneous utilities and remnants abandoned within the area of construction, removal and disposal or relocation of fencing and gates and other items as required.

#### **ITEM 350-3 - MISCELLANEOUS REMOVALS**

## **SECTION 401 - TRAFFIC CONTROL**

Traffic control shall conform with these Special Provisions, Part VI of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), US DOT Federal Highway Administration with current revisions, the City of Phoenix Traffic Manual, and/or as directed by the MCDOT Traffic Engineer or his representative.

It shall be the Contractor's responsibility to provide, erect and maintain all necessary signs, barricades, striping, striping removal, barriers, berms, lights, delineators, uniformed officers, flag men and any other necessary devices to properly mark and control the construction areas. The Contractor has the responsibility for protecting the work, the workmen and the traveling public at all times.

A road closure of El Mirage Road and Dysart Road for a period not to exceed one hundred and twenty (120) calendar days each is authorized. Concurrent closures of El Mirage Road and Dysart Road shall not be permitted. Two (2) weeks prior to closure, the Contractor shall place advisory signs with road closure information including closure date and the expected duration of closure. These signs shall be placed at the first north and south major intersection from the bridge and/or roadway construction site.

All advance warning construction signs shall be mounted on channels driven into the ground. Each mile and 1/2 mile point of the project shall be signed with construction and speed limit signs mounted on channels driven into the ground and placed in locations where they will not be removed by construction.

The final striping and signing of the road shall be done by MCDOT, and shall not be commenced or installed until all shoulders have been dressed to cover the edge of pavement drop off. The Contractor will give MCDOT a minimum of two (2) weeks notice as to when the signing and striping can be done.

Prior to any excavation or construction, the Contractor shall install and maintain deceleration washed sand berms (approximately five (5') feet high) on each approach of traffic to the bridge and/or roadway construction site. Sand berms shall remain until the road is open to traffic.

At the time of the pre-construction conference, the Contractor shall submit for review and approval traffic control plans for Dysart Road and El Mirage Road detailing the necessary construction signing and safety measures.

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

### **Subsection 401.7 - Payment**

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

## **ITEM 401 - TRAFFIC CONTROL**

## **SECTION 405 - MONUMENTS**

**Subsection 405.5 - Payment**

Payment for survey monuments shall be made on the basis of the price bid per each.

**ITEM 405 - SURVEY MONUMENTS (MAG 120-2, TYPE E)**

**SECTION 420 - CHAIN LINK FENCES**

**Subsection 420.1 - Description**

The work under this section consists of constructing 4 foot chain link fence on the bridges and for replacement of existing chain link fence to be removed in the vicinity of the Luke School.

**Subsection 420.5 - Payments**

Payment for installation of new 4 foot chain link fence shall be made on the basis of price bid per linear foot.

**ITEM 420-1 - CHAIN LINK FENCE, 4'**

**SECTION 502 - DRILLED SHAFTS**

**Subsection 502.1 - Description**

The work under this section shall include furnishing all materials and constructing reinforced concrete shafts formed within a drilled excavation. Each drilled shaft foundation shall consist of a shaft section and shall be constructed in accordance with the details and dimensions shown on the project plans and the requirements of these specifications.

For construction of the Dysart Road, El Mirage Road, and Morton Salt bridges, should the Contractor determine the need for a shoofly of the overhead APS power lines (see Subsection 105.6), the cost of the shoofly will be paid from the shoofly bid items.

The Contractor is responsible to contact APS to obtain the estimated cost of shoofly construction and shall include said cost in the bid proposal if the shoofly's are deemed necessary. If the Contractor does not require the shoofly due to construction methods to be applied, a bid of zero shall be entered for the shoofly items.

**Subsection 502.3 - Excavation**

The Contractor shall perform all excavation required for the shafts through whatever substances are encountered, to the dimensions and elevations shown on the project plans or required by the site conditions. The maximum deviation from plumb shall be not more than one percent, and the maximum permissible variation of the center axis at the top shall be three inches from its project plan location. Blasting methods shall not be used.

Any excavation beyond the dimensions shown on the project plans shall be filled with concrete at the Contractor's expense.

The project plans are indicative of anticipated subsurface conditions and depths where satisfactory bearing material may be encountered. The project plans may be used as a guide for the Contractor to become familiar with the site subsurface condition but shall not be construed as a warranty of the subsurface condition.

When the drilling operation reaches a point where caving conditions are encountered, no further

drilling will be allowed until a construction method is employed that will prevent excessive caving and which is acceptable to the Engineer. If a permanent steel casing is proposed, the shell shall be clean and shall extend to the top of the drilled shaft excavation. The inside diameter of the casing shall not be less than the specified size of the shaft.

If the Engineer determines that the amount of caving is within acceptable limits and the Contractor elects to drill under the same methods and procedures, the excavation outside the plan dimensions shall be filled with concrete at the Contractor's expense, regardless of the extent.

If the use of drilling slurry is to be employed, either with or without the use of casing, the Contractor shall use a method of construction which will allow completion of the drilled shaft in a continuous manner without any mixing of concrete and drilling slurry.

After the completion of the drilled shaft excavation and prior to the placement of the reinforcing steel cage and concrete, all slough and other loose material shall be machine cleaned from the shaft. A flight auger or other equipment, approved by the Engineer, shall be used for cleaning dry excavations where slurry or ground water is not present. Where slurry or ground water is present, the excavation shall be cleaned with a bucket auger or similar type of equipment, as approved by the Engineer.

Open excavations that are deemed by the Engineer to be potentially hazardous, shall be covered at the end of each shift in a manner approved by the Engineer.

#### **502.3.1 - Inspection**

Drilled shaft excavations will be inspected by the Engineer. The Contractor shall provide suitable equipment and facilities so that the Engineer may inspect completed excavations and check the shafts for alignment and dimensions.

Reinforcing steel and concrete shall not be placed in the drilled shaft excavation until the Engineer has made his inspection and given his approval.

#### **Subsection 502.4 - Measurement**

Drilled shafts will be measured by the linear foot from the actual bottom of the shaft, to the elevation of the top of the shaft as indicated on the project plans.

#### **Subsection 502.5 - Payment**

The accepted quantities of drilled shaft foundations, measured as provided above, will be paid for at the unit price bid per lineal foot, and shall be full payment for all labor, material, equipment, and appurtenances necessary for the drilling of the holes for the cast-in-place concrete shafts. Concrete and reinforcing steel will be paid for in Section 505.

**ITEM 502-1 - DRILLED SHAFTS (30 INCH)**

**ITEM 502-2 - DRILLED SHAFTS (24 INCH)**

The cost for each shoofly; at the Dysart Road and El Mirage Road bridges, and the Morton Salt bridge, will be paid at the lump sum price bid.

**ITEM 502-3 - DYSART ROAD SHOOFLY**

**ITEM 502-4 - EL MIRAGE ROAD SHOOFLY**

**ITEM 502-5 - MORTON SALT SHOOFLY**

## SECTION 505 - CONCRETE STRUCTURES

### **Subsection 505.1 - Description**

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

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

Class "AA" Concrete,  $f'c = 4,000$  psi, shall be used for the Dysart Road, El Mirage Road, and Morton Salt bridge superstructures, except barriers. *f'c = 4,000 psi*

Class "A" Concrete,  $f'c = 3,000$  psi, shall be used for the Dysart Road, El Mirage Road, and Morton Salt bridge abutments and piers, drilled shafts, barriers, and approach slabs, all concrete structures, including the channel lining.

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

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

An air entraining admixture shall be added to concrete in the Morton Salt bridge as specified on the plans and Section 725.6.

