Updated July 2020

CITY OF SCOTTSDALE
GUIDELINES FOR PREPARATION OF SPECIAL PROVISIONS
PUBLIC WORKS PROJECTS

INSTRUCTIONS FOR USE

Verify with City of Scottsdale Capital Project Management that the Update of this document is the most recent version.

The City of Scottsdale (City, COS) endeavors to produce uniform construction documents for public improvement projects. Uniform construction documents provide clear and concise instruction to Contractors, thereby reducing potential for changes and reducing construction costs. To aid in achieving uniform construction documents, the City has prepared these Guidelines for Preparation of Special Provisions.

These Guidelines for Preparation of Special Provisions (Guidelines) shall be used as a framework for preparing Project Specific Special Provisions. These Guidelines consists of a sample Special Provisions Document with instructions to the Consultant to tailor the document to be Project Specific. The Consultant shall review the Guidelines, decide which portions are applicable for their specific project, and decide the need for supplementation or revision. The Guidelines have double asterisked items, **.**, from which the Consultant shall select only the applicable items or investigate and complete the necessary wording.

Special Provisions shall be reviewed for each project and modified as required by project specific conditions. New sections of Special Provisions may need to be written to clarify project specific conditions and requirements. Do not accept the content of the Sample Special Provisions to be applicable as-is. If something doesn't make sense or is not applicable, consult with the City Project Manager to determine if it should be included in the Special Provisions.

Work as covered in other standard specifications (i.e. Arizona Department of Transportation Standard Specifications, City of Phoenix Supplement to the MAG Specifications, etc.) shall be clearly identified in the Special Provisions noting the appropriate specification source. Particular attention should be paid to measurement and payment for work as related to items specified on the plans and as indicated on the Bid Schedule. It is not necessary to describe each bid item if the MAG Standard Specification adequately covers the work to be done and methods of measurement and payment.

The City's Project Manager will provide to the Consultant a master list of bid items for incorporation into the schedule of bid items. The bid items utilize a six digit reference number. The first three digits correspond to the applicable MAG Specification section number (or special provision number added by the City of Scottsdale) and the last three designate a specific item of work.

The master list indicates the bid item numbers, descriptions of work and units of measure as the City of Scottsdale requests they appear on the schedule of bid items. The Consultant shall excerpt the applicable bid items associated with the project. Items of work particular for a project and not covered by the master list may be assigned a project specific number. There are miscellaneous groupings of work within the 800 and 900 ranges of each section which the Consultant may tailor for a specific item of work.

Multiple or generic bid items (for example- specific thicknesses of asphalt concrete pavement) may be all described within a single special provision heading utilizing a 'Bid Item 321702 thru 321703- Asphalt Concrete Pavement' range heading. The bid schedule would then itemize each appropriate bid number (for example- Bid Item 321702- 2" AC, A-19, Bid Item 321703- 2 1/2" AC, A-19, etc.).

Specific bid item numbers for some generic bid items have been provided for the Consultant's use. Such an example would be storm drain pipe where a number of materials have been qualified for the Contractor's bid option. The bid item number appearing in the schedule of bid items would be Bid Item 618018 - 18" Storm Drain Pipe, Bid Item 618036 - 36" Storm Drain Pipe, etc. If a specific piping material is needed the specific bid item number will be used (for example- Bid Item 610312- 12" DIP Water Line). All the above storm drain items would be covered under the special provision heading 'Bid Item 618018 thru 618036 - Storm Drain Construction'.

The special provisions pages shall be uniquely numbered in succession using SP-1, SP-2, etc. Page numbers are to be placed on the upper right hand corner of the sheet.

The Consultant should contact the Project Manager to determine the need for any special construction detailing of materials that may be required as part of a neighborhood theme or district overlay. Consultant shall confirm with Project Manager that Permits, Tax/Licenses, and Privilege Taxes have been covered appropriately by the City of Scottsdale Invitation to Bid Document and General Provisions.

