CITY OF PRESCOTT
ARIZONA
Everybody's Hometown

Public Works Department

433 N. Virginia Street
Prescott AZ 86301
928-777-1130

ADDENDUM NUMBER TWO
to the
PROJECT SPECIFICATIONS
and
CONTRACT DOCUMENTS
for
Zone 12 Reservoir Project

DATE OF ADDENDUM: **November 20, 2012**

BID OPENING: **November 29, 2012 at 2:00 p.m., MST (POSTPONED)**

AMENDED BID OPENING: **December 6, 2012 at 2:00 p.m., MST**

TO ALL BIDDERS BIDDING ON THE ABOVE PROJECT:

In accordance with the INFORMATION FOR BIDDERS, Addenda, page 8, the following addendum shall be made part of the Contract Documents. All other provisions of the Contract Documents remain unchanged. The Bidder shall acknowledge receipt of this addendum on page 13 of the Proposal by inserting the addendum number and date on the executed page of the Proposal. The contents of this Addendum shall be given full consideration in the preparation of the Bid.

BID SCHEDULE

DELETE: BID SCHEDULE

ADD: BID SCHEDULE – REVISED ADDENDUM #2 (Attached).

CITY OF PRESCOTT TECHNICAL SPECIFICATIONS (Attached 35 pages, insert following Pg. 44)

TOC-1 DELETE "TECHNICAL SPECIFICATIONS" AND REPLACE WITH "SPECIAL PROVISIONS"

SECTION 00001 SPECIAL PROVISIONS PART 1 GENERAL

DELETE: PARAGRAPH 1.01 INSURANCE

DELETE: PARAGRAPH 1.03 ORDER OF PRECEDENCE FOR CONTRACT DOCUMENTS

ADD: REVISED PARAGRAPH 1.03 ORDER OF PRECEDENCE FOR CONTRACT DOCUMENTS

A. In the event a conflict exists between Contract Documents, the order of precedence listed in descending order shall be as follows:

1. Change Orders.
2. Addenda.
3. The Formal Contract.
4. Notice Inviting Bids.
5. Information for Bidders.
6. Special Provisions.
7. City of Prescott Technical Specifications.
8. Project Drawings.
9. General Conditions.
10. Contractor Proposal.
11. City of Prescott Typical Details.
12. Contracting Agency's supplements to the YAG Uniform Standards.
13. YAG Uniform Standard Specifications.
14. YAG Standard Details.
15. Contracting Agency's supplement to the MAG Uniform Standard Specifications and Details.
16. MAG Uniform Standard Specifications.
17. MAG Standard Details.

DELETE: PARAGRAPH 1.05 CONTRACT MODIFICATIONS

DELETE: PARAGRAPH 1.07 MEETINGS

DELETE: PARAGRAPH 1.10 PROJECT SIGN

SECTION 01270 UNIT PRICES PARAGRAPH 1.03B PAY ITEMS

ADD:

16. Seeding:
    a. Measurement: Seeding work will be measured on a lump sum basis.
    b. Payment: Payment for seeding work will be made at the lump sum amount established in the proposal for the quantities determined as specified. The price shall include all work, but is not limited to seeding and stabilization of all disturbed areas; and all work needed to complete the installation that has not specifically been covered in this pay item, as called for in the drawings and technical specifications.

17. Construction Staking:
    a. Measurement: Construction staking will be measured on a lump sum basis.
    b. Payment: Payment for construction staking will be made at the lump sum amount established in the proposal for the quantities determined as specified. The price shall include all work, but is not limited to the project construction staking and is the responsibility of the contractor; and all work needed to complete the construction staking that has not specifically been covered in this pay item, as called for in the drawings and technical specifications.

18. Storm Water Pollution Prevention Plan (SWPPP):
    a. Measurement: SWPPP will be measured on a lump sum basis.
    b. Payment: Payment for SWPPP will be made at the lump sum amount established in the proposal for the quantities determined as specified. The price shall include all work, but is not limited to the project SWPPP and is the responsibility of the contractor; and all work needed to complete the SWPPP that has not specifically been covered in this pay item, as called for in the drawings and technical specifications.

19. Removal of Unsuitable Structure Sub-Grade and Replacement with Engineered Fill:
    a. Measurement: Removal of unsuitable structure sub-grade and replacement with engineered fill will be measured in cubic yards as directed by the project engineer.
    b. Payment: Payment for removal of unsuitable structure sub-grade and replacement with engineered fill will be made at a unit price amount established in the proposal for the quantities determined as specified by the project engineer. The pay item is based on removal of unsuitable material that exceeds the limits shown on the plans and all work needed to complete the removal of unsuitable structural sub-grade and replacement with engineered fill.

20. Rock Removal (Trench):
    a. Measurement: Rock removal (trench) will be measured in cubic yards.
    b. Payment: Payment for rock removal will be made at a unit price amount established in the proposal for the quantities determined as specified and all work needed to complete rock removal (trench) that has not specifically been covered in this pay item as called for in the drawings and technical specifications.

21. New Water Service:
    a. Measurement: The new water service meter assembly (Per City of Prescott Standard Detail 3-16P) will be measured on a unit price basis.
    b. Payment: Payment for water service meter assembly will be made at a unit price amount established in the proposal for the quantities determined as specified. The price shall include, but is not limited to furnishing and installing service piping, fittings, service saddle, corporation stops, meter loop, meter box, meter cover and all components associated with the assembly, per the Drawings and Technical Specifications.

22. Contract Allowance:
    a. Measurement: Contract allowance shall be a lump sum amount of $300,000.
    b. Payment: Payment for contract allowance will be determined by the Engineer and is not subject to individual bid pricing. The contract allowance item is provided for the purpose of encumbered funds to cover the costs of possible contract amendments based on unforeseen changes that may be encountered and corresponding to extra work needed to complete the contract per the plan.

PLANS

1. **Drawing No. C-02 (Change attached Drawing AD-01): show water meter location and add Note 1 - installation of a ¾-inch Water Meter per COP Stand. Det. 3-16P. Show detail for air release valve and add Note 2 – Add 1-inch Air Release Valve per COP Stand. Det. 3-17P. Field Locate at high point of 16-inch water main.**

2. **Drawing No. M-05 (Change attached): Call out Notes for butterfly valves to be located on the inlet and outlet water mains per Details G and F.**

3. **Drawing No. S-06: For Detail C, Entrance Gate, HSS Dimensions (4 X 4 X ¼) shall be revised to match Main Gate Section E, HSS (3 X 2 X 3/16).**

- END -

City of Prescott, Public Works Department

Mark Nietupski, Public Works Director

Acknowledgement: (**must** be signed and turned in with the bid documents)

Company Name	Date
Signature of Company Official	Date

BID SCHEDULE - REVISED ADDENDUM #2
ZONE 12 RESERVOIR

Item Number	Description	Unit	Quantity	Unit Price	Total Price
1	Mobilization	LS	1		
2	16-inch DIP Water Main (STA 8+83.58 to STA 13+00.00)	LF	419		
3	Fire Hydrant Assembly	EA	2		
4	18-inch DIP Water Main (STA 11+45.68 to STA 13+00.00)	LF	172		
5	Site Paving and Tank Access Road	LS	1		
6	Site Grading and Drainage	LS	1		
7	Site Perimeter Wall and Gates	LS	1		
8	Barb Wire Fence	LF	950		
9	Yard Piping and Valves	LS	1		
10	Welded Steel Tank and Appurtenances	LS	1		
11	Electrical Work	LS	1		
12	Instrumentation and Control	LS	1		
13	Landscaping	LS	1		
14	Start-up and Demobilization	LS	1		
15	Miscellaneous	LS	1		
16	Seeding	LS	1		
17	Construction Staking	LS	1		
18	Storm Water Pollution Prevention Plan	LS	1		
19	Removal of Unsuitable Structure Sub-Grade and replace with Engineered fill	CY	5000		
20	Rock Removal (Trench)	CY	200		
21	New Water Service	EA	1		
22	Contract Allowance	LS	1		$300,000.00
	Base Bid (All items inclusive):			Total Bid	

$

Written words dollars

Signature of Company Official

Title

Company Name

Phone Number

Address

Fax Number

City, State

Zip Code

Zone 12 Reservoir Project
City of Prescott Technical Specifications

Public Works Department
433 N. Virginia Street
Prescott, AZ 86302

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TECHNICAL SPECIFICATIONS

100-1 Scope of Work

A. INTENT OF PLANS AND SPECIFICATIONS

1. The intent of the Specifications and Scope of Work is to prescribe a complete work for the Zone 12 Reservoir Project which the Contractor shall perform in a manner acceptable to the City of Prescott and in full compliance with the terms of the Contract.
2. Unless otherwise specified in the Special Conditions, the Contractor shall furnish all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and incidentals, including, but not limited to, dust and traffic control measures, and to perform all work involved in executing the contract in a satisfactory and workmanlike manner within the specified time.
3. The "Engineer" shall be that person or his designees employed by or contracted by the City Of Prescott responsible for all aspects of the project and with the authority to make revisions to and approve changes to the plans or specifications.

B. PROJECT DESCRIPTION AND LOCATION

1. The Zone 12 Reservoir Project scope shall generally include construction of a new 3.25 million gallon storage reservoir, including 172 lineal feet of new 18-inch diameter ductile iron transmission water main and 419 lineal feet of 16-inch ductile iron distribution water main. The reservoir will be located on private property south of Granite Dells Parkway off Highway 89A, a portion of Section 6 Township 14 North, Range 1 West.

C. TIME OF COMPLETION

1. The Contractor shall commence the work under this contract on or before the tenth (10th) calendar day after receiving written Notice to Proceed from the Owner. The Contractor shall fully complete all work within 150 calendar days in accordance with the date set forth in the Notice to Proceed. The Contractor shall at all times during the continuance of the Contract prosecute the work with such work force and equipment as is sufficient to complete the project within the time specified.

100-2 STANDARD SPECIFICATIONS & DRAWINGS

A. Standard details and specifications for this project shall be the Central Yavapai County Governments Unified Construction Standards (Y.A.G. Standards), latest revision, in conjunction with the latest revisions of the Maricopa Association of Governments Standard Specifications and Details (M.A.G. Standards), except as modified in the plans and by these technical specifications.

B. Other standard specifications and details will be incorporated within the plans, project documents and technical specifications by reference, as necessary. These may include references to Maricopa Association of Governments Uniform Standard Details for Public Works Construction (MAG Std. Dtl.), Arizona Department of Transportation Standard Specifications and Standard Drawings for Road and Bridge Construction (ADOT Specs or ADOT Std. Dwg.), City of Prescott revisions to Y.A.G. Standards, and others.

100-3 GENERAL NOTES

A. All construction shall conform to Central Yavapai County Governments Unified Construction Standards (Y.A.G. Standards), latest revision, unless otherwise indicated on the plans or in these specifications.

B. All quantities shown on plans are not verified by the Engineer. If any discrepancy in quantities is found, Contractor shall notify the Engineer of such no later than 24 hours prior to bid opening.

C. Acceptance of the completed water/sewer system will not be given until 3 ml photo Mylar or Xerox graphic "as-built" reproducible plans have been submitted by a Registered Professional Engineer and approved by the Engineer.

D. The City of Prescott Public Works Department shall be notified 24 hours prior to starting work.

E. All work and materials, which do not conform to the specifications, are subject to removal and replacement at the Contractor's expense.

F. Any work performed without the knowledge of the City of Prescott inspector or his representative is subject to removal and replacement of same, to be done at the Contractor's expense.

G. The Contractor shall provide sufficient men and equipment on the job at all times during construction to comply with specifications and to complete work.

H. Inspection is to be done by the City of Prescott Public Works Department.

I. The Contractor is to uncover all existing lines being tied into and verify grades before any other construction.

J. It is the Contractor's responsibility to locate all underground pipelines, telephone and electric conduits and structures in advance of any construction and will observe all possible precautions to avoid any damage to such. The Engineer and/or City will not guarantee any locations as shown on these plans, or those omitted from it.

K. Contractor shall notify "Blue Stake" at 778-0050 at least 48 hours prior to construction.

L. Contractor shall verify all quantities shown and make his bid based upon those verifications. If any discrepancy in quantities is found, the Contractor shall notify the Engineer as such.

M. Arizona Department of Environmental Quality Requirements shall be complied with.

N. All lines shall be provided with 14-gauge single strand copper wire. Trace wire shall be subject to traceability test.

O. All plans, signed by the City Engineer in charge, are null and void one year from date of signature if construction has not started.