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 of the MAG Standard Specifications. Superstructure reinforcing steel in the Morton Salt bridge shall be epoxy coated per Section 727, unless noted otherwise.

Tempered hardboard shall conform to Federal Specification LLL-B-810, Type II, smooth one side, plain. Hardboard shall be 1/8-inch minimum thickness, unless shown or specified otherwise.

Expanded polystyrene shall be commercially available polystyrene board. Expanded polystyrene shall have a flexural strength of 35 pounds per square inch minimum determined in accordance with ASTM Designation C203, and a compressive yield strength of between 16 and 40 pounds per square inch, at 5 percent compression. When shown on the plans, surfaces of expanded polystyrene shall be faced with hardboard.

All boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

### **Subsection 505.5 - Placing Reinforcement**

The reinforcing steel cage for the drilled shaft, consisting of longitudinal bars and spiral hooping or lateral ties shall be completely assembled and placed into the shaft as a unit. Alternatively, when conflicts with the APS power lines are encountered, the Contractor may install the cage in sections as specified in the bridge plans. The reinforcing steel unit shall not be placed until immediately before concreting operations are to be started and shall be placed in accordance with the details shown on the project plans.

The drilled shaft reinforcing cage shall be adequately supported and anchored to prevent movement from the required location during and for four hours after completion of concrete placement. Spacers shall be at sufficient intervals along the shaft to insure concentric spacing for the entire length of shaft. The type of spacer used shall be approved by the Engineer.

If the drilled shaft is lengthened and the project plans indicate full depth reinforcement, the bars in the lower portion of the shaft shall be extended accordingly, to the bottom of the hole. These bars may be lap spliced or spliced by butt welding or other connecting procedures approved by the Engineer and in accordance with the requirements of Section 727.

#### **Subsection 505.6 - Placing Concrete**

Where concrete is placed in drilled shaft excavations containing bentonite slurry or water, the cement content of the concrete shall be between 658 and 752 pounds per cubic yard and the size of the coarse aggregate shall not exceed one inch.

Concrete shall be placed as soon as possible after the completion of the drilled shaft excavation and placement of the reinforcing steel cage. Concrete shall be placed in accordance with the requirements of Section 505 and as specified herein. Unless otherwise specified in the project documents, or as otherwise directed by the Engineer, the slump shall be 8 inches plus or minus one inch.

Prior to concrete placement, the Contractor shall make all necessary arrangements to assure the uninterrupted delivery of concrete so that all drilled shaft foundations will be constructed without cold joints.

For concrete placement in dry excavations for the drilled shafts, concrete shall be placed through suitable tube or tremie, or by pumping, to prevent segregation of materials.

Concrete vibration for the full height of the drilled shaft is not necessary to achieve proper consolidation of the concrete. However, all shafts shall be vibrated in at least the top ten feet.

#### **505.6.1 - Joints**

Joints in concrete bridge railing shall be sawcut within 24 hours of removal of forms.

#### **505.6.3 - Vertical Restrainers**

**Description:** The Contractor shall furnish and install restrainer units consisting of cables and assemblies and associated materials or components in accordance with the Standard Specifications.

Components required for each restrainer unit type will be detailed on the project plans and shall include various combinations of the following: cables, clips, #11 rebar, duct type, expanded polystyrene, hardboard and incidentals.

**Materials:** Cables shall be 3/4-inch diameter preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized ASTM A603 Class A coating, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 21 tons. Two certified copies of mill test reports of each manufactured lengths of cable used shall be furnished to the Engineer.

Free ends of cable restrainer units shall be securely wrapped at each end to prevent separation.

The cable assemblies shall be shipped as a complete unit.

One test loop assembly, galvanized, accompanied only with cable clips attached as shown in the details on the plans shall be furnished to the Engineer for testing. The test loop assembly shall be not less than 2'-3" or more than 2'-9" long when pulled taut.

**Construction requirements:** Restrainers shall be installed as indicated on the project plans.

The Contractor shall provide means of holding the cable assemblies in their planned positions.

The Contractor shall be responsible for determining the required length of the cable assemblies.

**Subsection 505.8 - Curing**

All concrete in bridge decks, approach slabs, top and bottom slabs of box culverts shall be water cured, utilizing the wet burlap method, unless otherwise permitted by the Engineer, and shall be kept continuously wet for 10 days.

No vehicular loads will be permitted on the bridges and approach slabs, and box culvert structures before the period of twenty-one (21) days from the date of the last pour of concrete unless approval is obtained in writing from the Engineer. In no case shall traffic be allowed on the structure until the specified concrete strength has been attained. The Contractor shall take special precautions to keep the area properly barricaded, lighted, and marked to prevent automotive traffic from crossing the new bridges prior to the Engineer's approval.

**Subsection 505.9 - Finishing Concrete**

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

**Subsection 505.10 - Payment**

Payment for concrete shall be made at the unit price bid per cubic yard.

**ITEM 505-1 - CLASS "AA" CONCRETE**

**ITEM 505-2 - CLASS "AA" CONCRETE (WITH ADMIXTURE)**

**ITEM 505-3 - CLASS "A" CONCRETE**

**ITEM 505-4 - CLASS "A" CONCRETE (WITH ADMIXTURE)**

Payment for reinforcing steel shall be made at the unit price bid per pound.

**ITEM 505-5 - REINFORCING STEEL (GRADE 60)**

**ITEM 505-6 - EPOXY COATED REINFORCING STEEL**

Payment for vertical restrainers shall be made at the unit price bid per each.

**ITEM 505-7 - VERTICAL RESTRAINERS**

Payment for headwalls shall be made at the unit price bid per each.

**ITEM 505-8 - HEADWALLS (MAG 501-1)**

Payment for concrete channel lining repair/replacement shall be made at the unit price bid per cubic yard and shall include full compensation for all labor, material, equipment, and appurtenances necessary for the construction of the channel lining in place including all concrete and reinforcing steel in accordance with the plans, details, and these specifications.

**ITEM 505-9 - CONCRETE CHANNEL LINING**

**SECTION 506 - PRECAST PRESTRESSED CONCRETE MEMBERS**

**Subsection 506.1 - Description**

The work under this section consists of furnishing and placing prestressed concrete girders for bridges in accordance with the plans and Section 506.

**506.1.1 - Elastomeric Bearings**

Elastomeric Bearings shall be steel reinforced conforming to Section 18.2 of the AASHTO Standard Specifications for Highway Bridges, Division II - Construction, 1992 Edition and Interims to date and the following:

The thickness of each bearing pad shall be as shown on the project plans. The bearings shall consist of N-1 internal elastomer laminates and N steel laminates where N is equal to the bearing pad thickness shown on the project plans divided by 1/2 inch. The steel laminates shall be 14 gauge and shall be spaced every 1/2 inch, center-to-center. The top and bottom steel laminates shall have 1/4 inch of elastomer cover as measured from the center of the steel laminate to the pad surface.

The elastomer shall be Type CR, Grade 2, with a Durometer Hardness of 55 plus or minus 5.

**Subsection 506.10 - Payment**

Payment for prestressed concrete girders shall be made at the unit price bid per each, and shall include all elastomeric bearings.

**ITEM 506 - PRESTRESSED CONCRETE GIRDERS**

**SECTION 515 - STEEL STRUCTURES**

**Subsection 515.1 - Description**

Work in this section shall consist of furnishing all labor, materials, and equipment for the installation of 24 inch steel carrier pipes in accordance with the plans and specifications.

Pipe shall be ASTM Specification A53 Grade B Extra Strong.