CITY OF SCOTTSDALE

Project Name Line 1
Project Name Line 2

Project No. xxxx

Consultant should add certification page or appropriate notation on the cover for sealing the special provisions.

SPECIAL PROVISIONS
PUBLIC WORKS PROJECTS

PART A: SCOPE OF WORK

1. LOCATION OF THE WORK:

This project is located **Identify the Section(s), Township, and Range and also include names of major crossroads** within the City of Scottsdale, Arizona.

2. PROPOSED WORK:

The work consists of …

- Demolition of existing improvements
- Grading and subgrade preparation
- Concrete curb, gutters and sidewalks
- Concrete structures
- Storm drain, water or sanitary sewer piping
- Roadway paving
- Traffic control and barricading
- Pavement striping and markings
- Traffic signing and signalization
- Irrigation and sprinkler systems improvements
- Landscaping

Describe in general terms the types of work involved. The description should be sufficient to indicate the various types of specialty subcontractors and suppliers needed for project completion.

3. CONTRACT TIME:

The Contractor shall complete all project work within **Fill in Contract Duration** calendar days beginning with the start date specified in the Notice to Proceed.

4. AVAILABLE INFORMATIONAL MATERIAL:

Coordinate Available Informational Material with Invitation to Bid provided by Purchasing. Include when a soil boring report, cross sections or other similar material is to be made available to bidders. These items are to be attachments to the Bid Solicitation; they are not to be a part of the Bid Solicitation. Remove this section if no Available Information is part of Bid.

The following information is made available as an attachment to the solicitation for bids:

Geotechnical Report
Survey Control Report
Topographic Survey

Test Hole Excavation Report
As-Built Drawings

Note: Information provided in Available Information Material was obtained and used for design purposes. It is the responsibility of the Contractor to verify actual conditions for their bid and construction purposes. Additional data such as borings, testing, survey, etc. may be requested, but shall be arranged and scheduled by, and shall be at the expense of, the Contractor.

PART B: GENERAL INFORMATION

The following items are non-payment items being considered incidental to the project, the costs of which are to be included in project overhead or within a specific bid item.

105.2 PLANS AND SHOP DRAWINGS

Add the following:

All submittals shall be in English units and dimensions.

Materials: The Contractor shall furnish to the City of Scottsdale's Inspector **Project Manager, Construction Admin Supervisor** product data, material certificates, mix designs, and shop drawings in sufficient detail to show complete compliance with all specified requirements, including but not necessarily limited to the following:

Product Data: **Add to or remove from list below based on project specific construction requirements**

- Pipes and appurtenances
- Fire hydrants
- Valves and valve boxes
- Vaults and manholes
- All irrigation components
- All traffic signal components

Product data shall include information such as the manufacturer's printed recommendations, compliance with recognized trade association standards, application of testing agency labels and seals, product dimensioning, and notation of coordination requirements.

Certificates: **Add to or remove from list below based on project specific construction requirements**

- Piping materials
- Gaskets
- Steel

The Manufacturer or testing agency shall prepare the Certificates and should include technical specifications and compliance with industry trade association and testing agency standards.

Mix Designs: **Add to or remove from list below based on project specific construction requirements**

- Asphaltic cement concrete pavement
- Portland cement concrete

The mix designs shall directly compare the proposed mix components and properties with those of the referenced standard mix or as modified within the special provisions.

Shop Drawings: **Add to or remove from list below based on project specific construction requirements**

- Sequence of construction details
- Traffic control plans-haul routes
- Utility protection plans
- Storm drain pipe layout per MAG Section 618
- Reinforcing steel bending and layout
- Details of structures if non-standardized
- Falsework
- Steel fabrication details
- Shoring

Shop drawings shall include the name of the project, project number, date prepared, name of the Preparer, Contractor, and Subcontractor, if applicable. All dimensions and identification of products and materials included, along with notation of any coordination requirements and established field dimensions/measurements/verifications shall be clearly shown or noted.