P. Water/sewer separation shall be pursuant to AAC R-18-4-502C and YAG specifications.

Q. Water mains shall be subject to a pressure and leakage test in accordance with AWWA C-600 Standard.

R. Water mains shall be disinfected in accordance with ADEQ Engineering Bulletin No. 8 "Disinfection of Water Systems".

S. Operation of valves to be done by City personnel only.

T. Ductile Iron Pipe to be installed per manufacturer's requirements.

U. Arizona Department of Environmental Quality requirements will apply when more stringent than YAG Standard Specifications -- more specifically where they pertain to maximum allowable sewer line/pressure sewer line exfiltration-infiltration rates.

V. Sewer line low-pressure air tests shall be done on 100% of all lines.

W. Sewer manholes exfiltration tests shall be done on 100% of all lines. Vacuum testing in accordance with City of Prescott Standards may be used in lieu of exfiltration test.

X. Sewer line deflection tests shall be done on 100% of all lines.

Y. Prior to project acceptance, the Contractor shall be responsible for providing the City of Prescott with DVD

video of the entire sewer main installed. The video will be previewed and deemed acceptable by the City prior to project release.

Z. All materials for water line construction shall meet AAC R-18-4-119.

AA. Contractor shall be responsible for construction surveying and layout.

BB. Contractor shall warrant all work for a minimum of two years.

104-1 RESTORATION REQUIREMENTS

A. Upon completion of construction and before Final Acceptance can be made by the Engineer, the Contractor shall clean up each individual construction area to the satisfaction of the Engineer. Small trees, weeds, and brush, which were removed as part of construction work, shall be removed from the project site and properly disposed of. Existing landscape improvements, drainage ditches, etc., shall be restored in "like kind" so that the improvement is put back in as close to its prior state as possible. Restoration of incidental items impacted by construction activity shall be in accordance with MAG Section 104.1.3 and 104.1.4. All debris, broken pipe, concrete and other construction debris shall be removed from the project site and properly disposed. The Contractor shall restore each individual work site to grades existing before construction work, including wheel ruts and other scarring. No separate payment will be made for restoration of items impacted by the Contractor's construction operation and the cost of these items shall be included in the unit bid prices in the bid schedule.

B. Mailboxes and traffic signs removed during construction shall be reinstalled in "like kind" and shall be considered incidental to the unit prices for utility work included in the bidding schedule.

104-3 MOBILIZATION

A. Mobilization 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 office 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 the various items on the project site.

B. **Measurement and Payment**

Mobilization will be measured for payment by the lump sum bid as a single complete unit of work. Payment for mobilization will be made as provided herein which shall be full compensation for supplying and furnishing all materials, facilities, and services and performing all the work involved as specified above. The total amount allowed for mobilization during the life of the contract shall not exceed nine percent (9%) of the original contract amount. If the bid price exceeds this percentage the excess amount will be paid to the contractor upon completion of the contract and nine percent of the contract amount shall be used to determine partial payments. Partial payments under this item will be made in accordance with the following provisions:

C. The first payment of one third of the lump sum price for mobilization may be made provided that all submissions required under Sub-section 108.3 and elsewhere herein are submitted by the contractor at the pre-construction conference to the satisfaction of the Engineer and when the Engineer has determined that a significant amount of equipment has been mobilized to the project site which will be used to perform portions of the project work.

The second payment of one third of the lump sum price for mobilization shall be made on the first estimate following completion of 13 percent of the contract.

The third payment of one third of the lump sum price for mobilization will be made on the first estimate following completion of 26 percent of the contract.

105-6 Location of Underground Utilities

A. Contractor shall contact Blue Stake within the time frame specified under Blue Stake law and request field location of underground utilities. At the time these locations have been marked and prior to the commencement of excavation within the affected area, the Contractor shall at his expense manually determine the exact location of all buried facilities.

B. Contractor shall notify all affected utilities prior to the start of construction and shall ascertain the location of the various underground utilities either shown on the plans and/or as may be brought to his attention.

C. Contractor shall perform all operations in accordance with Arizona Blue Stake law.

D. Utility locations shown on the plans are approximate and based on drawings furnished by the respective utility. It shall be the Contractor's responsibility to protect all existing utilities. Should a utility conflict occur, the Contractor shall cooperate with the said utility to resolve the conflict. No claim for extra costs shall be made against the Owner for delays due to any utility conflict.

E. If performance of the Contractor's work is delayed because the utility owners fail to relocate or adjust their facilities in a timely manner, the Contractor may file for an extension of time. To receive consideration, this request shall contain specific information as to the nature of the delay and the actual loss of time involved.

F. Contractor shall assume full responsibility for damage to all marked utilities due to his operations and shall repair the damaged utilities in accordance with regulatory authority requirements at his own expense.

G. **Measurement And Payment**

1. No separate measurement and payment shall be made for Location of Underground Utilities. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

105-8 Construction Staking

A. Construction staking shall be the responsibility of the CONTRACTOR. The control for the project is provided in the CONTRACT DOCUMENTS. The CONTRACTOR shall be held responsible for preservation of control monumentation. If any of the control monumentation have been carelessly or willfully destroyed or disturbed by the CONTRACTOR, the cost of replacing them will be charged against him and will be deducted from the payment of work.

B. Staking shall be performed and certified by a Registered Land Surveyor in good standing with the Arizona State Board of Technical Registration.

C. Field notes and record drawings shall be provided to the ENGINEER.

D. The staking shall be performed in such a manner and frequency that the CONTRACTOR is able to construct the project in accordance with the plans and specifications. At a minimum, staking shall include

1. Slope or limit stakes (TCE)
2. Alignment of Pipeline
3. Valves, bends, blow offs, air release valves, tracer wire stations, water meters and hydrant locations.
4. Horizontal and vertical bend locations.
5. Tank and appurtenances.

6. Electrical, instrumentation and control facilities, including, but not limited to, antennae pole.
7. Site improvements including, but not limited to, retaining walls, curbs, fencing, drainage, chain link fence enclosures, protection posts, gates, etc. The original grade of all retaining walls shall be surveyed and established prior to beginning any earthwork.
8. Cross-sections will be required, at no additional expense to the City, should quantity disputes arise pertaining to the following: Earthwork, Sub-grade, ABC or Asphaltic Concrete.
9. Curb stakes at all PC's, PT's, Vertical PI's (grade breaks), Transitions to and from Super Elevated sections and at 50 foot intervals.
10. Blue top of Sub-grade and ABC at intervals specified for curb. Quarter crown blue tops shall be required when the typical section is four lanes or more without median curb.
11. Other staking as needed to complete the work in conformance with the plans and specifications.

E. The ENGINEER and the CONTRACTOR's Superintendent shall meet monthly or as necessary to jointly measure all work items under the contract to determine pay quantities for each pay period. Quantities of work items shall be documented on the respective plan sheets and separately in tabular fashion with Station to Station measurements noted to assure there is no duplication of payment for work performed. Measurements will be for work actually completed. No projections for expected completion of work will be allowed.

F. All survey data will be international feet for horizontal and vertical, NAVD 88 for vertical and City of Prescott coordinates. Please refer to the City of Prescott Survey Datum Requirements below.

City of Prescott Survey Datum Requirements

Coordinate Units:	International Feet
Distance Units:	International Feet
Height Units:	International Feet
Vertical Datum:	NAVD 88
<u>State Plane</u>	
Coordinate System:	US State Plane 1983
Datum:	(WGS 84)
Zone:	Arizona Central 0202
Geoid Model:	Geoid99 (Conus)
<u>City of Prescott - Conversion from State Plane</u>	
Northing:	(State Plane x 1.000329975) - 701,456.0090
Easting:	(State Plane x 1.000329975) + 69,457.2499
<u>State Plane - Conversion from City of Prescott</u>	
Northing:	(City of Prescott + 701,456.0090) x 0.999670134
Easting:	(City of Prescott - 69,457.2499) x 0.999670134

H. Measurement And Payment

1. The quantity of "Construction Staking" measured for payment shall be the lump sum bid by the CONTRACTOR. The contract unit price per lump sum paid for "Construction Staking" shall be full compensation for all labor, materials, and equipment to perform the construction staking as described in this section.

Pay Item: 17 Construction Staking

105-9 AS-BUILT PREPARATION AND COORDINATION

A. As-built data and preparation will be performed by the ENGINEER. The CONTRACTOR shall notify the ENGINEER as required in this Section, provide access to the work and cooperate with the ENGINEER to accurately depict the as-built conditions. During the construction phase and prior to any backfilling or covering, the ENGINEER will survey the work for the purpose of as-built preparation. Surveying shall be performed and certified by a Registered Land Surveyor in good standing with the Arizona State Board of Technical Registration. The ENGINEER will supply all horizontal and vertical as-built data in ASCII format, including a northing, easting, elevation and description of all work completed under this contract. The CONTRACTOR shall aid the ENGINEER in determining and providing this information. As-built data shall include, but not be limited to all items noted below.

1. The alignment of the waterline including all horizontal and vertical bends. If the waterline continues in a straight alignment for more than 100 feet, the waterline will be surveyed every 100 feet.
2. Valves, bends, blow offs, air release valves, tracer wire stations, water meters, and hydrant locations.
3. Tank and appurtenances
4. Electrical, instrumentation, and control facilities, including, but not limited to, antennae pole.
5. Site improvements, including, but not limited to, retaining walls, curbs, fencing, drainage, chain link fence enclosures, protection posts, gates, etc.

B. Prior to backfilling or covering any work, the CONTRACTOR shall notify the ENGINEER 48-hours in advance and submit a completed "As-Built Request Form" located in Appendix II for the item of work. The minimum 48-hours notice time shall not include weekends or holidays. The notification shall be via e-mail to both the CITY and ENGINEER, and shall include the "As-Built Request Form" as an attachment.

C. The CONTRACTOR must provide access for the ENGINEER to verify all as-built information prior to backfilling or covering. The CONTRACTOR shall not backfill or cover an item of work until verification has been completed by the ENGINEER. If an item of work is determined by the ENGINEER to be backfilled or covered prior to being recorded by the ENGINEER, the CONTRACTOR at the direction of the ENGINEER shall uncover the item of work at no additional cost to the OWNER.

D. The CONTRACTOR shall maintain a redlined copy of the project plans including changes made in construction of the project. The redline copy shall be updated on a weekly basis in preparation for the weekly as-built field meeting. The CONTRACTOR shall provide the ENGINEER with a copy of the redline plans upon completion of the project.

E. Weekly field meetings with the CONTRACTOR, ENGINEER and CITY shall occur to review As-Built information for conformance with the specifications. The CONTRACTOR shall provide the ENGINEER with a schedule of work items to be constructed in the upcoming 30 day period, including approximate dates of installation prior to backfilling or covering. The CONTRACTOR field redlines will be reviewed for

notation of changes in the work. Missing, erroneous or deficient data must be corrected by the CONTRACTOR at no additional cost to the OWNER.

F. **Measurement and Payment**

1. No separate measurement and payment shall be made for As-Built Preparation and Coordination. This work shall be considered incidental and included in the unit price bid for construction staking in the appropriate contract pay item.

105-10 RESET PROPERTY PINS

A. Existing property pins disturbed or covered in the course of the work shall be resurveyed and reset by a certified land surveyor or under direct supervision of a certified land surveyor. Pins shall be YAG Dtl. 120-1, type B.

B. **Measurement and Payment**

1. No separate payment shall be made for Reset Property Pins. This work shall be considered incidental and included in the unit price bid for construction staking in the appropriate contract pay item.

105-11 SURVEY MONUMENT

A. Survey monument Type "C" with cast iron frame and cover shall be placed as shown on the plans in accordance with YAG Std.Dtl. 120-1 and YAG & MAG Specs Section 405.

B. Measurement and payment

1. No separate payment shall be made for Survey Monument. This work shall be considered incidental and included in the unit price bid for construction staking in the appropriate contract pay item.

105-12 SURVEY HANDHOLE FRAMES

A. All efforts shall be made to protect rebar in survey handholes from damage. Rebar shall be resurveyed and reset by a certified land surveyor at the contractors' expense if damaged or where noted on plans.

106-1 CONTROL OF MATERIALS

Contractor shall submit in writing all materials to be used in the project in accordance with ADOT Specification Section 106 and Subsection 730-4.

106-2 CONTRACTOR QUALITY CONTROL

A. Quality control measures sufficient to produce materials and workmanship of acceptable quality are the responsibility of Contractor. Upon request Contractor shall provide factory certificates of compliance or analysis or both to the City Engineer. The Contractor shall provide full-time asphaltic concrete laydown compaction testing and adequate plant control for each paving day. The Contractor shall provide an independent geotechnical firm to perform all soils and concrete testing, as required, per these specifications.