Pipe sections shall be welded to form a continuous pipe length.

Pipe welder will be certified.

Pipe shall be painted in accordance with MAG Sections 515.5 and 530. The second coat and final coat for the pipe shall be applied after erection of the pipe on the supports. The paint shall be paint number 10 (aluminum) as specified in MAG Section 790.

**Subsection 515.7 - Payment**

Payment for steel carrier pipes shall be made at the unit price bid per lineal foot, and shall be full compensation for furnishing and installing the steel carrier pipe and all appurtenant fittings and hardware as specified, including welding, painting, testing, and all incidental costs not specifically covered in other items.

**ITEM 515 - STEEL CARRIER PIPES**

**SECTION 520 - STEEL AND ALUMINUM HANDRAILS**

**Subsection 520.1 - Description**

This section applies to handrails on the Morton Salt Bridge.

**Subsection 520.5 - Payment**

Payment for handrails shall be made at the unit price bid per lineal foot.

**ITEM 520 - HANDRAILS**

**SECTION 610 - WATER LINE CONSTRUCTION**

**Subsection 610.3 - Materials**

Location	Dysart Road
Purpose	Reclaimed water line
Type	PVC Pressure Pipe (AWWA C905)
Diameter	16 inch
Pressure Rating	PR 165
Dimension Ratio	DR 25
Joints	Elastomeric-Gasket

Location	Dysart Road
Purpose	Residential irrigation line
Type	PVC Plastic Pipe (ASTM D2241)
Diameter	3 inch
Pressure Rating	160 psi
Dimension Ratio	SDR 26
Joints	Rubber ring bell and spigot (ASTM D3139)

**Subsection 610.9 - Connecting to Existing Mains**

The reclaimed water line at Dysart Road will be replaced in kind with similar PVC materials. An appropriate PVC connection will be required.

**Subsection 610.18 - Measurement and Payment**

Payment for water line construction will be made at the unit price bid per lineal foot for each type and size of pipe, and will include all trenching, bedding, backfill, materials, and other items incidental to the installation of the water lines.

**ITEM 610-1 - WATERLINE, 3" (ASTM D2241)**

**ITEM 610-2 - RECLAIMED WATER LINE, 16" (AWWA C-905)**

**SECTION 725 - PORTLAND CEMENT CONCRETE**

### **Subsection 725.2 - Portland Cement**

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

### **Subsection 725.6 - Admixtures**

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

Corrosion inhibiting admixtures shall conform to ASTM C-494, Type C, or AASHTO M-194, Type C. Addition rates shall be as recommended by the manufacturer and approved by the Engineer.

## **SECTION 727 - STEEL REINFORCEMENT**

### **Subsection 727.5 - Epoxy Coated Reinforcement**

The requirements of this subsection for epoxy-coated reinforcement are in addition to the previous requirements which apply to un-coated reinforcement.

Epoxy coated reinforcing shall conform with ASTM A-775 and shall have a fusion bonded epoxy coating with the epoxy applied to the preheated steel as a dry powder which melts and cures to a uniform coating thickness. Scotchkote 143 by 3M Company is an acceptable product. Equivalent products from other manufacturers may be used with the Engineer's approval.

All handling systems for coated bars shall have padded contact areas for the bars wherever possible. All bundling bands shall be padded and all bundles shall be lifted with a strong back, multiple supports or a platform bridge so as to prevent bar to bar abrasions from sags in the bars bundle. The bars or bundles shall not be dropped or dragged.

All hardware that will remain permanently in concrete using epoxy-coated reinforcement shall be made of or coated with a dielectric material. Such hardware includes reinforcement chairs, tie wires, screened rail supports, or any other item that would be a potential source of corrosion. The specific hardware that the Contractor proposes to use shall be approved by the Engineer.

The Contractor shall be required to field repair damaged areas of the coating, and to replace items exhibiting severely damaged coatings. The material used for field repair shall be that supplied by the coating applicator.

Field repair shall be required wherever the area of coating damage exceeds two percent of the surface area of the bar in a one foot length and the damage spot is larger than 1/4 inch by 1/4 inch.

Field repair will not be allowed on bars which have severely damaged coatings. A severely damaged coating is defined as a coating which has a total area greater than five percent of the surface area of the reinforcing bar. The Engineer shall be the sole determinator of the severity of damaged area for purposes of repair or replacement. A reinforcing bar having a coating determined by the Engineer to be severely damaged shall not be incorporated in the work and it shall be removed from the work site. All such bars shall be replaced in kind by the Contractor at no additional cost to the District.

**DETENTION BASIN AND COLLECTOR CHANNELS**

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
CONTRACT FCD 94-15  
DYSART DRAIN IMPROVEMENTS PROJECT**

**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, latest revision, together with the Maricopa County Department of Transportation (MCDOT) Supplements to the Uniform Standard Details.

**PRECEDENCE OF CONTRACT DOCUMENTS**

In case of a discrepancy or conflict, Project Plans will govern over the MAG Standard Specifications and Details, and the Maricopa County Department of Transportation Supplements to the Uniform Standard Details. The Supplementary General Conditions and Construction Special Provisions will govern over the MAG Standard Specifications and Details, the Maricopa County Department of Transportation Supplements to the Uniform Standard Details, and the Project Plans, and Change Orders will govern over the Supplementary General Conditions, Construction Special Provisions, MAG Standard Specifications and Details, Maricopa County Department of Transportation Supplements to the Uniform Standard Details, and Project Plans.

**Subsection 101.2 - Definitions and Terms:**

1. Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the Flood Control District of Maricopa County.
2. Change the definition of the phrase "Budget Project" to being a project financed by funds set aside in the annual budget or otherwise approved by the Flood Control District of Maricopa County Board of Directors.
3. Add to the definition of the phrase "Contract Documents", the phrase "Supplementary General Conditions".
4. Change the definition of the term "Engineer" to being the person appointed by the Flood Control District of Maricopa County Board of Directors to the office of Chief Engineer and General Manager of the Flood Control District of Maricopa County acting directly or through its authorized representative, the Chief of the Flood Control District of Maricopa County Construction and Operations Division.
5. Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that it is the successful bidder and the Flood Control District of Maricopa County has accepted its proposal.
6. Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through its legally constituted officials, officers, or employees.
7. Whenever the word "District" is used in these Specifications, it shall mean the Flood Control District of Maricopa County.

8. 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.
9. 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 102.5 - Preparation of Proposal:** Add the following:

Proposals, including the Bidding Schedule, must be legibly written in ink or typed.

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, **must 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 and show appropriate changes to the Bidding Schedule, and receipt of addenda acknowledged in the Proposal shall be invalid.**

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

**Subsection 102.6 - SubContractors' List:** Add the following:

A list of subContractors to be employed on the project shall be submitted with the bid, on the form provided in the Proposal. No change of the subContractors named therein will be made unless first approved in writing by Owner.

**Subsection 102.7 - Irregular Proposals:** Add the following :

(F) If bidder fails to complete and submit the Maricopa County Minority and Women-Owned Business Enterprises Assurances Affidavit, the bid will be considered nonresponsive and rejected.

(G) If bidder fails to acknowledge AND attach any addendum issued, if addendum is not already bound into the Specifications, the bid will be considered nonresponsive and rejected.

(H) If bidder fails to utilize Owner's bond forms, the bid will be considered nonresponsive and rejected.

(I) If bidder fails to return the entire specifications document, the bid will be considered nonresponsive and rejected.

**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 or one of equal wording, that names the additional insureds as set out in the Certificate. The Certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form.