Drawings of minor or incidental fabricated material and/or equipment may not be required by the City of Scottsdale. The Contractor shall furnish the City tabulated lists of such fabrications, showing the names of the manufacturers and catalog numbers, together with samples of general data as may be required to permit determination by the City as to their acceptability for incorporation into the work.

Samples: **Add to or remove from list below based on project specific construction requirements**

- Plant materials
- Decomposed granite
- Concrete pavers
- Riprap

Samples shall be representative of the materials to be incorporated into the project and submitted in sufficient quantity to permit evaluation and/or comparison.

Distribution and Review: The Contractor shall anticipate and schedule for a two week review period by the City of Scottsdale and/or its designee during which time will either approve, disapprove, or request modifications. The latter two will require resubmittal of the material and a subsequent additional review period. This process shall be repeated until all submitted materials have been approved.

Shop drawings shall be presented on 8 1/2 x 11, 11 x 17, or 24 x 36 size sheets. All drawings shall indicate the name of the job, the City's job number, date, names of the Contractor, Subcontractor and Preparer, and the date of approval by the Contractor. Present all other data, certificates, or mix design reports on 8 1/2 x 11 sheets.

An electronic copy (.pdf format) of the Contractor approved submittal along with a letter of transmittal shall be delivered to the City's Inspector **Project Manager, Construction Admin Supervisor**. The Contractor shall first review all submitted data for compliance with specification and job requirements. Any Contractor comments, recommendations, etc. shall be clearly noted on the submitted data. The Contractor shall provide all submittals far enough in advance of scheduled need to allow for the specified City review time, including any resubmittals. The City will not consider time extension requests or delays, damages, inefficiency claims, etc. resulting from the Contractor failing to properly schedule and deliver complete and compliant submittals.

If the submittal is acceptable, an electronic copy (.pdf format) will be stamped approved, dated, and initialed by the Reviewer, and returned to the Contractor.

If the submittal requires corrections or is rejected, an electronic copy (.pdf format) along with an explanation of the outstanding concerns will be returned to the Contractor for revision and the subsequent resubmittal as described above.

Resubmittal of any required corrections shall be made within ten working days.

Contract Documents: Approved drawings, data, mixes, and certificates as they are returned to the Contractor will become a portion of the Contract Documents.

105.6 COOPERATION WITH UTILITIES

General: Add the following:

Contractor is advised that the location, number, and type of utilities shown on the plans are based on information made available by public utilities, owners, and users at the time the plans were prepared. Underground utilities may be present on this project which were not disclosed to the Engineer. No representation is made that the utility locations indicated on these plans are accurate, complete, or exclusive. It shall be the Contractor's responsibility to field verify all utility locations and to coordinate in a timely manner with the pertinent utility companies so that any obstructing utility installation may be adjusted without delay to the

Contractor's project schedule. In addition, the City will not consider additional compensation requests from the Contractor to perform any potholing, utility company coordination, etc. needed to locate or verify utility location, to adjust contract work items as necessary to avoid utility line conflict, to cooperate with utilities in adjusting schedule as needed to allow for utility company work, relocations, etc. The Contractor's bid shall include the above coordination, work, and adjustments.

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

City of Scottsdale (Water & Wastewater)	
City of Phoenix (Water)	
Arizona Public Service (Electric)	
Salt River Project (Electric)	
Salt River Project (Water Users)	
Southwest Gas Company	
Cox Communications	

Coordination: Construction activities shall be coordinated and scheduled to incorporate the following applicable Utility construction activities:

The following are examples from Past Projects. Consult with the individual utilities for their specific requirements.

1. Salt River Valley Water User Association plans for relocating their distribution pipe will be incorporated into the project plans set. Contractor shall perform this work as part of the project.

2. **Arizona Public Service** **Salt River Project Electric** will relocate street lights concurrent with Contractor's phased half-street construction. Contractor shall trench and install conduit for street lighting, and for undergrounding overhead power lines as specified herein and shown on the plans.

3. **Southwest Gas** **Cox Communications** will relocate and adjust their facilities concurrent with Contractor's street improvements.