B. The weekly reports shall state the type of work performed during the report period and other process control measures taken to assure quality. Type of work must be identified by activity, location, station, and offset, purpose of test, and any other relevant information that the Engineer needs to identify or replicate the quality control testing. Results of all tests, corrective actions, re-tests, and control charts shall be attached to the weekly reports. Although hand written documentation can be included, the quality control report narrative and test results must be typed to insure that clear reproductions of the documents can be made. The report period shall end at midnight each Friday and the report shall be submitted to the Engineer no later than 5:00 pm of the following Wednesday. Payment in the amount of $500.00 per report will be withheld for each individual report that is not delivered to the Engineer by the time and day specified above. Only one half of the withheld payments will be returned on the next regular project progress payment when

the delinquent reports have been turned in and all of the above requirements have been met. Any report turned in more than 10 business days beyond the Wednesday due date will not be eligible for withheld payments to be returned.

Minimum Quality Control Sampling Guidelines (may not include all required testing)

MATERIAL TYPE	REQUIRED TEST	SAMPLING POINT	SAMPLING FREQUENCY	REQUIRED RESULT
Embankment	Proctor Optimum Moisture	In-Place	One per Soil Type	
	Compaction	In-Place	One per 500 LF of 8" lift	95% per ASTM D-698
Sub-grade	Proctor Optimum Moisture	In-Place	One per Soil Type	
	Compaction		One per 500 LF	95% per ASTM D-698
Agg. Base	Proctor Optimum Moisture	Crusher belt or Stockpile	At start of production, then as mtl. Changes	
	Compaction	In-Place	One per 500 LF of 6" lift	98% Per ASTM D-698
	Abrasion	Source	One per source	
	Plasticity Index		One per shift	Max. 6 per AASHTO T89 & T90
	Gradation		One per shift	
	Crushed Faces		One per shift	
Asphalt Concrete PG 64-22				
	Bit. Mtl. Content		Two per day (3/day on 1st day)	
	Marshalls		Two per day	
	Rice		One per day	

MATERIAL TYPE	REQUIRED TEST	SAMPLING POINT	SAMPLING FREQUENCY	REQUIRED RESULT
	Voids, VMA		One per day	
	Compaction			95%
	Core		One per 1,000 SY	within 24 hours
Min. Agg.	Gradation		One per 1,200 tons	
	Crushed Faces		One per day	
	Sand Equivalent		One per day	45 or greater
	Abrasion		One	
Asphalt Rubber Concrete				
Open Graded Asphalt Rubber Concrete				
Asphalt Concrete Friction Course Asphalt Rubber				
		Stock pile		
	Gradation		One per day	
	Sand Equivalent		One per day	
	Crushed Faces		One per day	
	Flakiness Index		One per day	
Portland Cement Concrete				
	Air		each sample	5% +/- 1%
	Slump		each sample	max. 3.5"
	Compression		4 per 50 CY per YAG 725 Table 725	1 @ 7 day 1 @ 28 day 2 @ 60 day if failure

C. No separate payment shall be made for Contractor Quality Control. This work shall be considered

incidental and included in the unit price bid for construction or installation of the appropriate contract pay items. An independent geotechnical firm shall perform all quality control testing. The Contractor shall furnish copies of all test results to the City on a weekly basis.

106-9 QUALITY ACCEPTANCE TESTING

A. The Engineer may provide quality acceptance sampling and testing. The number of tests and location of each shall be determined by the Engineer. The expense of the initial sampling and testing shall be paid for by the City. Additional sampling and testing required due to failure of the initial test(s) shall be accomplished as provided by the City and these additional expenses shall be deducted from moneys due Contractor.

B. Contractor and the Engineer's representative shall coordinate on a daily basis the following day's work schedule and any testing that may be necessary. The Engineer' quality acceptance testing will generally consist of (1) daily sampling and testing for asphalt extraction/gradation and Marshall density for each paving day; and (2) asphaltic concrete core drilling after placement to verify thickness and density. A minimum of one core per each 1,000 square yards of paving shall be randomly sampled by the Contractor's quality control lab after marking by the City inspector.

C. Construction quality acceptance testing performed by the City of Prescott does not relieve the Contractor or the manufacturer of materials produced for the Contractor, of the obligation to perform and document quality control testing of materials and workmanship.

D. No separate payment shall be made for Quality Acceptance Testing or any related work performed by Contractor.

107-1 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

This project is subject to the Arizona Pollutant Discharge Elimination System (AZPDES) stormwater requirements for construction sites under the Environmental Protection Agency (EPA) delegation to the Arizona Department of Environmental Quality (ADEQ) for the Construction General Permit for Arizona. The following specifications shall apply:

(A) General requirements - The Contractor shall comply with the Arizona Pollutant Discharge Elimination System (AZPDES) Stormwater requirements for construction sites under the Arizona Department of Environmental Quality (ADEQ) Construction General Permit for Arizona. Under provisions of that permit, the Contractor shall be designated as permittee and shall be responsible for providing the necessary labor and materials, and for taking the appropriate measures to assure compliance with the AZPDES Construction General Permit for Arizona as well as other Federal, State and local requirements pertaining to stormwater discharges. As the permittee, the Contractor is responsible for completing, in a manner acceptable to the ADEQ, all documents required by this regulation including the following:

(1) Stormwater Pollution Prevention Plan shall be sealed by a professional engineer licensed in the State of Arizona.

(2) Stormwater Pollution Prevention Plan (SWPPP) for the project including certification form. The Contractor will be required to update and revise the SWPPP as necessary throughout the construction of the project in order to assure compliance with ADEQ permit requirements. The completed SWPPP shall be kept on the project site at all times during construction of the project.

(3) Notice of Intent (NOI) to be covered by AZPDES Construction General Permit for Arizona including certification of signature.

(4) Notice of Termination (NOT) of coverage under AZPDES Construction General Permit for Arizona (upon project completion).

Copies of necessary forms and guidance for preparing the SWPPP are available at ADEQ's website www.adeq.state.az.us/environ/water/permits/azpdes.html

(B) Submittals:

(1) Preliminary Copies of the NOI and SWPPP shall be submitted to the Engineer at the time of the preconstruction meeting. Any necessary revisions to the SWPPP shall be subject to review by the Engineer, prior to implementation.

(2) The Contractor shall submit completed, signed NOI forms at least 48 hours prior to the initial start of construction on the project to ADEQ. One copy of the completed, signed NOI form shall be submitted to Arizona Department of Environmental Quality at the following address: Stormwater Program - Water Permits Section/NOI, ADEQ (5415B-3), 1110 West Washington, Phoenix, AZ 850071.

(3) Failure by the Contractor (or any of its appropriate subcontractors) to submit the NOI forms within the required time frame shall result in delay of the start of construction. The Contractor shall submit a completed copy of the NOI prior to Notice to Proceed. A copy of the completed NOI shall be posted on the construction site and a copy of the SWPPP shall be kept on the construction site.

(C) Contractor's Responsibilities:

(1) It is the Contractor's responsibility to perform inspection of all stormwater pollution control devices on the project on a monthly basis and following each rainfall of 0.50 inches or more at the project site and as required under the AZPDES Construction General Permit for Arizona. The Contractor shall prepare reports on these inspections and retain these reports for a period of three years following project completion as required under the AZPDES Construction General Permit for Arizona. Inspection reports shall be submitted monthly to the contracting agency along with payment requests. The Contractor shall maintain all stormwater pollution control devices on the project in proper working order, including cleaning and/or repair during the duration of the project.

(2) No condition of either the AZPDES Construction General Permit for Arizona or the SWPPP shall release the Contractor from any responsibilities or requirements under other environmental statutes and regulations.

(D) Upon total project completion, acceptance, and de-mobilization, the Contractor shall submit its completed, signed NOT form to the ADEQ with Copies to the same agencies who received Copies of the NOI, thereby terminating all AZPDES permit coverage for the project.

E. **Measurement And Payment**

1. Payment shall be at the lump sum unit price bid in the Contract Documents for all material, labor, and other incidental costs relating to the provision, installation, and maintenance of items relating to this permit during project construction. Such incidental costs shall include Contractor costs in order to assure proper operation of the pollution-control devices installed including all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events or other runoff or releases on the project.

Pay Item: 18 Stormwater Pollution Prevention Plan

107-2 SEEDING (HYDRAULIC)

A. Seeding consists of furnishing and applying chemical fertilizer; furnishing and planting seed and furnishing, applying and affixing mulch. The areas to be seeded are disturbed or un-vegetated areas. Slopes are required to be seeded immediately upon completion; coordination with grading operations will be required.

Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying

the sum of the germination and hard or dormant seed by purity. Weed content of seed shall not exceed 0.5 percent. No substitution of species, strain or origin of seed will be allowed unless evidence is submitted in writing by the contractor to the Engineer showing that the specified materials are not reasonably available during the contract period. The substitution of species, strains or origins shall be made only with the written approval of the Engineer, prior to making said substitution.

The seed shall be delivered to the project site in standard, sealed, undamaged containers. Each container shall be labeled in accordance with Arizona Revised Statues and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels shall indicate the variety or strain of seed, the percentage of germination, purity and weed content, and the date of analysis, which shall not be more than 9 months prior to the delivery date.

B. SEED MIX

Botanical Name	Common Name	Seed/ Lb.	Rate/Acre-PLS {Pure Live Seed)
Agropyron dasystachym	Thickspike Wheatgrass	154,000	3.0
Bouteloua gracilis	Blue Gramma	825,000	2.0
Koeleria crisata	Prairie Junegrass		1.0
Mulenbergia wrightii	Spike Muhly	1,000,000	1.5
Festuca arizonica	Arizona Fescue	500,000	2.0
Sitnian hystrix	Squirrel Tail	192,000	4.0
Sporobolus cryptandrus	Sand Dropseed	5,298,000	.75

C. Seed Supply Agreement:

The required species may be in short supply during this project. Therefore, the contractor shall enter a contractual agreement with a seed collector/supplier that verifies that sufficient supply of specified plant materials will be available on or immediately prior to the seeding dates. This requirement shall be fulfilled within 45 days following the preconstruction conference in order to allow sufficient time for seed collection. The contractor shall provide written notification to the Engineer verifying that the required species are available and secured for the project. The collection contractor shall test the seed for purity and viability and hold the seed in a manner which maintains its' viability. The contractor shall submit purity and viability test results to the Engineer for approval prior to the initiation of seeding operations. If it is required to be held for more than a year from initial testing the seed shall be tested again for viability. The contractor shall compensate the seed supplier a percentage of the seed cost to hold seed material and for the seed tests as identified in Basis for Payment.

D. General:

The slurry for the hydroseed process shall be as follows:

SLURRY MIX	RATE
Hydrofiber: Silva, Conwed, or Spray mulch x-100 wood fiber, or equivalent.	800 lbs./acre
Tackifier:	80 lbs. active ingred./acre
Starter fertilizer: Ammonium Phosphate	16-20-0 200 lbs./acre
Seed mix:	As Specified
Soil conditioner	1000 lbs./acre

The seed shall be applied within 30 minutes after being combined with the slurry mix.

INGREDIENTS FOR SLURRY APPLICATION	PERCENTAGES

	(MINIMUM)
Nitrogen	5
Phosphoric Acid	3
Water soluble Potash	1
Humas	50
Humic Acids	15
Soluble Metallic Iron	1

E. Wood Cellulose Fibers:

Wood fiber mulch shall consist of a specially prepared wood fiber processed to contain no growth germination inhibiting factors. The mulch shall be virgin wood and be manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form a homogenous slurry. The mulch shall have a pH range between 4.5 to 6.5.

When hydraulically sprayed on the ground, the material will form a blotter-like cover impregnated uniformly with seed. The cover will allow the absorption of moisture and allow rainfall to percolate to the underlying area.

F. Tacking Agent:

Binder shall be free flowing, non-corrosive powder produced from natural plant gum marketed under M-Binder, M145 Binder, AZ-TAC or approved equal. It shall have gelling properties to inhibit the tendency of water and fiber to move downhill as they are sprayed on steep slopes.

G. Construction Requirements:

1. General:

The Engineer will regularly observe the weighing of seed, mixing of slurry mix, and application of seed.

2. Seeding:

Seeding shall be done immediately following the final grading or disking of each cut slope and each fill slope. The soil surface shall be loose. The contractor will be required to mobilize frequently to accomplish this goal. No seeding shall be carried out under wind conditions exceeding 5 m.p.h. Scheduling of seedings mobilization will be coordinated with the Engineer at the weekly construction meetings. In no case shall a decision by the Engineer relieve the contractor from the requirement of seeding prior to measurable rainfall. If measurable rain falls prior to seeding, or if the surface of the graded area has formed a crust or slightly hardened surface, the contractor shall be responsible for ripping, blading or loosening the ground surface, or otherwise repairing and/or preparing the affected areas for seed, after they adequately dry out and prior to seeding, at no cost to the Owner. The use of specialized equipment or manual methods may be required to prepare the surface for seeding, if seeding is not accomplished immediately after grading or disking.