**Subsection 103.6.1(D) - Contractor's Insurance:** Add 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 on Page 30 of 30 of the Contract Documents.

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

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

Add the following to 104.1.2:

Reems Road may be closed for up to 120 days each for roadway construction. The Contractor shall submit a traffic control and signing and striping plan for approval by MCDOT and the Engineer prior to road closure.

**Subsection 104.2 - Alteration of Work:** Add the following to 104.2.2:

The soil boring logs and geotechnical report are available for review at the District, and the Contractors are encourage to do so. No guarantee is made of the accuracy of the boring logs in the soils report. The Contractor shall make his own determination as to soil and subsurface conditions and shall complete his work in whatever material and under whatever condition he may encounter or create, without extra cost (except as modified in MAG). 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 105.1 - Authority of Engineer:** Add the following:

105.1.1 - Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subsections 105.3.1 and 106.4. 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 105.3 - 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 105.6 - Cooperation with Utilities:** Add the following:

An attempt has been made to determine the location of all underground utilities and drainage pipes, culverts, and structures; however, it shall be Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. Should Contractors operations result in damage to any utility the location of which has been brought to its attention, he shall assume full responsibility for such damage. Contractor shall contact Arizona Blue Stake (telephone number 263-1100) a minimum of two (2) working days before beginning any underground work. In addition, Blue Stake notification(s) shall be maintained on a current basis.

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

Arizona Public Service Company	
Mr. John Herrera	(602) 371-6942
Insight Communications	
Mr. Kenny Taggart	(602) 780-2222
Southwest Gas	
Mr. Terry Hughes	(602) 484-5257
U.S. West Communications (USWest)	
Mr. Curt Sayer	(602) 831-4777
Ms. Beth Wood	(602)395-2402
Luke Air Force Base	
Mr. Bill Meloche	(602) 856-6394
Mr. Zane Hoit	(602) 856-7634

In addition to the utility coordination normally required, the following specific utility coordination is required:

**IRRIGATION AND FARM FACILITIES:** The project is located within an agricultural area and numerous irrigation delivery ditches and tailwater ditches and underground pumpback lines are parallel to, cross, or are adjacent to the project limits. In all cases, existing irrigation facilities must be protected-in-place and maintained in operation at all times so as not to adversely impact agricultural activities. The relocation and/or reconstruction of irrigation facilities required as part of the project must be done in such a manner so as to not interrupt the existing irrigation services. This may require that certain ditches and pipes be temporarily rerouted to maintain service while the replacement facility is constructed.

There are two existing "farm service roads", one located along the north side of the detention basin and associated spoil area (Butler Drive alignment at the mid-section line), and one which crosses the East Collector Channel one quarter mile south of Olive Avenue. These roads must be maintained and accessible to the farm operations at all times during construction. It may be necessary to temporarily reroute these farm roads during construction of project features.

In all cases, the costs associated with the rerouting and/or temporary relocation of existing irrigation and farm facilities will be incidental to the appropriate project feature being constructed, and no separate payment for such activity will be made.

The Contractor will provide a minimum of 7 calendar days advance notice to the owner of the irrigation and farm road facilities which will be impacted, prior to the Contractor impacting the facilities. The following owners will be contacted as required:

Mr. Dudley Greer at 936-3762; for all irrigation facilities impacted by the detention basin and associated spoil areas.

Mr. Leyton Woolf at 935-5887; for all irrigation facilities impacted by the East Collector Channel north of the detention basin.

**Subsection 105.8 - Construction Stakes, Lines, and Grades** Add the following:  
 \*\*\*\*\* NEED INPUT FROM C&O \*\*\*\*\*

- A. The Engineer will set the project survey control line which the construction Contractor will use to set line and grade for all construction. The control line shall consist of one (1) alignment staking at an

interval appropriate to the project requirements and two (2) equivalent controls, both of which shall be at frequent enough intervals to maintain a line of sight between staking. 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.

**Subsection 106.1 - Source of Materials and Quality:** Add the following:

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

**Subsection 106.4 - Trade Names and Substitutions:** Replace with the following:

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quantity required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be accepted by Engineer under the following circumstances:

A) "Or-Equal": If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

B) Substitute Items: If in Engineer's sole discretion an item does not qualify as an "or-equal" item under subparagraph 106.4 (A), it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by Engineer will include the following and may be supplemented in the Special Provisions and as Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

C) Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or

substitute item will be at Contractor's expense.

**Subsection 106.5 - Contractors Marshaling Yards:** Add the following:

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

The Contractor will grade all Temporary Construction Easements (TCE) to a condition similar to or better than the pre-existing condition. Where TCE's exist on agricultural lands, the Contractor will exercise extreme care to not interrupt or interfere with agricultural activities. This may include the need to reconstruct existing irrigation features and farm roads, etc.

**Subsection 107.1 - Laws to be Observed:** Add the following Paragraph (G):

(G) Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations (29 CFR Part 5). Contractor shall also comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including CFR Parts 35 and 36.

**Subsection 107.2 - Permits:** Replace with the following:

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

**Subsection 107.2.1 - NPDES Permit Requirements:** Add the following:

- A. This project is subject to the National Pollutant Discharge Elimination System (NPDES) Stormwater 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 stormwater 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. Stormwater Pollution Prevention Plan (SWPPP) for the project, including certification of compliance form. Contractor shall be required to develop, implement, update and revise the SWPPP, as necessary, in order to assure compliance with the EPA permit requirements. The SWPPP shall be retained on the project site at all times during construction.
  2. Notice of Intent (NOI) to assure compliance with the NPDES General Permit for Arizona, including certification of signatures.
  3. Notice of Termination (NOT) of coverage under NPDES General Permit for Arizona.
- B. Preliminary copies of the NOI and the SWPPP shall be submitted to Owner during the preconstruction meeting and shall be subject to review by Owner prior to implementation.
- C. Contractor shall submit the completed and duly signed NOI forms no later than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

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

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

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

Maricopa County, Current Planning  
Planning & Development Division  
301 West Jefferson, Third Floor  
Phoenix, Arizona 85003  
(602) 506-3301

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 stormwater 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 stormwater pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project.
- E. Contractor warrants that its employees and subContractors of any tier and their employees shall at all times comply with all applicable laws, ordinances, statutes, rules and regulations set forth by all federal, state and local governments and the Environmental Protection Agency in connection with NPDES Permitting requirements and laws and regulations pertaining to air, groundwater and surface water quality.
- Fines and penalties imposed by the EPA against Owner or the Contractor, for Contractor's failure to comply with any of the requirements of NPDES General Permit of Arizona, shall be borne by the Contractor.
- F. Upon project completion, acceptance and demobilization, Contractor shall submit its completed, duly executed NOT form to the EPA, with a copy to the Arizona Department of Environmental Quality (and the appropriate municipality), at the address listed in Section (B) above, thereby terminating all NPDES permit coverage for the project. Contractor shall then surrender to Owner copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance of the NPDES General Permit. Contractor shall retain the originals of such documents for a period of three (3) years following the completion of the project.
- G. The Lump Sum price for the SWPPP shall include all material, labor, and all other costs relating to the preparation, installation and maintenance of the SWPPP during project construction, including assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events, runoff or releases on the project. The Lump Sum price for the SWPPP shall be inclusive of all costs, and no additional claims shall be made by Contractor under any other specification provision of these documents, including Change Conditions. Payment for this bid item shall be upon final completion and acceptance of the project, as per Section 109.1.

H. Copies of all required forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control". The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009.