No payment will be made for delays to the Contractor’s schedule due to delays resulting from utility relocations.

107.2.1 AZPDES PERMIT

Section 107.2.1 of the COS Supplement to the MAG Standard Specifications is modified as follows:

ADD:

(A) General requirements: Insert the following:

This project is subject to the Arizona Pollutant Discharge Elimination System (AZPDES) program's permit requirements for construction sites. The Contractor is responsible for obtaining applicable permits and complying with permit requirements.

Include for projects that cause disturbance of less than one acre and are not within 0.25 miles of an impaired or unique water.

This project is anticipated to disturb less than one acre, therefore it does NOT require a construction stormwater discharge permit. If the Contractor's operations will cause the disturbed area to become an acre or more, the Contractor shall be responsible for obtaining applicable permits. The Contractor shall comply with permit requirements.

Include when the project is located within ¼ mile of an impaired or unique water. This specification requires updating prior to use. Additional instructions: Identify in the first sentence if an impaired or unique water has been identified.

This project site is located within 1/4 mile of a listed [impaired or unique] water and shall comply with the special requirements for Discharging into Impaired or Unique Receiving Waters. The Storm Water Pollution Prevention Plan (SWPPP) must be submitted with the Notice of Intent (NOI). Within 32 business days of receipt, Arizona Department of Environmental Quality (ADEQ) will notify the operator whether:
1) it is acceptable to proceed under the general permit;
2) the SWPPP needs revisions; or
3) there is cause for eligibility denial. If notification is not received in this time-frame, the operator may assume coverage under this permit.
To prevent potential permitting delays, the contractor is encouraged to prepare and submit the NOI and SWPPP to ADEQ upon receipt of the proposal acceptance letter from Maricopa County Department of Transportation. "Minimum Stormwater Control Measures for Construction Projects Adjacent to Impaired or Unique Waters" is included as an Appendix to these Special Provisions. Additional information may be obtained from the ADEQ website:
http://www.azdeq.gov/environ/water/permits/stormwater.html

108.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

Replace Section 108.4 with the following:

The Contractor shall plan construction activities between normal work hours; 7 a.m. to 5 p.m., Monday through Friday excluding national holidays, **except as follows:

a.
b.
*NOTE: Insert at this location any special working hours and the work and/or areas associated with the time schedules.***

Work outside these hours is permissible provided a construction schedule has been prepared, submitted to, and found acceptable to the City of Scottsdale. The schedule shall identify the work to be performed, including the location and duration of planned activities. Submittal of the Schedule shall be made a minimum of seven days prior to the planned work to allow sufficient time for the City to review the request and schedule any necessary inspections. The Contractor shall be responsible for payment for all overtime and off-hours inspection and testing services that occur outside the normal and excepted working hours indicated above.

Sequence: All underground work must be completed to the satisfaction of the Inspector **Project Manager, Construction Admin Supervisor** prior to the start of any roadwork, unless the Contractor can provide a sequence of work schedule and traffic control plan which will demonstrate, to the satisfaction of the City, that neither traffic safety nor Contractor operations will be adversely impacted. The Inspector **Project Manager, Construction Admin Supervisor** shall have total discretion and authority to accept or reject the Contractor's proposed sequence of work schedule and traffic control plan.

** Fill out as necessary:
Coordination: The following items are particular to this project and shall be completed in the following sequence or within the following time frame:
A.
B.

NOTE: Insert at this location any special requirements or restrictions on intersection or lane closures as may be applicable with this project. Design Engineer is to coordinate with the City of Scottsdale Project Manager/Coordinator.

[Note here any sequential liquidated damages as directed by the Contract Administrator.] **

The Contractor shall be responsible for planning, scheduling and reporting the progress of the work as to ensure timely completion of the work called for in the contract. All schedules shall be computer generated created by critical path scheduling software.