Seed is to be accomplished during the window of June 1 to July 15 and November 1 to January 30. These windows are to allow expected seasonal rains to start germination process.

All areas disturbed by construction are to be seeded. This may be more area than shown on the plans. All areas to be approved by Engineer. The contractor shall coordinate seeding operations with slope construction so that the tops of cuts and toes of fills can be reached with hydroseed equipment.

Hoses may be used where heavy equipment cannot access.

3. Tillage:

All slopes steeper than 3:1 shall either have a loose, friable soil depth of 2" or more or be tilled a minimum of 4" in depth as they are constructed.

Tillage shall be accomplished with a ripper bar, chisel plow or harrow tool or with other equipment which will provide thorough soil cultivation.

Tillage shall be performed long the contour. The slopes behind guardrail, and in the ditch line in cut shall be left with roughened surface to aid in water absorption. Seeded areas which are not behind guardrail or between the ditch line and the roadway on a cut shall be left in a Firm surface free of foreign material that would interfere in the seeding operation.

No work shall be done when the moisture content of the soil is unfavorable or the ground is otherwise in a condition not conducive to tillage.

Planting:

The contractor shall submit a batch (tank) mix for the Engineer's approval prior to mixing any seed/mulch slurry. Batch mixing and coverage will be monitored throughout seeding operations. The contractor is to coordinate monitoring with the Engineer in advance of mixing.

After the tillage is complete and accepted by the Engineer, seed shall be planted by slurry mix (cut slopes steeper than 3:1).

All areas to be seeded shall have a starter fertilizer of ammonium phosphate 16-20-0 applied at a rate of 200 pounds per acre and soil condition at the rate of 1,000 pounds per acre.

Any material sprayed on non-designated areas shall be immediately removed by the contractor at his expense. Non-designated areas include pavement, guardrails, signs, plants and existing vegetation.

Anchorage by Tacking:

Mulch shall be anchored by tacking using a slurry consisting of a minimum of 150 pounds of binder, 400 pounds of wood fiber mulch and 700 gallons of water per acre.

Preservation of Seeded Areas:

Any material sprayed on non-designated areas shall be immediately removed by the contractor at his expense. Non-designated areas include pavement, guard rails, signs, plants, and existing vegetation.

Warrantee:

The contractor shall guarantee that 75% of the applied tackifier remain in place for a period of 30 days after acceptance of the seeding application, Any areas that have less than 75% of the tackifier remaining shall be reseeded, re-mulched and retacked at the contractor's expense.

Measurement And Payment:

Seeding will be measured by the acre, to the nearest tenth acre, measured along the ground surface for the areas which have been plated and mulched, as determined by the Engineer. The contractor may be reimbursed a partial payment based on the invoice amount for the cost to hold and test the seed in conformance with the Seed Supply Agreement.

The accepted quantities of seeding, measured as provided above, will be paid for at the contract price per acre for the full performance of the work herein described, which price shall be full compensation for the work completed including all equipment, labor and materials required.

Areas that require reseeding and re-mulching under the warranty shall be done at no additional cost to the City of Prescott. The 30 day period(s) shall be within the allotted contract time.

PAY ITEM: 16 Seeding (Hydraulic)

107-6 PUBLIC CONVENIENCE, PRIVATE LAND, AND SAFETY

A. Easements

1. The easements (PUE and Waterline Easements) shall be staked to prevent disturbance on private lands. Damage to native vegetation outside the easements and any access to the site, not approved by owner or local jurisdiction, will be subject to a $500.00 penalty for each occurrence. All penalties will be deducted from invoices in the form of a back charge

B. Maintenance of Traffic

1. Contractor shall at all times conduct his/her work as to ensure the least possible obstruction to traffic.
2. Unless otherwise provided, the road, while being improved shall be kept open to all traffic by Contractor. When so requested by Contractor and approved by the City Engineer, Contractor may by-pass traffic over an approved detour route. Regardless of whether it is through or local traffic, Contractor shall keep the portion of the project being used by traffic in such condition that traffic will be adequately accommodated.
3. Contractor shall also provide and maintain in a safe condition temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, driveways residences, garages and farms; however, Contractor will not be required to remove snow.
4. Before any detour is opened to traffic, the City Engineer shall have been satisfied that traffic is able to proceed in a safe manner.
5. Contractor shall bear all expense of maintaining traffic over the road being improved as well as constructing, maintaining and subsequently removing Contractor requested detours, approaches, crossings, intersections and other features as may be necessary without any direct compensation.

C. Access to Businesses/Residences

Contractor shall provide to all residents and businesses affected by the project, access to one of their driveways at all times except as modified by the following: If Contractor finds it unavoidable to temporarily close off access for any time, the residents/businesses affected shall be contacted a minimum of 48 hours in advance and an alternate procedure for access mutually agreed to. Contractor shall provide the City Engineer with signed evidence of a mutually accepted agreement between the property owner/business manager/residential manager and Contractor prior to said closure.

D. Safety

1. The safety and convenience of the general public and the residents along the project and the protection of persons and property shall be provided for by the Contractor in accordance with the requirements of this contract.
2. Contractor shall submit a Safety Plan to the City Engineer at the preconstruction conference. The plan shall detail the procedures The Contractor will implement to satisfy OSHA and the State Occupational Safety Guidelines related to the worker as well as public safety in construction of excavations, structures and confined air spaces as identified by the City Engineer. Contractor's Safety Plan shall include the requirement that all workers and visitors must wear hard hats while within the project limits.
3. The Safety Plan submitted by Contractor shall include proposed methods to prevent unauthorized persons from gaining access to the work areas.
4. In conjunction with the Safety Plan, Contractor shall furnish and install 72" temporary chain link fencing,

or approved equal satisfactory to the City Engineer, around any unattended excavation deeper than four feet with slopes steeper than 2:1. Temporary fencing shall completely enclose the referenced construction activity and shall be secured after normal working hours to prevent unauthorized access.

5. Unless otherwise approved in writing by the City Engineer, open utility trenches shall be limited to 50 ft. In length except for cast-in-place pipe installations and during non-working hours shall be covered with steel plate in a manner satisfactory to the City Engineer.

108-4 CONSTRUCTION SCHEDULE

A. Prior to beginning construction, the Contractor shall submit for review by the City Engineer a complete construction schedule as stated in the General Conditions of these contract documents.

B. Once this schedule has been accepted by the City Engineer, Contractor shall not deviate from it until a revised schedule has been submitted and accepted by the City Engineer.

C. The City Engineer reserves the right to reject construction schedule submittals when in his opinion the schedule lacks the proper detail.

109-1 CONTRACT ALLOWANCE

A. Contract allowance items are provided for the purpose of encumbering funds to cover the costs of possible contract amendment work. The amount of the allowance item is determined by the Engineer and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

B. This allowance item provides an estimated funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract per plan. Unforeseen extra work, if any, shall be in accordance with the Contract Amendment section of the General Conditions.

C. It shall be understood that this allowance item is an estimate only and is based on contract amendment history of similar projects. It shall not be utilized without an approved contract amendment. It is further understood that authorized extra work, if any, may be less than the allowance item.

Pay Item: 22 Contract Allowance

200-1 DEWATERING

A. All water encountered during the work shall be disposed of by the Contractor in a manner such that it will not damage public or private property or create a public nuisance or health problem. This work shall consist of furnishing equipment, materials, and labor necessary for the control and removal of water, the construction or installation of all facilities necessary to accomplish the work, and the subsequent removal of such facilities except when designated on the project plans or in the special provisions to remain in place.

B. **Measurement And Payment**

1. No separate measurement or payment shall be made for dewatering. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

200-4 REMOVE AND REPLACE LANDSCAPE ROCK

Landscaping shall be protected and restored as per MAG Section 107.9. Existing landscaping rock shall be removed, stockpiled, and replaced in its original position as closely as possible. No separate measurement and payment shall be made for Remove and Replace Landscape Rock. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

200-6 Rip Rap Construction

Work under this section shall consist of furnishing all materials and constructing riprap bank protection in accordance with the details shown on the plans and per the requirements of MAG Std. Section 220. No separate measurement and payment shall be made for Rip-Rap. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

200-7 Rip Rap Construction with Filter Fabric

Work under this section shall consist of furnishing all materials and constructing riprap bank protection in accordance with the details shown on the plans and per the requirements of MAG Std. Section 220. Filter fabric shall be Polyspun 350 or approved equal and installed according to ADOT 913-3 and the manufacturer's specifications. No separate measurement and payment shall be made for Rip-Rap with Filter Fabric. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

200-8 Rock Lined V-Ditch, Rock Lined Ditch or Grouted Rock Line Ditch

Work under this item shall be in accordance with YAG & MAG Section 215, 220 and 703, as stated on project drawings and as modified herein. Waste concrete shall not be used. No separate measurement and payment shall be made for Rock Lined V-Dtich, Rock Lined Ditch or Grouted Rock Lined Ditch. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

200-9 Rock Lined Basin, Grouted Rock Lined Basin or Rock Splash Pad

Work under this item shall be in accordance with YAG & MAG Sections 215, 220 and 703, as stated on the project drawings and as modified herein. Waste concrete shall not be used. No separate measurement and payment shall be made for rock Lined Basin, Grouted Rock Lined Basin or Rock Splash Pad. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

201-1 Clearing and Grubbing

Work under this item shall be as per Y.A.G. Section 201. **No separate payment shall be made for clearing and grubbing as per Y.A.G. Section 201.5.**

205-1 Earthwork and Roadway Excavation

A. Work under this item shall be done in accordance with YAG & MAG Specs Section 205, 211 and 301.

B. If material is encountered during excavation that the Engineer determines to be unsuitable, the following shall apply:

   Material which is located in a cut section at an elevation above finished sub-grade shall not be utilized in fill construction but shall be removed and disposed of at a site secured by Contractor.

   Material which is located below the natural ground surface in embankment areas and below the finished sub-grade elevation in excavation areas shall be removed to the limits as determined by the Engineer and the resultant cavity backfilled with suitable material as directed.

C. The price bid for roadway excavation shall include all costs for excavating, hauling, placing and constructing fills as per YAG & MAG 211, sub-grade preparation, removal and disposal of unsuitable and excess material. There will be no separate payment made for overhaul.

D. The bidding schedule quantities for this item of work will be considered to be the final quantities for payment. Adjustments in the bidding schedule quantities for Earthwork as contained in these specifications may be initiated by Contractor or the Engineer if evidence indicates that the required quantity varies by an

amount greater than 5% of the bidding schedule quantity. Contractor shall advise the Engineer, in writing, submitting evidence in the form of a construction survey or photogrammetric survey with measurement for the proposed adjustment and requesting an adjustment in quantities. The Engineer will determine the amount of adjustment, if any. The quantity upon which payment will be based will be the bidding schedule quantity plus or minus only that portion of the adjustment that exceeds 5% of the bidding schedule quantity.

E. Variations caused by shrink of materials shall not be considered for quantity adjustments.

F. Adjustments in earthwork quantities due to revisions ordered by the Engineer will be isolated by measurement or calculations. The bidding schedule quantities will be adjusted by the amount either measured or calculated, regardless of the 5% variation requirement above.

G. Embankment quality control testing frequency shall be one per soil type for proctor density testing and one per 500' per 8" lift for compaction testing. Sub-grade quality control testing shall be one per 500' for compaction testing.

H. Measurement And Payment

1. No separate measurement and payment shall be made for Earthwork and Roadway Excavation. This work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay items.

205-2 Removal of Unsuitable Sub-grade Material

A. Work under this item shall be in accordance with YAG & MAG Specs Section 205 and as directed by the Engineer. The resultant cavity shall be backfilled with ABC in accordance with the aggregate base course section of these specifications and paid as such.

B. No separate measurement and payment shall be Removal of Unsuitable Sub-Grade Material and shall include all excavation, hauling and disposal at a site secured by Contractor.

206-1 Removal of Unsuitable Structure Sub-grade Material and Replacement with Engineered Fill

A. Work under this item shall be in accordance with MAG Specs Section 206 and as directed by the Engineer for unsuitable material that exceeds the limits shown on the plans. Additional material that is unsuitable for the intended use below the Reservoir or Pump Station as shown on the plans, shall be excavated and removed from the site or otherwise disposed of as directed by the Engineer. The resultant cavity shall be backfilled with compacted engineered fill in accordance with the plans and specifications.

B. Measurement and payment of unsuitable structure subgrade material will be by the cubic yard only for the quantity of removal and replacement of unsuitable structure subgrade material that exceeds the limits of excavation shown on the plans and as directed by the Engineer. Volumes will be calculated by the Engineer by a method which in his opinion is best suited to obtain an accurate determination.