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

**ITEM 107 - 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 authorized officer and the Engineer. An evaluation of the discovery will be made by the authorized officer and 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 - Contractor Health & Safety Provisions:** Add the following:

Due to excessive noise generated by low flying aircraft, the Contractor and/or any subContractors shall provide double hearing protection for all employees working in the vicinity of the end of the runways at LAFB.

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

Contractor is advised that Reems Road is a principal carrier of runoff in the event of rainfall. If runoff rates exceed the capacity of Reems Road, flows will overtop the curbs and flow overland across the detention basin site. Owner assumes no responsibility for notifying Contractor of any anticipated flows in these features, nor for any damages incurred by Contractor to its equipment or to any of the Contractor's work as a result of any flows of water, as described below:

**\*\*\*\* DON, HOW DO YOU WANT TO HANDLE THIS? \*\*\*\***

A. The Contractor shall be responsible for controlling and handling stormwater and other flows throughout the construction site, both surface drainage and channel flows, except channel flows which exceed \*\*\*\*\* 150 cfs \*\*\*\*\* as measured by gages as described below. When measured channel flows exceed \*\*\*\*\* 150 cfs \*\*\*\*\* and result in damage to the work site, the owner will pay actual cost of damage repair. Actual cost is defined as materials, labor, and equipment utilized to restore damaged work area(s). Payment for damage repair work will be in accordance with Section 109.5 of MAG Specifications, titled Actual Cost Work. No other compensation will be considered or

allowed, including home office or job site overhead.

**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 \*\*\*\*\* \_\_\_\_\_ (XXX) \*\*\*\*\* 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 progress schedule to Engineer for review before starting work. Weekly updates shall be submitted to Owner's Inspector at the weekly coordination meeting.

**Subsection 108.5 - Limitation of Operations:** Add the following:

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

**Subsection 108.9 - Failure to Complete on Time:** Add the following:

The actual cost per calendar day incurred by Owner for 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.

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

(C) Contractor's pay estimates will be initially processed by Owners's Construction and Operations Division on a Tuesday, Tuesdays being the only day Contractor may submit a pay estimate.

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
CONTRACT FCD 94-15  
DYSART DRAIN IMPROVEMENTS PROJECT**

**SPECIAL PROVISIONS**

**SECTION 201 - CLEARING AND GRUBBING**

**Subsection 201.5 - Payment**

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

**SECTION 202 - MOBILIZATION**

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.

**Subsection 202.1 - Payment**

Payment shall be made at the contract lump sum price bid and shall be full compensation for supplying and furnishing all materials, facilities, and services for performing all the work involved as specified herein.

**ITEM 202 - MOBILIZATION**

**SECTION 205 - ROADWAY EXCAVATION**

**Subsection 205.2 - Unsuitable Material**

In bituminous paved areas, the moisture content of the subgrade and backfill should be maintained at 2 percent below optimum or lower during site grading to reduce the potential for pumping. If in-situ moisture contents are higher than this at the time of construction, pumping may occur, and special precautions should be taken to prevent disturbance, equipment mobility problems, and loss of shear strength in the subgrade. These precautions may include spreading and drying of wet soils, removal and replacement of wet soils, construction of temporary gravel roads at channelized traffic areas, and/or use of lighter compaction equipment.

**Subsection 205.8 - Payment**

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

**SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL**

**Subsection 206.2 - Foundation Material Treatment**

Foundation bearing surfaces shall be free of debris and water softened materials prior to placing

concrete and reinforcing steel. All foundation excavations shall be reviewed by the Engineer prior to placing the foundation material. Any loose or disturbed zones should be removed and replaced with compacted fill or lean concrete.

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

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

The design of bracing systems shall be reviewed by the Engineer prior to use.

#### **Subsection 206.4 - Structural Backfill**

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

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

Backfill behind subsurface walls designed to support utilities, pavement, channels, or other facilities should be compacted to density criteria from Section 211. Backfills should consist of granular soils, free of vegetation, debris, organic contaminants, and fragments larger than 6 inches in size, which exhibit low expansive potentials. On-site soils may be used in structural fills or backfills more than 3 feet below the final grade. High plasticity on-site soils may not be used in structural fills or backfills.

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

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

Maximum Particle size: 6 inches\*

Maximum percent expansion: 1.5\*\*

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

\*\* Performed on sample remolded to 95 percent of the maximum ASTM D698 density and 2 percent below optimum moisture under a 100 psf surcharge pressure.

#### **Subsection 206.5 - Payment**

No payment will be made for structure excavation and backfill as such; the cost thereof shall be

included in the price bid for the construction or installation of the items to which such excavation and backfill are incidental or appurtenant.

**SECTION 211 - FILL CONSTRUCTION**

**Subsection 211.2 - Placing**

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

**Subsection 211.3 - Compacting**

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

<u>Material</u>	<u>Minimum Percent Compaction (ASTM D698)</u>
Subgrade Soil:	
Below structural elements	95
Below Pavement	95
Backfill:	
Below channel lining	95
Channel berms	95
Aggregate base course:	
Below channel lining	95
Below pavement	100
Fill:	
Detention basin spoil areas	85

Compaction of on site soils in scarified zones or in new fills more than 3 feet below final grade should be accomplished at a moisture content between optimum and optimum plus 3 percent. Compaction of granular imported soil below the channel lining, box culverts, or footings should be accomplished at a moisture content between optimum minus 3 percent and optimum plus 3 percent. Compaction of exposed soil and fill material within 3 feet of asphalt pavement should be accomplished at a moisture content 2 percent below optimum or lower.

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

**Subsection 211.6 - Payment**

Fill construction shall be paid for at the unit price bid per cubic yard. This bid item does not include structure backfill, which is part of Section 206 herein, or placement of detention basin spoil in fill, which is part of Section 215.

**ITEM 211 - FILL CONSTRUCTION**

**SECTION 215 - EARTHWORK FOR OPEN CHANNELS**

**Subsection 215.1 - Description**

The work in this section consists of clearing, stripping, excavation, overexcavation, fill, backfill, grading, and disposal of excavated and removed material for the construction of channels and the detention basin.

**Subsection 215.7 - Measurement**

Measurement for excavation and spoil of material on site for the detention basin 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 of the spoil areas. The Engineer will compute the quantities of excavation by a method which in his opinion is best suited to obtain an accurate determination.

**Subsection 215.8 - Payment**

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

**ITEM 215-1 - CHANNEL EXCAVATION**

Payment for excavation and spoil of material on site for detention basin shall be made on the basis of the price bid per cubic yard for excavation.

**ITEM 215-2 - DETENTION BASIN EXCAVATION****SECTION 220 - RIPRAP CONSTRUCTION****Subsection 220.1 - Description**

The construction of riprap shall consist of furnishing and placing bedding, stone, grout, and drains as shown on the plans and specified in the special provisions. Sacked concrete riprap shall not be allowed. Grouted riprap is specified as Type I or II as shown on the plans and specified here and in Section 703.

**Subsection 220.2 - Materials**

Concrete for grouted riprap Types I and II shall be an approved batch per MAG Standard Specifications and shall develop a minimum 2,000 psi compressive strength within 28 days. Add 1.5 pounds per cubic yard FIBERMESH, or approved equal, fibrous reinforcing.

**Subsection 220.5 - Grouted Riprap**

Excavate for placement of grouted riprap as indicated. Placement methods will minimize disturbance of the subgrade. Machine place stones into position following details indicated. Wash the stone free of fines or soil which would affect the grout bond. The concrete grout shall be placed by injection methods by pumping under low pressure, positive displacement methods, through a 2-inch maximum diameter hose to ensure complete penetration of the grout into the stone layer. The voids at the surface, as detailed on the drawings, will not be grouted unless designated. Grout thickness shall be 6 inches.