The Contractor shall submit a complete critical path schedule to the Inspector **Project Manager, Construction Admin Supervisor** five (5) working days prior to the preconstruction meeting. The City shall have until the day of the Preconstruction Meeting to submit changes to the schedule. Contractor shall issue a final schedule with City’s comments incorporated within five working days of the date of the Preconstruction Meeting.

The schedule shall include a complete critical path schedule to cover the Contractor's anticipated time schedule. The schedule shall include a detailed network diagram acceptable to the Inspector **Project Manager, Construction Admin Supervisor** with the following features:

(A) The schedule shall be time-scaled in calendar days. All activities shall be plotted on their early start and finish dates. Activities shall not exceed 10 calendar days in length of time when detailed in each critical path schedule.

(B) The schedule shall show the order and interdependence of activities and the sequence of work as reflected in the schedule report as described below. The critical activities shall be prominently distinguished.

(C) The schedule shall include, in addition to all construction activities, such tasks as mobilization, demobilization, submittal and approval of samples of materials and shop drawings, procurement of significant materials and equipment, and fabrication of special items, as well as installation and testing; and interfacing with other projects/contractors/utility companies/etc.

(D) The schedule activities shall be sufficiently detailed so that the Inspector **Project Manager, Construction Admin Supervisor** can follow the sequence. For example, the activities shall show forming, reinforcing, and placement of concrete on the calendar days they are scheduled to be performed.

(E) The schedule diagram shall show for each activity the preceding and following event numbers and the description and duration of the activity in calendar days.

(F) The activities shall be organized and described so as to conform to the contract bid items.

(G) The diagram shall be accompanied by a schedule report of the network with a tabulation of the following data for each activity:

1. Preceding and following event numbers;
2. Activity description;
3. Activity duration;
4. Earliest start date;
5. Earliest finish date;
6. Latest start date;
7. Latest finish date;
8. Total float times;
9. Responsibility for activity (for example, Contractor, subcontractor, supplier, etc.);
10. Resource summary for each activity listing personnel, equipment and anticipated revenue.

The Contractor shall make three copies and submit updated schedules and reports in two-week increments commencing from notice to proceed in conformance with the following:

(A) The Inspector **Project Manager, Construction Admin Supervisor** shall determine if the detailed network diagram and/or report requires revision in whole or in part and shall so inform the Contractor of noncompliance with contract schedule within five (5) working days.

(B) The report shall show the activities or portion of activities completed during the two-week period and the portion completed on the project to date; actual start and finish dates shall be shown plus future activities for the next 2-week period.

(C) The report shall state the percentage of revenue actually earned as of the report date.

(D) The report shall be accompanied by a narrative description of job progress, problem areas, current and anticipated delaying factors and their anticipated effect, and any corrective actions proposed or taken. This report shall identify departures from earlier schedules or changes in logical sequence or logical ties.

(E) The monthly report shall include a summary of all activities scheduled to begin in the next 2-week period that are critical path, those activities whose float has changed and those activities with less than ten-day float. The activities shall be sequenced by critical path activities, by least total float and by greatest float respectively.

Acceptance of the Contractor's schedules by the Inspector **Project Manager, Construction Admin Supervisor** is not to be construed as:

- Relieving the Contractor of his obligation to complete the contract work within the contract time;
- Granting or rejecting Contractor requests for adjustments to the contract completion date;
- Acceptance of claims for additional compensation.

Any time extension requests shall be processed in strict compliance with other relevant provisions of the contract.

(Note to Consultant – Confirm this Statement with City Project Manager. Some Project Managers may wish to make Construction Schedule a Bid Item) No direct measurement or direct payment will be made of Contractor costs relating to preparation and submission of schedules and reports and revisions thereto.

Add the following Section:
111 CONSTRUCTION FIELD OFFICE

Note to Consultant – This Item shall be implemented only if requested by the Project Manager. Modify for Project specific items such as phone, network connection, Wifi, etc.