Pay Item: 19 Removal of Unsuitable Structure Sub-Grade Material and Replace with Engineered Fill

230-1 Dust Palliative

A. The work under this item shall consist of applying water required for dust control per ADOT Specs Section 207 and as modified herein.

B. If in the opinion of the City Engineer the Contractor fails to keep dust for his operation under control, the City Engineer may order by written order suspension of operations until the situation is remedied. No time extension or additional costs will be allowed for this suspension.

C. All contractors requesting construction water from the City must submit a Construction Water Meter Application to the Public Works Department. A $1,000 deposit will be required for hydrant meters. If

construction water use occurs during the months of May through September the Contractor shall also include a dust abatement program. Potable water may not be allowed for dust abatement during these months. Potable water can be used to process embankment fill and base materials year round. However, contractors are encouraged to use treated effluent for construction activities. The City of Prescott has two outlets for effluent, the Sundog Wastewater Treatment Plant and the Airport Wastewater Treatment Plant. The City will provide metered standpipes for effluent at both plants. The Contractor will be required to estimate daily and total potable/effluent water usage for the project as identified on the Construction Water Meter application. The Contractor will be responsible for all costs associated with obtaining and delivering construction water.

D. ADOT Sections 207-4 and 207-5 shall be revised to read: **No separate measurement or payment shall be made for dust palliative. This work shall be considered incidental and included in the unit price bid for construction of the appropriate contract pay items.**

321 ASPHALT CONCRETE PAVEMENT

Asphalt mix design materials, manufacture, and placement shall be in accordance with MAG Specifications, Section 321 and Section 710 with the additions, clarifications and changes herein:

SECTION 321-3 WEATHER AND MOISTURE CONDITIONS: shall be changed as follows:

Asphalt concrete shall be placed only when the surface on which the material is to be placed is dry, unfrozen, the atmospheric temperature in the shade is at 40 degrees F and rising, and the temperature of the road surface or subsurface is at 50 degrees F and rising as measured in the shade. No asphalt concrete shall be placed when the weather is foggy or rainy, when precipitation is eminent, or when the base or sub base on which the material is to be placed is unstable. Asphalt concrete shall be placed only when the Public Works Director or his authorized representative determines that weather conditions are suitable and sub base conditions on which the material is to be placed are acceptable.

SECTION 321-4 APPLICATION OF TACK COAT: is supplemented as follows:

a. The application rate shall be between 0.04 to 0.06 gallons per square yard of diluted material, 50% water and 50% emulsion, using SS-1H.

b. The tack coat shall be applied only as far in advance of placing the asphalt concrete as ordered by the Engineer; however, in no event should the tack coat be applied and not covered by the asphalt concrete in the same day.

SECTION 321-6 MIX PRODUCTION: is supplemented as follows:

1. STOCKPILING

a. Sufficient virgin mineral aggregate material shall be stockpiled at the site of the hot plant to produce the quantity of asphalt concrete required for a minimum of two successive eight hour shifts; however, this requirement will be modified during the last two days production, or under special conditions with the Public Works Director's approval.

b. Mineral aggregate shall be stockpiled so that segregation is minimized. An approved divider of sufficient size to prevent intermingling of stockpiles shall be provided.

2. PROPORTIONING

a. No fine material which has been collected in the dust collection system shall be returned to the mixture unless the Engineer, on the basis of tests, determines that all or a portion of the collected fines can be utilized. If the Engineer so determines, he will authorize in writing the utilization of a specific proportion of the fines; however, authorization will not be granted unless the collected fines are

accurately and uniformly metered into the mixture.

b. Mineral aggregate and bituminous material shall be proportioned by volume, by weight, or by a combination of volume and weight.

c. When mineral aggregate and bituminous material are proportioned by weight, all boxes, hopper buckets or similar receptacles used for weighing materials, together with scales of any kind used in batching materials, shall be insulated against the vibration or movement of the rest of the plant due to the operation of any equipment so that the error in weighting with the entire plant operating shall not exceed 2% for any setting nor 1½% for any batch. Bituminous material shall be weighed in a heated, insulated bucket suspended from a springless dial scale system.

d. When mineral aggregate and bituminous material are proportioned by volume, the correct portion of each mineral aggregate size introduced into the mixture shall be drawn from the storage bins by an approved type of continuous feeder which will supply bituminous material and so arranged that the proportion of each mineral aggregate size can be separately adjusted. The continuous feeder for the mineral aggregate shall be mechanically or electrically actuated.

3. DRYING AND HEATING

a. A recording pyrometer or other approved recording thermometric instrument sensitive to a rate of temperature change of not less than 10° F per minute shall be so placed at the discharge chute of the drier in order to record mineral aggregate and to facilitate reading the recorded temperature. A copy of the recording shall be given to the Engineer. The moisture content of the asphalt concrete immediately behind the paver shall not exceed 1%.

4. MIXING

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

b. A positive signal system shall be provided to indicate the low level of mineral aggregate in the bins. The plant will not be permitted to operate unless this signal is in good working condition. Each bin shall have an overflow chute or a divider to prevent material from spilling into adjacent bins.

c. The temperature of asphalt concrete upon discharge from the mixer shall not exceed 325° F. If the asphalt concrete is discharged from the mixer into a hopper, the hopper shall be constructed so that segregation of asphalt concrete will be minimized.

SECTION 321-8 PLACEMENT: is supplemented as follows:

a. Contractor shall stringline finish ABC grade in the presence of the Public Works Director or his representative to verify compliance to specified tolerances prior to the placement of asphalt concrete. Placement of asphalt concrete shall not begin prior to completion and adequate curing of all adjoining Portland cement concrete items.

b. The handling of asphalt concrete shall at all times be such as to minimize segregation. Any asphalt concrete which displays segregation shall be removed and replaced.

c. All wheels and tires of compactors and other equipment shall be wiped when necessary with an approved product in order to prevent the picking up of the asphalt concrete.

d. Before asphalt concrete is placed, the surface to be paved shall be cleaned of objectionable material.

e. The base or sub-grade upon which the asphalt concrete is to be placed shall be prepared in accordance with the applicable requirements for the material involved and maintained in a smooth and firm condition

until placement.

f. At any time, the Public Works Director or his designee may require that the work cease or that the work day be reduced in the event of weather conditions either existing or expected which would have an adverse effect upon the asphalt concrete.

g. The temperature of asphalt concrete just prior to compaction shall be at least 250° F but shall not exceed 300° F, unless permitted by the Engineer.

h. The asphalt concrete shall be placed as a surfacing course. Surfacing courses are defined as courses placed to serve either as a traffic surface or as a surface upon which a finishing course or seal coat is to be placed. The thickness of surfacing courses will be shown on the project plans.

i. In order to achieve, as far as practicable, a continuous operation, the speed of the paving machine shall be coordinated with the production of the plant.

j. Tapered sections exceeding eight feet in width or widened sections not exceeding four feet in width may be placed and finished by other means approved by the Public Works Director.

SECTION 321-8.4 Compaction Base and Surface: is supplemented as follows:

a. Compacting and smoothing shall be accomplished by the use of self-propelled equipment. Compactors shall be pneumatic tired and tandem powered (steel wheel) and shall be approved by the Public Works Director.

b. Compactors shall be operated in accordance with the manufacturer's recommendations. Compactors shall be designed and properly maintained so that they are capable of accomplishing the required compaction.

c. Steel wheel compactors shall weigh not less than eight tons and have the vibratory mode option.

d. Pneumatic tired compactors shall be the oscillating type having a width of not less than four feet with pneumatic tires of equal size, diameter and having treads satisfactory to the Public Works Director. Wobble-wheel compactors will not be permitted. The tires shall be spaced so that the gaps between adjacent tires will be covered by the following tires. The tires shall be inflated to 90 lb. per square inch, or such lower pressure will not vary more than five lb. per square inch from the designated pressure.

e. Pneumatic tired compactors shall be constructed so that the total weight of the compactor can be varied to produce an operating weight per tire of not less than 2,000 lb.

f. Steel wheel compactors shall not be used in the vibratory mode when the surface temperature of the asphalt concrete falls below 180 ° F.

g. Asphalt concrete shall be compacted to not less than 95.0% of laboratory density.

h. Compaction control shall be defined as the responsibility of Contractor on the basis of his anticipated rate of production to determine the number and types of compactors and the sequence and manner in which they shall be used in order to achieve the specified percent density.

i. The responsibility for developing and controlling the compaction lies with Contractor.

j. The City reserves the right to test Contractor's percent of density at any time.

k. Core samples shall be taken by Contractor on a random location basis with locations determined by the Public Works Director and consist of one core per every 1,000 square yards of roadway, for each day's production. The asphalt cores shall be taken on the following workday or within 24 hours whichever applies and shall be submitted to the City's Quality Assurance firm for testing.

l. For complete acceptance, all core densities must show a minimum relative density of 95.0%

based on a 75 blow Marshall Density, AASHTO T-245. The Marshall Density shall consist of two sets of three specimens averaged for each day's production.

m. If the core densities show inadequate compaction the unit price will be adjusted per the table below:

Percent Compaction	Reduction in Payment
94.0 - 94.9	5%
93.0 - 93.9	10%
92.0 - 92.9	25%

n. When the percent compaction is less than 92.0%, Contractor may be required to remove and replace any portions at the discretion of the Public Works Director at no extra cost to the City.

SECTION 321-8.5 Smoothness: the second sentence is changed as follows:

a. Surfacing course surfaces shall not vary more than 1/8 inch from the lower edge of ten-ft. straightedge when the straightedge is placed parallel to the center of the roadway.

SECTION 321-9 QUALITY CONTROL: shall be changed as follows:

A. Contractor Quality Control

1. GENERAL REQUIREMENTS

a. It shall be the responsibility of Contractor to administer a Quality Control Plan, hereinafter referred to as "Plan", sufficient to assure a product meeting the requirements of these specifications. The Plan may be operated wholly or in part by a subcontractor or an independent organization; however, the Plan's administration, including compliance with the Plan and its modification, shall remain the responsibility of Contractor.

b. Contractor is required to provide and maintain a Quality Control Plan, along with all the personnel, equipment, supplies and facilities necessary to obtain samples, perform tests, and otherwise assure the quality of the project.

c. Contractor shall submit the Quality Control Plan to the Public Works Director or his designee at the preconstruction conference.

e. Contractor shall perform process control sampling, testing and inspection during all phases of the work and shall perform the process control sampling, testing, and inspection at a rate sufficient to assure that the work conforms to the contract requirements. Contractor shall provide the Public Works Director a certification stating that all of the testing equipment to be used is properly calibrated and will meet the specifications applicable for the specified test procedures.

2. ELEMENTS OF THE PLAN

a. The Plan shall address all elements which affect the quality of the asphalt concrete including, but not limited to the following: Mix Design, Aggregate Production, Quality of Components, Stockpile Management, Proportioning, Mixing (including addition of Mineral Admixture, if required), Placing and Finishing, Joints, Compaction.

3. *PLAN IMPLEMENTATION*

a. The Contractor shall provide testing at the frequencies listed in Table 321.9.1 during production of the asphalt concrete. A laboratory accredited in each of the listed tests by the AASHTO Materials Laboratory (AMRL) shall perform the testing.

TABLE 321.9.1

CONTRACTOR QUALITY CONTROL TESTING REQUIREMENTS

Test	Sample Point	Frequency
Ignition Binder Calibration, ASTM D 6307	Stockpiles or storage tanks	1 per mix design per project
Ignition Binder Test, ASTM D 6307, C 117 & C116	Plant, truck, or on-grade	1 per 1000 tons, but not less than 1 per day
Gyratory or Marshall Density, ASTM D 4013 or AASHTO T 166	Plant, truck, or on-grade	1 per 1000 tons, but not less than 1 per day
Maximum Theoretical Density, ASTM D 2041	Plant, truck, or on-grade	1 per 1000 tons, but not less than 1 per day
Temperature	On-grade	Continuous Reading
Aggregate Gradation, ASTM C 117 & C 136	Cold Feed	1 per 1000 tons, but not less than 1 per day

b. Results of each test shall be provided to the Public Works Director or his designee immediately upon completion, and in no case later than the end of the day asphalt was produced. Test results shall be used to control the asphalt concrete production. Production of the asphalt concrete on consecutive paving days shall not commence until the prior day's test results have been submitted to the Public Works Director or his designee and appropriate actions have been taken in accordance with the criteria listed in Table 321.9.1 and Table 321.9.2.