The operator shall be able to stop the flow and will place grout in the voids and not on the surface rock. Clean and wash any spillage before the grout sets. A "pencil" vibrator will be used to make sure all voids are filled between and under rock. The intent is to fill all voids from the subgrade level through the rock layer. In all cases, grout must penetrate to subgrade. The pencil vibrator may be used to smooth the appearance of the surface, but the Contractor shall use a wood float to

smooth and grade the grout to drain. The grout mix shall be stiffened and other measures taken to retain the grout in steep locations.

**Subsection 220.8 - Payment**

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

**ITEM 220-1 - GROUTED RIPRAP TYPE I**

**ITEM 220-2 - GROUTED RIPRAP TYPE II**

**SECTION 301 - SUBGRADE PREPARATION**

**Subsection 301.1 - Description**

In addition to the items described in Section 301.1 of the MAG Standard Specifications, the work includes preparation of surfaces and compaction of dirt farm roads and maintenance access roads.

**Subsection 301.8 - Payment**

Payment for subgrade preparation shall be made on the basis of price bid per square yard.

**ITEM 301 - SUBGRADE PREPARATION**

**SECTION 310 - UNTREATED BASE**

**Subsection 310.4 - Payment**

Payment for untreated base shall be made on the basis of the price bid per ton.

**ITEM 310 - AGGREGATE BASE COURSE**

**SECTION 311 - SOIL CEMENT BASE COURSE**

**Subsection 311.1 - Description**

The work under this section consists of preparation of surfaces and placement of soil cement along Reems Road as shown on the plans and details.

**Subsection 311.2 - Materials**

Material for soil cement shall not contain material which would be retained on a 2 inch sieve, and should not have a plasticity index above 15.

**Subsection 311.4 - Construction Methods**

**311.4.1 - Pulverizing**

Depth of soil cement base shall be 12 inches or as shown on the plans.

**311.4.2 - Application of Cement**

**\*\*\*\*\* ADD QUANTITY OF CEMENT PER GEOTECH RECOMMENDATIONS**

**\*\*\*\*\***

**311.4.5 - Compaction**

The density of the final product shall be not less than 96% as determined by AASHTO T-134 or ASTM D-558.

**Subsection 311.5 - Measurement**

Measurement of soil cement will be the number of square yards constructed to the required depth, completed and accepted. No separate measurement will be made for portland cement mixed with the local soil.

**Subsection 311.6 - Payment**

Payment for soil cement base course shall be made on the basis of the price bid per square yard. No measurement or payment will be made for any imported earth materials.

**ITEM 311 - SOIL CEMENT**

**SECTION 315 - BITUMINOUS PRIME COAT**

**Subsection 315.2 Materials**

The bituminous material shall be Grade MC-70 or MC-250 liquid asphalt as determined by the Engineer. Prime coat shall be applied to the total width of the aggregate base material at the rate of 0.40 gallons per square yard unless otherwise specified by the Engineer. Prime coat shall be allowed to penetrate for not less than forty-eight (48) hours prior to beginning asphalt concrete paving.

**Subsection 315.5 Payment**

Payment for bituminous prime coat shall be made on the basis of price bid per ton.

**ITEM 315 - BITUMINOUS PRIME COAT**

**SECTION 321 - ASPHALT CONCRETE PAVEMENT**

**Subsection 321.2 - Materials and Manufacture**

Type	C-3/4
Mineral Filler	Portland Cement (1-1/2% by weight)
Asphalt Cement	AC-20. ***** <b><u>GET RECOMMENDATION FROM</u></b>
<b><u>GEOTECH*****</u></b>	

In addition to pugmill type mixing plants, drum dryer mixers will be allowed in accordance with Standard Specification 710.9. The moisture content of the bituminous mixture immediately behind the paver shall not exceed three (3%) percent.

The proper proportioning of the material at the cold feed shall be determined by the Contractor and approved by the Engineer prior to production of asphaltic concrete. Production shall not commence until calibration tests indicate an acceptable product can be obtained.

The correct proportions of each aggregate size introduced into the mixer shall be drawn from the storage bins by an approved type of continuous feeder which shall supply the correct amount of aggregate in proportion to the bituminous material and shall be so arranged that the proportion of each aggregate size can be separately adjusted. The continuous feeder for the aggregate may be mechanically or electrically activated.

The plant shall be equipped with a sampling device to take representative composite samples of the cold feed. If tests indicate non-compliance with specifications, operation shall cease until proper corrections have been made.

The production of the plant shall be governed by the rate required to obtain a thorough and uniform mixture of materials. Mixing shall continue until the uniformity of coating, when tested in accordance with AASHTO T-195, is at least ninety-five (95%) percent.

The Contractor will be required to furnish to the Engineer certified weight tickets covering all of the asphalt concrete placed on the project.

Where the compacted thickness of the asphaltic pavement course is designated as three (3) inches or less, the asphalt may be placed in one lift.

**Subsection 321.9 - Payment**

Payment for asphaltic concrete shall be made on the basis of price bid per ton.

**ITEM 321 - ASPHALTIC CONCRETE PAVEMENT (C-3/4)**

**SECTION 329 - TACK COAT**

**Subsection 329.7 - Payment**

Payment for the emulsified bituminous tack coat will be by the ton, diluted.

**ITEM 329 - BITUMINOUS TACK COAT**

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

**Subsection 340.6 - Payment**

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

**ITEM 340 - CONCRETE CURB**

**SECTION 350 - REMOVAL OF EXISTING IMPROVEMENTS**

**Subsection 350.1 - Description**

Removal of existing improvements shall conform to Section 350 of the MAG Standard Specifications except as modified herein. The work includes the removal and disposal of existing structures, pavement, and any other obstacles to construction, unless it is specifically called out on the plans to be removed and relocated. Holes, cavities and trenches resulting from the removal of structures shall be backfilled in accordance with Sections 206 and 211.

*does this include old channel lining*

The disposal of all waste material removed under this item shall be the responsibility of the Contractor. The disposal site shall be approved by the Engineer.

If a Maricopa County landfill is selected for disposition of waste materials and/or debris, a Maricopa County Landfill Use Permit will be required. Application for permit can be made at the Maricopa County Landfill Office, located at 3325 West Durango Street, Phoenix, Arizona 85009 (telephone (602) 269-2661). Charges will be levied on a volume basis for each load delivered to the landfill in accordance with the current fee schedule.

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

Weigh tickets from all landfill disposal must be furnished to the Engineer.

#### **Subsection 350.4 - Payment**

Payment for removal and disposal of the existing structures shall be made on the basis of the lump sum price bid, and shall include full payment for removal and disposal of box culverts, head walls, retaining walls, and other structures to be removed as shown on the plans or encountered in the field.

#### **ITEM 350-1 - REMOVE STRUCTURES**

Payment for removal and disposal of existing AC pavement shall be made on the basis of the lump sum price bid.

#### **ITEM 350-2 - REMOVE AC PAVEMENT**

Payment for all miscellaneous removals required for construction of the project shall be made on the basis of the lump sum price bid, and shall include as a minimum, removal and disposal of pipe culverts, irrigation ditches and boxes, riprap, curb and gutter, miscellaneous utilities and remnants abandoned within the area of construction, and other items as required.

#### **ITEM 350-3 - MISCELLANEOUS REMOVALS**

### **SECTION 401 - TRAFFIC CONTROL**

Traffic control shall conform with these Special Provisions, Part VI of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), US DOT Federal Highway Administration with current revisions, the City of Phoenix Traffic Manual, and/or as directed by the MCDOT Traffic Engineer or his representative.