TABLE 321.9.2

CRITERIA FOR REQUIRED PLANT ADJUSTMENT

Property	Criteria A (Adjustment)	Criteria S (Stoppage)
Binder Content	±0.4%of Mix Design	±0.5%of Mix Design
Air Voids	4±1.5%	4±2.0%
Gradation	Table 321-3	Table 321-3
Temperature	±10BC of Mix Design	±15BC of Mix Design

c. The guidelines in Table 321.9.2 and Table 321.9.3 shall be used to determine if the plant will require adjustment or stoppage. If the Contractor's test results indicate the mixture does not comply with Criteria A in Table 321.9.2, an adjustment to the plant will be required to bring the production closer to the

middle of the specification bands. The Contractor is responsible for determining the extent and the method of adjustment, and shall notify the Public Works Director or his designee in writing of what adjustments were made.

TABLE 321.9.3	
ALLOWABLE GRADATION VARIATION FROM MIX DESIGN TARGET	
Maximum Aggregate Size	100%
Nominal Maximum Aggregate Size (NMAS)	±5%
#8 (2.36 mm) Sieve to NMAS	±4%
#40 (0.425mm)Sieve	±3%
#200 (0.75 mm) Sieve	±1.5%

d. If the Contractor's test results indicate the mixture is at or beyond the range established by Criteria S in Table 321.9.2, production shall cease immediately, and shall not resume (except as required to produce material for additional samples) until additional test results verify the adjustments will produce test results meeting Criteria A in Table 321.9.2. The Public Works Director or his designee may enforce the adjustment or stoppage criteria if the acceptance tests and the quality control tests are not in agreement.

e. A representative of the City shall secure two representative samples of the mixture for each day's production.

f. Samples will be tested for conformance with the mineral aggregate gradation in accordance with the requirements of AASHTO T27. The gradation of the mineral aggregate will be considered to be acceptable unless the average of any three consecutive tests or the results of a single test varies from the mix design gradation percentages as follows:

	Number of Tests	
Passing Sieve	Three Consecutive	One
Nominal Maximum Aggregate Size	± 6%	± 8%
No. 8	± 4%	± 6%
No. 40	± 4%	± 6%
No. 200	± 1.5%	± 2.0%

g. Samples will be tested for conformance with the sand equivalent in accordance with AASHTO T176 and will be considered acceptable if the result is 45 or greater and does not vary from the design by more than -10 points. At any time that test results indicate that the gradation of the mineral aggregate or sand equivalent does not fall within all of the limits indicated, the production of asphalt concrete shall cease immediately and shall not begin again until calibration tests indicate that the gradation and sand equivalent is within the limits indicated.

SECTION 321-12 MEASUREMENT: shall be supplemented as follows:

a. No separate measurement and payment shall be made for AC Pavement. This work shall be considered incidental and included in the unit price bid for construction of the appropriate contract pay items.

b. No separate measurement shall be given for the thickened edge, COP Standard Detail 201P and as detailed on project drawings. This work shall be considered incidental and included in the unit price bid in the contract documents. Payment shall be made at the unit price bid in the contract documents for the items complete in place, adjusted for compaction and thickness deficiencies as herein provided.

345-1 ADJUST MANHOLES, VALVES AND CLEANOUTS

A. All frames, covers, valve boxes, manholes, etc., shall be adjusted to finished grade after placement of asphalt concrete surface course by the Contractor as per COP Std. Dtls. 270P, 3-15P, and 4-05P. New water valve top risers and caps shall be furnished by the Contractor at existing water valve locations and placed as directed by the Engineer. New valve top risers and caps shall be considered incidental to the cost of adjustment. Existing water valve risers and caps shall be salvaged to the City Water Department. Existing sanitary sewer manhole and cleanout rings and covers shall be salvaged and utilized for grade adjustment.

B. **No separate measurement or payment** shall be made for adjusting manholes and valves and cleanouts. This work shall be considered incidental and included in the unit price bid for construction of the appropriate contract pay items.

350-1 REMOVAL OF EXISTING IMPROVEMENTS

A. Work under this item shall be performed in accordance with ADOT Specs Section 202, as designated on the project drawings and as modified herein.

B. ADOT Specs subsection 202-1 shall be revised by adding the following: All existing utilities not designated for removal shall remain in place and be protected against damage.

C. No item shall be removed if designated by the City Engineer to remain in place. Such items shall be protected from damage.

D. ADOT Specs subsection 202-3.03, paragraph B shall be revised to read: All bituminous pavements to be removed shall be removed from the job site and disposed of at a site secured by Contractor.

E. Street signs, traffic control signs, traffic signal material and control devices shall be removed as designated on project drawings, salvaged and delivered to the Engineer of Prescott at the site designated by the Engineer.

F. ADOT Specs subsection 202-3.08, paragraph 3 shall be revised to read: In areas where new fence or relocated fence is to be installed, Contractor shall perform the removals in such a manner as to prevent the escape of any livestock and/or domestic pets, including the placement and removal of temporary fence when necessary. This work shall be considered incidental and included in the unit price bid for removals.

E. **No separate measurement or payment** shall be made for removal of existing improvements. This work shall be considered incidental and included in the unit price bid for construction of the appropriate contract pay items.

400-1 TRAFFIC CONTROL

A. Traffic control during construction shall be performed in accordance with MAG Section 401 and the Manual on Uniform Traffic Control Devices for Streets and Highways, US Department of Transportation Federal Highway Administration, latest edition with the latest revisions, Arizona Department of Transportation Traffic Control Manual, the project plans, and as stated herein.

B. Prior to beginning the project, Contractor shall submit for approval a Traffic Control Plan for the entire project. He must obtain approval from the Director of Public Works for the Traffic Control Plan and Schedule prior to any construction. Contractor shall submit the Traffic Control Plan to the Director of Public Works at or before the project preconstruction conference.

C. Written notice shall be given to the Director of Public Works or his representative on the job 48 hours prior to any changes in detours or routes of access. The notice shall give specific details with maps showing the access to all residences and businesses affected by the project.

D. The Police and Fire Departments shall be continually updated on access routes along and through the site during construction.

E. All traffic control devices required for the project shall be the responsibility of Contractor.

F. When required to cross, obstruct, or close a street, traffic way, or sidewalk for a short duration that is approved by the Director of Public Works, the Contractor shall provide and maintain suitable bridges, detours or other approved temporary means for the accommodation of vehicular and pedestrian traffic.

G. When traffic conditions at the construction site warrant the use of certified police personnel to direct traffic, arrangements shall be made with the City Of Prescott Police Department, Yavapai County, or Department of Public Safety for off-duty officers.

H. No separate measurement and payment shall be made for Traffic Control. This work shall be considered incidental.

401-10 Concrete Filled Steel Bollards

Work under this section shall be in accordance with YAG Std.Dtl. 3-09 Payment shall be per each complete and in place.

Work under this item shall be done in accordance with MAG detail 505, Section 620. No separate measurement and payment shall be made for Concrete Filled Bollards. This work shall be considered incidental and included in the unit price bid for construction.

505-1 Concrete Drainage Outlet/Structure

The work consists of constructing a concrete drainage outlet and structure as designated on the project drawings in accordance with YAG 220 and YAG and MAG Sections 340 and 725 and as modified herein. All concrete shall be class "A" 3,000 psi. Sub-grade and base materials under the structure shall be compacted to not less than 95% of the maximum dry density as determined by AASHTO T-99. No additional payment will be made for aggregate base materials required under concrete structures. The base material shall be considered incidental to the construction of this item and provided for in the unit price for the work. No separate measurement and payment shall be made for Concrete Drainage Outlet/Structure. This work shall be considered incidental and included in the unit price bid for construction

505-3 Concrete Catch Basin

Work under this item shall be in accordance with MAG Std. Dtls. 534-1 through 540-2, YAG & MAG Sections 505 and 725 and above mentioned specifications for Portland Cement Concrete. All grates shall be bicycle safe type.

601-1 Trench Excavation, Backfilling and Compaction

A. Unless specifically identified, no investigation of subsurface soil conditions for water or sewer main installation has been made for project limits.

B. Excavation, backfilling and compaction shall be in accordance with YAG & MAG Spec 601 and Standard Details as listed below:

1. In sections where paved roadway surfaces are involved the following shall apply:

   a. Bedding shall be a minimum of six inches and shall be in accordance with COP Std. Dtl. 2-02P compacted to 95% of maximum standard proctor density and as modified herein. Bedding/shade material shall be of granular consistency such as sand or crushed aggregates conforming to the following gradation and plasticity requirements:

Sieve Size	Percentage Passing By Weight
1"	100
No. 200	< 25
PI	10 Max.

   Volcanic cinders or glass materials are not acceptable.

   Use of open graded rock i.e., 3/8" pea gravel or 3/4" rock must be approved by the engineer prior to placement and will be considered only in special circumstances.

   b. Backfill material shall be in accordance with COP Std. Dtl. 2-02P compacted to 95% of maximum standard proctor density to twelve inches above top of pipe. From 12" above top of new pipe to existing grade, backfill shall be in accordance with COP Std. Dtl. 2-01P.

2. In sections where unpaved roadway surfaces and non-roadway surfaces are involved the following shall apply:

   a. Bedding shall be a minimum of six inches and shall be in accordance with COP Std. Dtl. 2-02P compacted to 95% of maximum standard proctor density.

   b. Backfill material shall be in accordance with COP Std. Dtl. 2-02P compacted to 95% of maximum standard proctor density to 12" above top of pipe. From 12" above top of new pipe to 6" below existing grade shall be minus 3" native material compacted to 95% of maximum proctor density. From 6" below existing grade to existing grade shall be material in like kind to material existing before excavation compacted to 95% of maximum standard proctor density.

C. All water encountered during the work shall be disposed of by the Contractor in a manner such that it will not damage public or private property or create a public nuisance or health problem. The costs of furnishing pumps, pipes, special bedding, and over excavation as required to provide a stable foundation, and other equipment and materials shall be incidental to the work in accordance with Section 200-1 of these specifications.

D. Trench backfill quality control testing frequency shall be one per soil type for Proctor Density testing and one per 1' vertical lift per 200 linear feet of trench.

E. **No separate measurement or payment** shall be made for trench excavation, backfilling and compaction. This work shall be included in the unit bid price for water and/or sewer main construction.

601-2 ROCK EXCAVATION FOR UTILITY AND/OR DRAINAGE CONSTRUCTION

A. Definition of Rock.

When rock is encountered, it shall be stripped of earth and shale, and the City Engineer notified in order that he may measure or cross-section the same. In lieu of stripping the earth overburden prior to excavation/blasting, the City Engineer and the Contractor may mutually agree on a method to define the vertical limits of rock. Any rock excavated before such measurement or agreement is made, will not be estimated, allowed, or paid for. Rock excavation shall be defined to include: all hard, solid rock in ledges; bedded deposits and unstratified masses; all natural conglomerate deposits so firmly cemented

as to present all the characteristics of solid rock; and masonry or concrete structures not shown on the plans. Shales, hard pan, masonry and concrete rubble boulders less than one cubic yard which are not a part of or attached to substrata of rock, shall not be considered rock excavation. Additionally, material to be considered "rock" shall be of such hardness that it cannot be excavated using hydraulic backhoe with combined breakout force, for bucket and stick cylinders, of at least 100,000 pounds.

B. Blasting

1. It is the Contractor's responsibility to determine the type of material he will encounter and whether blasting will be necessary.
2. Blasting shall be done only by experienced, qualified blasters. Blasting shall be done in accordance with the recommendations for best practice in Section 9 of the AGC Manual of Accident Prevention in Construction and in accordance with the recommendations for best practices of the Institute of Makers of Explosives. Also, all blasting must comply with the requirements of the Division of Industrial Safety and OSHA and all other federal, state and local ordinances.
3. When work requires blasting or explosive conditions, precautions shall be taken to protect life and property, and give proper warning to persons who may be in vicinity of work before blast is set off.
4. Blasting shall be performed in such a manner that no damage will result to any building, structure, pipeline, or facility on or off the site of work, above or below ground. Any damage suffered as a result of blasting shall be immediately settled, including repair or replacement.
5. Blasting shall be done in such a manner that the earth is not loosened or disturbed below the footing or foundation of any proposed structure. Loosened material below footings or foundations shall be replaced with Class C concrete.
6. The stemming of each hole or cover over explosive shall be sufficient to prevent surface blast wave, but in no case less than three (3) feet six (6) inches. Multiple holes shall be shot using millisecond delays.
7. The Contractor shall enlist the services of an experienced explosives engineer for advice on blasting methods and for the protection of existing structures or facilities.
8. Blasting procedures shall comply with all rules and regulations as specified and determined by the Fire Marshall or the City Engineer of Prescott.