It shall be the Contractor's responsibility to provide, erect and maintain all necessary signs, barricades, striping, striping removal, barriers, berms, lights, delineators, uniformed officers, flag men and any other necessary devices to properly mark and control the construction areas. The Contractor has the responsibility for protecting the work, the workmen and the traveling public at all times.

A road closure of Reems Road for a period not to exceed one hundred and twenty (120) calendar days is authorized. Two (2) weeks prior to closure, the Contractor shall place advisory signs with road closure information including closure date and the expected duration of closure. These signs shall be placed at the first north and south major intersection from the roadway construction site.

All advance warning construction signs shall be mounted on channels driven into the ground. Each mile and 1/2 mile point of the project shall be signed with construction and speed limit signs mounted on channels driven into the ground and placed in locations where they will not be removed by construction.

The final striping and signing of the road shall be done by MCDOT, and shall not be commenced or installed until all shoulders have been dressed to cover the edge of pavement drop off. The

Contractor will give MCDOT a minimum of two (2) weeks notice as to when the signing and striping can be done.

Prior to any excavation or construction, the Contractor shall install and maintain deceleration washed sand berms (approximately five (5') feet high) on each approach of traffic to the roadway construction site. Sand berms shall remain until the road is open to traffic.

At the time of the pre-construction conference, the Contractor shall submit for review and approval traffic control plans for Reems Road detailing the necessary construction signing and safety measures.

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

**Subsection 401.7 - Payment**

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

**ITEM 401 - TRAFFIC CONTROL**

**SECTION 405 - MONUMENTS**

**Subsection 405.5 - Payment**

Payment for survey monuments shall be made on the basis of the price bid per each.

**ITEM 405 - SURVEY MONUMENTS (MAG 120-2, TYPE E)**

**SECTION 421 - WIRE FENCES**

**Subsection 421.1 - Description**

The work under this section shall consist of furnishing all materials and constructing plain wire fence and gates at the locations and in accordance with the details shown on the plans. Fences and gates shall be of the types and sizes shown on the plans and shall be constructed in accordance with the requirements of these specifications.

**Subsection 421.2 - Materials**

Barbed wire shall be 12-1/2 gauge steel wire with 4 point 14 gauge barbs spaced five inches apart and shall be either zinc-coated or aluminum coated. Plain wire shall be the same as the barbed wire but without the barbs. 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 I, Class 1 coating.

Posts, rails, braces and bars shall conform to Section 772.2, Type A.

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

**Subsection 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 the fences, unless the Engineer orders certain trees to

remain in place. Clearing the fence line shall be along and within the project right-of-way. Disposal of removed material shall be in accordance with the requirements of Section 201.

Fence shall be constructed along and up to twelve (12) inches 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 on the plans.

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 posts 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 and 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 on the plans.

Changes in the horizontal alignment of the fence line where the angle of deflection is fifteen (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 fifteen (15) degrees but more than five (5) degrees shall be considered as alignment angles and diagonal tension wires shall be installed. The diagonal tension wires shall consist of two (2) twisted steel wires and shall be attached to the adjacent posts.

Where the fence line intersects a cross fence, the wires for the existing cross fence shall connect to an end post assembly as shown on the plans. Connecting fence assemblies with braces for every direction of strain shall be placed at the junction with new fences.

Intermediate post assemblies shall be installed at not more than five hundred (500) 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 suited 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 (2) splices of wire will be permitted between post assemblies, but not on the same wire. No splice shall be placed closer than one hundred (100) feet to any post assembly.

Where fence lines are interrupted by openings for gates, 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 the post assemblies, all longitudinal wires shall be attached to each intervening line post at the height and spacing as shown on the plans. The distance from the bottom wire to the ground may vary at any one point from that shown on the plans four (4) 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 plans for each type of fence. 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 or the fence wires shall be weighted with concrete sag weights. The volume of concrete required to anchor the posts shall be not less than one (1) cubic foot. Fence sag weights shall weigh not less than one hundred (100) pounds and shall be made with a wire loop hanger embedded in the concrete. A double strand of wire shall be attached to each horizontal line of wire and tied to the wire loop hanger of the sag weight.

**Subsection 421.4 - Measurement**

Wire fence shall be measured on the fence line along the top of the completed fence from center of end posts, deducting the widths of gates and openings.

**Subsection 421.5 - Payment**

Payment shall be made at the contract price bid per lineal foot, and shall be full compensation for furnishing and installing the wire fence as specified, including removal of obstructions and all incidental costs not specifically covered in other items.

**ITEM 421-1 - WIRE FENCE**

Payment for gates shall be made at the contract price bid per each, and shall be full compensation for furnishing and installing the gate as specified, including all incidental costs not specifically covered in other items.

**ITEM 421-2 - WIRE FENCE GATES**

**SECTION 505 - CONCRETE STRUCTURES**

**Subsection 505.1 - Description**

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

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

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

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

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 of the MAG Standard Specifications.

Tempered hardboard shall conform to Federal Specification LLL-B-810, Type II, smooth one side, plain. Hardboard shall be 1/8-inch minimum thickness, unless shown or specified otherwise.

Expanded polystyrene shall be commercially available polystyrene board. Expanded polystyrene shall have a flexural strength of 35 pounds per square inch minimum determined in accordance with ASTM Designation C203, and a compressive yield strength of between 16 and 40 pounds per square inch, at 5 percent compression. When shown on the plans, surfaces of expanded polystyrene shall be faced with hardboard.

All boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

#### **505.6.1 - Joints**

Construction joints for the concrete channel shall be located at the end of a day's pour or when concrete placement stops for more than 45 minutes. Reinforcing steel shall be continuous through lining construction joints for a minimum of 1'-6" beyond the end of pour unless noted otherwise on the plans. The end of the pour shall be a roughened surface.

No expansion or contraction joints will be used for the channel lining.

#### **Subsection 505.8 - Curing**

All concrete in top and bottom slabs of box culverts shall be water cured, utilizing the wet burlap method, unless otherwise permitted by the Engineer, and shall be kept continuously wet for 10 days.

No vehicular loads will be permitted on the box culvert structures before the period of twenty-one (21) days from the date of the last pour of concrete unless approval is obtained in writing from the Engineer. In no case shall traffic be allowed on the structure until the specified concrete strength has been attained. The Contractor shall take special precautions to keep the area properly barricaded, lighted, and marked to prevent automotive traffic from crossing the new box culvert structures prior to the Engineer's approval.

#### **Subsection 505.9 - Finishing Concrete**

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

#### **Subsection 505.10 - Payment**

Payment for concrete shall be made at the unit price bid per cubic yard.

**ITEM 505-1 - CLASS "A" CONCRETE**

**ITEM 505-2 - CLASS "B" CONCRETE**

Payment for reinforcing steel shall be made at the unit price bid per pound.

**ITEM 505-3 - REINFORCING STEEL**

Payment for concrete channel lining shall be measured to neat lines and made at the unit price bid per square yard, and shall include full compensation for all labor, material, equipment, and appurtenances necessary for the construction of the channel lining in place including all concrete and reinforcing steel according to the plans, details, and these specifications.

**ITEM 505-4 - CONCRETE CHANNEL LINING**

Payment for concrete structures shall be made at the unit price bid per each, complete in place.

**ITEM 505-5 - CONCRETE CATCH BASIN MAG 501**

**ITEM 505-6 - CONCRETE CATCH BASIN ADOT C-15.80**

**ITEM 505-7 - CONCRETE OUTLET WINGS ADOT B-04.10**

**ITEM 505-8 - CONCRETE INLET WINGS ADOT B-04.30**

**SECTION 525 - PNEUMATICALLY PLACED MORTAR**

**Subsection 525.12 - Payment**

Payment for pneumatically placed mortar shall be made at the unit price bid per square yard.