A. Measurement

1. Rock excavation within the reservoir excavation limits shall not be measured separately. No separate payment shall be made for reservoir rock excavation.
2. Rock Excavation within structural excavation limits shall not be measured separately. It shall be considered incidental and shall be included in the appropriate bid item.
3. Rock excavation within trenches shall be measured in accordance with the following:
   a. Width of trench for rock excavation shall be based on pipe outside diameter plus 24 inches.
   b. Depth for rock excavation shall be actual depth from top of rock to bottom of rock, or to bottom of normal bedding section, whichever depth occurs first.
   c. Payment for rock trenching shall be at the unit price bid per cubic yard which shall include the cost of blasting, excavation, removal, hauling and disposal.

Pay Item: 20 Rock Removal (trench)

610 WATER MAIN CONSTRUCTION

Water main construction shall be in accordance with all applicable YAG Standard Details and MAG Section 610. All ductile iron water pipe used in fire hydrant installation shall be Class 350. No separate payment will be made for bends and fittings unless otherwise noted and the cost will be included in the water main unit price.

610-1 WATER MAIN PIPING

A. Water Main piping shall be slip joint Class 350 ductile iron unless otherwise noted on the project plans, in accordance with MAG Section 610 and 750. Trace wire per COP Std. Dtl. 3-19P shall be required for all water main installations. Water main piping shall be furnished new in full lengths with manufacturer, class rating, and all other applicable information clearly marked on the barrel. Water main piping for 2-inch shall be copper in accordance with MAG Section 754 and encased in polyethylene protective wrapping in accordance with YAG Section 610.5.

B. All ductile iron, copper and brass water main and fittings shall be encased in polyethylene protective wrapping in accordance with YAG Section 610.5.

C. All water mains shall have NSF-PW seal clearly marked on each barrel and installed with 14-gauge direct bury trace wire in accordance with COP Std. Dtl. 3-19P.

D. Thrust restraint shall generally be accomplished through the use of restrained joints in lieu of thrust blocking. The preferred joint restraint system shall be "Field-Lok" gasket or approved equal except that vertical deflections, tees, valves and bends shall be restrained utilizing Mega-Lug, as manufactured by Ebba Iron, or equal.

E. Required minimum lengths of joint restraint shall be per MAG Standard Detail 303. In locations where lines perpendicular to main lines are shown as restrained, the main line piping shall be restrained for a minimum of 10 feet or one joint (which ever is greater) each side of the main line "Tee". Concrete thrust blocking will be required at connections to existing lines at the locations noted on the plans. Thrust blocks placed at these connections shall be in conformance with MAG/YAG Details and shall be adequately braced to allow system operation during curing of the concrete thrust blocks. Heavy plastic sheeting shall be used to wrap fittings to be restrained with thrust blocks to prevent covering with concrete on nuts and threading on fittings.

F. All lateral water main connecting piping, valves and fittings shall be constructed using restrained joints from the main line "Tee" to the connection to the existing water line at the locations shown on the plans.

G. All new fire hydrants and connecting piping shall be constructed per Detail 3-07P using restrained joints from the main line "Tee" to the hydrant.

H. Concrete encased water main crossings of storm drains and/or other utilities which clear the crossed line by less than 12 inches, shall incorporate a 6" sand pad to break the frictional contact.

I. Prior to ordering of materials and scheduling connections to existing water mains and services, the contractor shall complete investigations to verify the size, type and location of the existing water mains and services.

J. All existing water service connections shall be replaced in accordance with the provisions of the COP Technical Specifications for "Water Service Replacement".

K. COP Technical Specifications for "Air Release Valves" is expanded to include Combination Air Release-Vacuum Breaker valves at the locations shown on the plans constructed as shown in Detail 3-17P.

L. The existing water main shall not be taken out of service prior to completion and ADEQ Approval to Operate the replacement water main and connection of all water services and fire hydrants to the replacement system.

M. The existing water system shall not be taken out of service at any time without the approval of the Engineering. With the approval of the Engineer, the existing water main may be taken out of service for limited periods to facilitate project construction.

N. The contractor shall prepare and submit to the engineer a plan for each connection to the existing system which demonstrates the ability to complete all work within the allowed period.

O. All temporary connections and/or elements which must be placed in service prior to full system disinfection, testing and approval shall be disinfected in accordance with Paragraph 4.7 of AWWA C651-99 after approval of the engineer.

P. Payment for water main shall be at the unit price in the bidding schedule and shall include all connections, joints, flanges, joint restraints, thrust restraints for valves and incidentals unless specifically itemized in the bidding schedule.

610-9 Fire Hydrant Installation

A. Hydrant installation shall be in accordance with COP Std. Dtl. 3-07P, YAG Std. Dtl.3-08, and as specified on the project plans. Hydrants shall be Waterous or East Jordan, as approved by the Engineer.

B. Payment for hydrant installation shall be at the unit price in the bidding schedule and shall include the hydrant, piping, valve, box and cover, and all appurtenant fittings, as noted for a complete assembly.

610-11A New Water Service and Private Water Service Line Reconnection

A. New Water Service shall be in accordance with C.O.P. Std. Dtl. 3-16P as modified on plans, except as noted herein. All service piping and fittings from main tap to meter box shall be encased in polyethylene protective wrapping in accordance with YAG Section 610.5. Existing water service shall be abandoned in place and existing meter loop, box and cover shall be salvaged and delivered to the C.O.P. Maintenance Yard and placed as directed by the Engineer. The Contractor shall supply all necessary materials for new water service including service saddle, corporation stops, piping, meter loops, boxes and covers, plus all appurtenant fittings to connect to customers existing service line. The Contractor shall maintain a minimum three (3) feet of cover material over water service and match grades and cover material at existing meter box location.

B. The Contractor shall take all necessary steps to maintain water service. Residents affected by water service disruption due to water main abandonment shall be notified by written flyer delivered by the Contractor a minimum of 24 hours in advance of scheduled water service disruption. The Contractor shall not disconnect or disrupt water service until new water main and services pass hydrostatic and disinfection tests and is accepted by the Engineer. The Contractor shall notify tenants of schedule water service disruption a minimum of 24 hours in advance of construction. Residents shall not be without water service for a total time period greater than 4 hours inclusive of contract time period from issuance of Notice to Proceed to Final Acceptance by the Engineer. The Contractor shall utilize construction method of water service shut-off at water main corp for water meter reconnection work to the new water main if his construction operation progression cannot meet the 4-hour restriction for water service disruption of residents. The Contractor shall supply bottled potable water and temporary water service meeting all state health requirements for periods of water service disruption exceeding 4 hours. No separate payment will be made for water service maintenance or The Contractor written notification of water service disruption.

C. No separate measurement or payment will be made for adjustment of new water valve boxes to finished grade. This work is considered as incidental to the construction of the water main replacement.

D. The Contractor will be required to install private water service line from the new water meter location to a point at the existing water meter location or to a point of connection to the existing service line for the residence. This point of connection shall be a maximum of a 10-foot radius from the meter location. Contractor shall remove existing valves and pressure regulators and replace per specifications. Contractor to furnish and install gate valve and pressure regulator after meter box and PRV to service connection. All private service lines shall be Type "K" copper in accordance with MAG Section 754 and encased in polyethylene protective wrapping in accordance with YAG 610.5. The Contractor shall maintain a minimum

of two (2) feet of cover material, including ditch inverts, over new private water service line and utilize existing in-situ material for backfill. The Contractor shall supply all necessary material for new private water service installation including a gate valve, plus an approved type pressure regulator, in an accessible box per COP Std. Dtl. 3-16P at the new meter box location and all appurtenant fittings to connect to resident existing service line.

E. The Contractor shall remove the existing water meter and reinstall in the new yoke at the new meter box location with all appurtenant fittings and adapters. The City shall supply the Contractor with new meters for use in new locations that were not previously served or there is no existing meter to remove.

F. The Access Box called out in Standard Detail 3-16P for the shut-off valve and pressure regulator on the customer side of the meter box shall be minimum #1 box or equivalent as approved by the Engineer, and the valve, regulator, box and lid shall be provided and installed by the Contractor.

G. The Contractor will be required to distribute written notices to the approval of the Engineer to all residents 24 hours in advance of proposed private service line reconnection work.

H. Existing improvements disturbed by the Contractor shall be restored in "like kind" to the satisfaction of the Engineer. No extra payment will be made for restoring existing improvements in "like kind" to include concrete walkways, retaining walls, landscape improvements, etc.

I. It shall be the Contractor's responsibility to review existing water meter location and points of private service line reconnection locations and ascertain all work including existing improvement restoration costs to perform the private service line reconnection work as specified. Costs associated for private service line reconnection work shall be at the appropriate unit bid price in the bidding schedule and shall include private service line piping, gate valve and pressure regulator, plus all appurtenant fittings and existing improvement restoration work as specified.

J. The pressure regulators shall be set at 65psi. The Contractor shall bench-test or otherwise provide written verification from the supplier prior to installation that the pressure regulators have been set at the required psi.

K. Payment for new water service and reconnection shall be at the appropriate unit bid price shown in the bidding schedule and shall include service saddle, corporation stops, piping, meter yoke, boxes, pressure regulator, plus all appurtenant fittings for complete assembly for connection to existing water customers service line. Contractor to supply and install all fittings necessary to install meter into new yoke.

Pay Item: 21 New Water Service

610-15 TESTING & DISINFECTION OF WATER MAINS

A. Pressure tests and leakage test of water mains and services shall be performed in accordance with AWWA C-600-82 and City Of Prescott Water Line Testing And Acceptance Procedures. Testing shall be performed by the Contractor and shall be witnessed by the Engineer for approval.

B. Water main and services shall be disinfected in accordance with MAG Section 611. The Owner or his representative shall perform the sampling for bacteriological and residual chlorine testing. The Contractor shall notify the Owner 24 hours in advance to coordinate disinfection testing.

C. Payment for Testing and Disinfection of Water Mains shall be included in the unit bid price for water main construction

618-2 CORRUGATED METAL PIPE

All CMP shall have minimum $2^2/_3$" x ½" corrugations and a minimum gauge of 14 and shall conform to MAG Spec. 760 and shall be installed as per MAG Section 621. No separate measurement and payment shall be made

for corrugated metal pipe. This work shall be include in the lump sum price for site grading and drainage.

618-3 SPIRAL RIB PIPE

Material specified as spiral rib pipe shall conform to MAG Spec. 760.3 and AASHTO M3-36 Type IR. Gauge shall be 14. No separate measurement and payment shall be made for spiral rib pipe. This work shall be include in the lump sum price for site grading and drainage.

630-3 GATE VALVES

A. Valves shall be resilient wedge gate valves, Waterous 500 series, Clow, Mueller, or equal, suitable for use in line and in wet tapping water main in conjunction with tapping sleeves. Gate valves shall be mechanical joint except where flange joints are specifically detailed in project plans or where required for tapping sleeves and hydrant installation.

B. Thrust restraint shall be provided on all valves in accordance with COP Std. Dtl. 3-05P, all bends in accordance with MAG Std. Dtl. 303-1 and 303-2. No separate payment will be made for thrust blocking and the cost shall be included in the water main unit price.

C. Valve boxes shall be in accordance with COP Std. Dtl. 3-15P.

D. Debris caps shall be installed on all valves within project limits according to MAG Std. Dtl. 392 and shall be color-coded according to YAG Std. Dtl. 3-15P. Debris caps shall be SW Services DC600 or approved equal.

E. The Contractor shall notify customers of scheduled water service disruption a minimum of 24 hours in advance of construction. Customers shall not be without water service nor shall the water main line be out of operation for a total time period greater than four (4) hours, inclusive of contract time period from issuance of Notice to Proceed to Final Acceptance by the Engineer.

F. **No separate measurement or payment** shall be made for valves, box and cover. This work shall be included in the unit bid price for water main construction. Except valves on tapping sleeves and hydrant installations shall be included in the appropriate bid item in the bidding schedule.

G. Retrofit Debris Caps on Valves: Debris caps shall be installed on all valves within project limits according to MAG Std. Dtl. 392 and shall be color-coded according to YAG Std. Dtl. 3-15P. Debris caps shall be SW Services DC600 or approved equal. **No separate measurement or payment** shall be made for Retrofit Debris Caps. This work shall be included in the unit bid price for water main construction.

630-6A AIR/VACUUM RELEASE VALVES

A. Air/vacuum release valves shall be 1" in accordance with COP Std. Dtl. 3-17P as modified per project drawings.

B. **No separate measurement or payment** shall be made for Air/Vacuum Release Valves. This work shall be included in the unit bid price for water main construction and shall include all materials and appurtenant fittings at noted for a complete installation.

630-6B BLOW OFF INSTALLATION

A. Blow off installation shall be in accordance with COP Std. Dtl. 3-18P. Contractor shall be required to provide Mega-Lug restraint for all joints for a distance specified per MAG Section 303.

B. **No separate measurement or payment** shall be made for Blow Off. This work shall be included in the unit bid price for water main construction and shall include all materials and appurtenant fittings at noted for a complete installation. No extra payment shall be made for Mega-Lug restraint.