**ITEM 525 - SHOTCRETE (3 inch)**

**SECTION 609 - WELL CLOSURE**

**Subsection 609.1 - Description**

The work in this section consists of sealing an existing abandoned ground water well with a 20" casing located at the northwest corner of the detention basin and spoil area as shown on the plans and in these specifications. The abandoned well will be sealed using the "capping method" at least 5 feet below finished grade as shown on the plans. This will be done in accordance with Arizona Department of Water Resources (ADWR) rule R12-15-822. The Contractor shall make the cap tamper resistant by arc welding a minimum one-quarter inch thick steel plate cap to the top of the casing.

**Subsection 609.2 - Payment**

Payment for sealing the well will be made at the lump sum price bid.

**ITEM 609 - WELL CLOSURE**

**SECTION 610 - WATER LINE CONSTRUCTION**

**Subsection 610.3 - Materials**

Location	East Collector Channel at Olive Ave
Purpose	Irrigation tailwater pumpback line
Type	PVC Plastic Pipe (ASTM D2241)
Diameter	12 inch
Pressure Rating	160 psi
Dimension Ratio	SDR 26
Joints	Rubber ring bell and spigot (ASTM D3139)
Connecting pipe mat'l	12 inch Transite Pipe

Location	East side of the Detention Basin
Purpose	Irrigation tailwater pumpback line
Type	PVC Pressure Pipe (AWWA C905)
Diameter	16 inch, CI outside diameter
Pressure Rating	PR 165
Dimension Ratio	DR 25
Joints	Elastomeric Gasket

Connecting pipe mat'l 16 inch PVC Pipe

Location North side of the Detention Basin at east-west mid-section line  
Purpose Potable water well distribution line  
Type PVC Pressure Pipe (AWWA C905)  
Diameter 16 inch, CI outside diameter  
Pressure Rating PR 165  
Dimension Ratio DR 25  
Joints Elastomeric Gasket  
Connecting pipe mat'l 16 inch thin wall PVC Pipe

**Subsection 610.9 - Connecting to Existing Mains**

The irrigation pumpback line adjacent to the Collector Channel at Olive Avenue is used to replace an existing 12 inch Transite asbestos cement pipe. An appropriate Transite to PVC adaptor will be required. The cost of the adaptor is incidental to the cost of the PVC pipe.

The irrigation pumpback line at the east side of the detention basin is used to replace an existing 16 inch PVC pipe of unknown wall thickness. An appropriate PVC to PVC adaptor connection will be required.

The potable water well distribution line at the east-west mid-section line along the north side of the detention basin is used to relocate an existing thin wall PVC pipe. Caution must be used when exposing and connecting to the existing thin wall pipe and an appropriate PVC to PVC adaptor connection will be required. The line will be disinfected in accordance with Section 611.

**Subsection 610.18 - Measurement and Payment**

Payment for water line construction will be made at the unit price bid per lineal foot for each type and size of pipe, and will include all trenching, bedding, backfill, materials, and other items incidental to the installation of the water lines.

**ITEM 610-1 - WATERLINE (12")**

**ITEM 610-2 - WATERLINE (16")**

**SECTION 618 - STORM DRAIN CONSTRUCTION**

**Subsection 618.2 - Materials**

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

Location Olive Ave Siphon  
Type Reinforced Concrete Pipe (RCP), ASTM C 76  
D-load \_\_\_\_\_ \*\*\*\* PER FCDMC DESIGN \*\*\*\*  
Class \_\_\_\_\_ \*\*\*\* PER FCDMC DESIGN \*\*\*\*  
Diameter 30 inch  
Joints Rubber Gasket

**Subsection 618.6 - Payment**

Payment for storm drain construction shall be made at the unit price bid per linear foot, and shall be in full compensation for furnishing and installing the pipe and fittings complete in place, as

specified, including excavation, removal of obstructions, backfilling, water settling, compaction, sheeting and bracing, testing, and all incidental work not specifically covered in other pay items.  
**ITEM 618 - REINFORCED CONCRETE PIPE (30")**

**SECTION 621 - CORRUGATED METAL PIPE AND ARCHES**

**Subsection 621.2 - Materials**

Corrugated metal pipe and arches shall be according to Section 760 and as specified below.

Location	North and South farm roads, Irrigation.		
Type	I, circular, AASHTO M-36		
Diameter	21 inch		
Minimum thickness	_____	<b>**** PER FCDMC DESIGN ****</b>	
Coating	_____	<b>**** PER FCDMC DESIGN ****</b>	
Joints	watertight galvanized connecting bands		

Location	South farm road, Tailwater		
Type	I, circular, AASHTO M-36		
Diameter	24 inch		
Minimum thickness	_____	<b>**** PER FCDMC DESIGN ****</b>	
Coating	_____	<b>**** PER FCDMC DESIGN ****</b>	
Joints	watertight galvanized connecting bands		

Location	North basin fill area, Stormdrain		
Type	I, circular, AASHTO M-36		
Diameter	24 inch		
Minimum thickness	12 gauge		
coating	bituminous		
Joints	watertight galvanized connecting bands		

Location	South basin fill area, Stormdrain		
Type	I, circular, AASHTO M-36		
Diameter	30 inch		
Minimum thickness	12 gauge		
coating	bituminous		
Joints	watertight galvanized connecting bands		

**Subsection 621.6 - Payment**

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

- ITEM 621-1 - CORRUGATED METAL PIPE (21")**
- ITEM 621-2 - CORRUGATED METAL PIPE (24")**
- ITEM 621-3 - CORRUGATED METAL PIPE (30")**

**SECTION 635 - CONCRETE-LINED IRRIGATION DITCH**

**Subsection 635.1 - Description**

The work under this section consists of constructing cast-in-place concrete-lined irrigation ditch as indicated on the plans and in accordance with the applicable provisions of Section 505.

Subgrade for the ditch shall be shaped and compacted in accordance with Section 301, except that the depth of compaction shall be twelve (12) inches below the flow line of the completed ditch.

Concrete shall be Class B, with air entraining agent, and shall be cured by use of a white pigmented sealing compound. The finished surface of the concrete shall be free from rock pockets or surface voids and shall be comparable to the finish obtained by use of a long-handled steel trowel.

Transverse grooves 5/16 inch in width and 5/8 inch in depth shall be made in the concrete lining at intervals of ten (10) feet and maintained to the required dimensions until the concrete has hardened.

**Subsection 635.2 - Payment**

Payment for concrete-lined irrigation ditch shall be made for the size on the plans, complete in place, at the unit price bid per linear foot.

**ITEM 635 - CONCRETE-LINED IRRIGATION DITCH**

**SECTION 703 - RIPRAP**

**Subsection 703.1 - Stone**

In addition to the requirements of Section 703.1, stone for riprap shall have a minimum apparent specific gravity of 2.4 per ASTM C-127.

Waste concrete shall not be used for riprap.

**Subsection 703.2 - Size of Stone**

Section 703.2 of the MAG Standard Specifications is replaced with the following requirements, which shall apply for grouted riprap Types I and II.

Type	D <sub>min</sub> (in)	D <sub>max</sub> (in)	D <sub>50</sub> (in)
I	6	8	7
II	8	12	10

**SECTION 725 - PORTLAND CEMENT CONCRETE**

**Subsection 725.2 - Portland Cement**

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