710 ASPHALT CONCRETE

SECTION 710-2.1 Asphalt Binder: shall be deleted as replaced as follows:

a. The asphalt binder shall be a Performance Grade (PG) PG 64-22 Asphalt conforming to the requirements of AASHTO M 320-09 Performance-Graded Asphalt Binder. The binder grade shall be as specified in the contract documents or as directed by the Engineer.

b. The Public Works Director may review a request by the Contractor to change from a PG 64-22 binder grade to a PG 64-16 grade. The owner may require the Contractor to provide supporting justification and/or data for changing the grade of binder from PG 64-22 to PG 64-16.

SECTION 710-3.2 Mix Design Criteria: add the following:

a. The intent of this supplement is to use only 1/2 inch or 3/4 inch Marshall or Gyratory Mix Designs within the specification unless specifically called out in the project specifications.

b. The asphalt mix design shall be for high traffic volume, unless otherwise specified.

SECTION 710-3.2.1 Marshall Mix Design: make the following change:

a. In Table 710-3 change the Tensile Strength Ratio minimum percent requirement from 65 to 75. A tensile strength ratio of 75 percent may require more then one percent mineral admixture.

725 PORTLAND CEMENT CONCRETE

A. All Portland cement concrete placed under this contract shall be Class A in accordance with YAG & MAG Specs Section 725, as designated on the Project drawings, and as modified herein.

B. Subsection 725.6 shall be revised by adding: All portland cement concrete shall contain 5%, plus or minus 1%, entrained air of evenly dispersed air bubbles at the time of placement. The air-entraining agent shall contain no chlorides. The air-entraining agent shall be added to the batch in a portion of the mixing water. The solution shall be batched by means of a mechanical batcher capable of accurate measurement. Air entrainment in the concrete shall be tested in accordance with AASHTO T-152. Air entrainment shall be tested at time of sampling in accordance with ASTM C143 and C231 respectively. The cost of this testing shall be the responsibility of the Contractor.

C. Subsection 725.10 shall be revised by adding: The slump of portland cement concrete shall be tested in accordance with the requirements of AASHTO T119, ASTM C143 and ASTM C231 respectively. Concrete that does not meet the specification requirements as to slump shall not be used, but shall be removed from the job at no cost to the City Engineer. Slump tests will be taken in the field by a representative of the Contractor's quality control firm. The cost of this testing shall be the responsibility of the Contractor.

D. Concrete cylindrical specimens for compression tests will be taken in the field by a representative of the Contractor's quality control firm in accordance with AASHTO T141 and T-23. These samples will be tested for compressive strength in accordance to AASHTO T22. Concrete samples will be taken in accordance with YAG & MAG 725.10 except as noted hereinafter. One set of not less than four (4) cylinders per fifty (50) cubic yards of ½ days pour shall be prepared and retained to verify compressive strength of the mixture. One (1) cylinder shall be tested at seven (7) days and two (2) at twenty-eight (28) days. The fourth (4th) cylinder shall be retained for up to sixty (60) days. If the 28-day test does not meet the minimum strength requirement, cores shall be taken as provided herein and the cost of such will be the responsibility of the Contractor. Acceptance shall be based on minimum 28-day strength requirements. The cost of testing shall be the responsibility of the Contractor.

E. ADVERSE WEATHER CONDITIONS. Placement of all portland cement concrete shall conform to the requirements of YAG & MAG Section 505.6.2. No separate payment shall be made for adverse weather concreting. The work shall be considered incidental and included in the unit price bid for construction or installation of the appropriate contract pay item.

NORTH

0 20 40

DRAWING SCALE
1 inch = 20 Feet,
(This scale is valid for 11"x17" sheets only)

WATER KEY NOTES

1. INSTALL ¾" WATER METER PER COP STD. DET. 3-16P
2. INSTALL 1" AIR RELEASE VALVE PER COP STD. DET. 3-17P. FIELD LOCATE AT HIGH POINT OF 16" WATER MAIN.

ARIZONA BLUE STAKE, INC. CALL TWO WORKING DAYS BEFORE YOU DIG DIAL 811

REV	DATE	BY	DESCRIPTION
1	11/16/12	BAL	PLAN VIEW LOCATION OF ADDED WATER SERVICE & ARV

DESIGNED BAL
DRAWN BAL
CHECKED
DATE NOVEMBER 2012

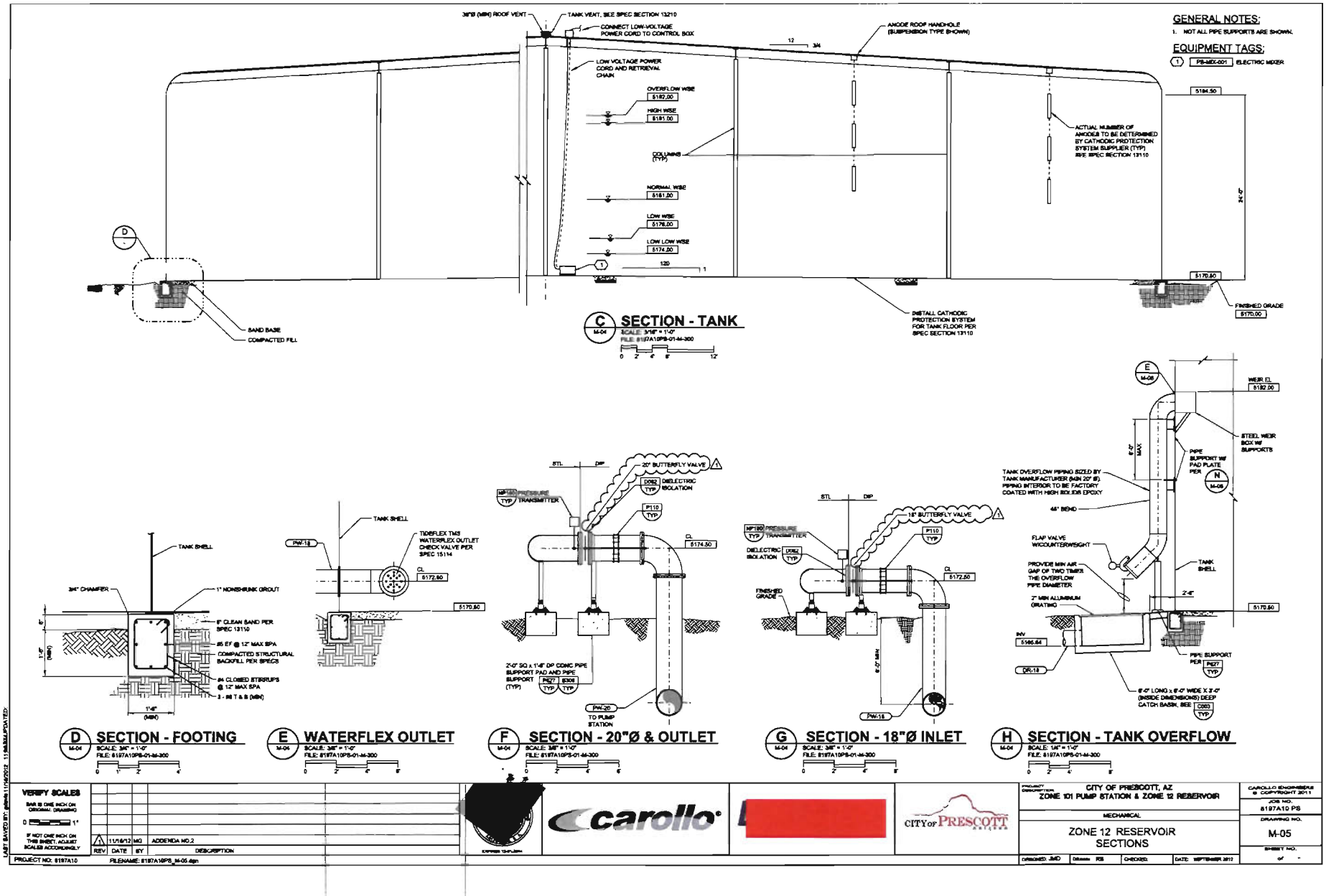
LYON ENGINEERING
Civil Engineers • Land Surveyors
1850 Willow Creek Rd, Prescott, AZ 86301
Phone: (928) 778-1750, Fax: (928) 778-0806

CITY OF PRESCOTT
ARIZONA

CITY OF PRESCOTT, AZ
ZONE 101 PUMP STATION & ZONE 12 RESERVOIR
ADDENDUM #2
WATER MAIN PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 274-08
DRAWING NO. AD-01
SHEET NO 1 OF 1


GENERAL NOTES:
1. NOT ALL PIPE SUPPORTS ARE SHOWN.
EQUIPMENT TAGS:
1 PS-MIX-001 ELECTRIC MIXER
TANK VENT, SEE SPEC SECTION 13210
CONNECT LOW-VOLTAGE POWER CORD TO CONTROL BOX
LOW VOLTAGE POWER CORD AND RETRIEVAL CHAIN
ANODE ROOF HANDHOLE (SUSPENSION TYPE SHOWN)
OVERFLOW WSE 5182.00
HIGH WSE 5181.00
COLUMNS (TYP)
NORMAL WSE 5181.00
LOW WSE 5176.00
LOW LOW WSE 5174.00
ACTUAL NUMBER OF ANODES TO BE DETERMINED BY CATHODIC PROTECTION SYSTEM SUPPLIER (TYP) SEE SPEC SECTION 13110
INSTALL CATHODIC PROTECTION SYSTEM FOR TANK FLOOR PER SPEC SECTION 13110
SAND BASE
COMPACTED FILL
FINISHED GRADE 5170.00
C SECTION - TANK
SCALE: 3/16" = 1'-0"
FILE: 8197A10PS-01-M-300
TANK SHELL
3/4" CHAMFER
1" NONSHRINK GROUT
6" CLEAN SAND PER SPEC 13110
#5 EF @ 12" MAX SPA
COMPACTED STRUCTURAL BACKFILL PER SPECS
#4 CLOSED STIRRUPS @ 12" MAX SPA
3 - #8 T & B (MIN)
D SECTION - FOOTING
SCALE: 3/4" = 1'-0"
FILE: 8197A10PS-01-M-300
TANK SHELL
TIDEFLEX TMS WATERFLEX OUTLET CHECK VALVE PER SPEC 15114
CL 5172.50
5170.50
E WATERFLEX OUTLET
SCALE: 3/4" = 1'-0"
FILE: 8197A10PS-01-M-300
20" BUTTERFLY VALVE
DIELECTRIC ISOLATION
PRESSURE TRANSMITTER
CL 5174.50
2'-0" SQ x 1'-6" DP CONC PIPE SUPPORT PAD AND PIPE SUPPORT (TYP)
TO PUMP STATION
F SECTION - 20"Ø & OUTLET
SCALE: 3/4" = 1'-0"
FILE: 8197A10PS-01-M-300
18" BUTTERFLY VALVE
DIELECTRIC ISOLATION
FINISHED GRADE
CL 5172.50
G SECTION - 18"Ø INLET
SCALE: 3/4" = 1'-0"
FILE: 8197A10PS-01-M-300
WEIR EL 5182.00
STEEL WEIR BOX W/ SUPPORTS
PIPE SUPPORT W/ PAD PLATE PER
TANK OVERFLOW PIPING SIZED BY TANK MANUFACTURER (MIN 20" Ø). PIPING INTERIOR TO BE FACTORY COATED WITH HIGH SOLIDS EPOXY
48" BEND
FLAP VALVE W/COUNTERWEIGHT
PROVIDE MIN AIR GAP OF TWO TIMES THE OVERFLOW PIPE DIAMETER
2" MIN ALUMINUM GRATING
TANK SHELL
5170.50
INV 5166.64
PIPE SUPPORT PER
6'-0" LONG x 6'-0" WIDE X 3'-0" (INSIDE DIMENSIONS) DEEP CATCH BASIN, SEE
H SECTION - TANK OVERFLOW
SCALE: 1/4" = 1'-0"
FILE: 8197A10PS-01-M-300
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
1 11/16/12 MG ADDENDA NO.2
REV DATE BY DESCRIPTION
PROJECT NO: 8197A10
FILENAME: 8197A10PS_M-05.dgn
carollo
CITY OF PRESCOTT
CITY OF PRESCOTT, AZ
ZONE 101 PUMP STATION & ZONE 12 RESERVOIR
MECHANICAL
ZONE 12 RESERVOIR SECTIONS
CAROLLO ENGINEERS © COPYRIGHT 2011
JOB NO. 8197A10 PS
DRAWING NO. M-05
SHEET NO. of -
DESIGNED: JMD
DRAWN: RB
CHECKED:
DATE: SEPTEMBER 2012