General: Under this item, the Contractor shall provide for the duration of the work, and if requested by the City, for a maximum of 90 days thereafter, adequate weather-proof office quarters for the exclusive use of the City of Scottsdale and others who may be engaged to augment City forces with relation to the contract. The office quarters shall be located convenient to the working site and shall be separated or fully partitioned from any space used or occupied by the Contractor. Ownership of and liability for the office quarters shall remain with the Contractor throughout.

Materials: Materials shall be of satisfactory quality for the purpose intended and shall be approved by the City of Scottsdale.

Office Requirements: The separated or partitioned office shall have a minimum of 120 square feet of floor space and a minimum ceiling height of 7 feet.

The entrance to the City's quarters shall be secured. The Contractor shall install a lockset provided by the City of Scottsdale for a 1-3/4 inch door. Upon completion of the project the lockset shall be removed by the Contractor and returned to the City.

The Contractor shall equip the office with adequate and safe heating and cooling (capable of maintaining office at 70 degrees Fahrenheit) and adequate lighting for reading of drawings and specifications. 110 volt electrical power outlets shall be readily accessible.

Furnishings shall include one desk (with file drawer), 2 desk chairs, 2 side chairs, one plan layout table. One telephone with a private line independent of other phones will be located within desk area.

Also available within the field office will be a sanitary water cooler supplied with drinking water and one 2-1/2 gallon pressurized fire extinguisher.

The Contractor shall furnish lavatory and toilet facilities at a location convenient to the office quarters for the use of City of Scottsdale personnel and such assistants as they may engage. Contractor shall also provide lavatory and sanitary supplies as needed.

The furnishings and equipment required herein shall remain the property of the Contractor.

The Contractor shall maintain all facilities and furnishings provided under the above requirements and shall maintain and keep the office quarters and surrounding area clean at all times.

Extended Field Office Overhead Costs: Within 30 days after receipt of Notice to Proceed, the Contractor shall submit a written statement to the City detailing his field office overhead costs which are time related. The City will review this submittal and reach a written agreement with the Contractor on a daily field office overhead cost rate. The cost agreed to in this written agreement will be applicable throughout the duration of the Contract. No field

office overhead costs will be paid until such agreement is reached between the City and the Contractor.

The individual cost components shall represent costs which will increase as a direct result of any time extension caused solely and exclusively by act of the City. This listing may include such cost items as on-site project management, supervision, engineering, and clerical salaries; on-site office utilities and rent; on-site company vehicles and their operating expenses; and site maintenance and security expenses. Field office overhead costs which are unaffected by increased time shall not be allowable costs of the daily field office overhead rate. These cost components include, but are not limited to, acquisition and installation of stationary equipment, temporary construction facilities, utilities and office furnishings (unless such items are rented or leased); the preparation of the site including clearing, grubbing, grading, and fencing; and mobilization and demobilization expenses.

The daily field office overhead cost shall be multiplied by the number of days the Contract is extended by Change Order and shall be added to the agreed upon written agreement cost. In the event a deductive Change Order is issued which reduces time under the Contract, the daily field office overhead cost shall be added to the deductive amount. No allowance for overhead costs and no profit allowance shall be added to the extended field office overhead cost.

Unabsorbed Home Office Overhead: Payment shall be made to the Contractor for recovery of unabsorbed home office overhead costs only when the Contractor demonstrates full compliance with all of the following.

(A) The Contractor shall demonstrate that the work was delayed solely by actions for which the City is entirely responsible. Delay to the work is defined as any time the projected end date of the work is extended beyond the current contract completion date and the most recent date predicted for completion of the work on the accepted schedule update current as of the time of the delay.

(B) To demonstrate such an impact, the Contractor shall submit a detailed time impact or schedule analysis which clearly shows that the current controlling operation has been delayed or prolonged solely by some action of the City and has or will cause the time of completion of the work to be delayed past the current contract completion date and the most recent date predicted for completion of the work on the accepted schedule update current as of the time of the delay. A delay to a controlling operation can only arise after the first working day on the project has occurred.

(C) The Contractor shall document that the projected cash flow for the work has been or will be substantially impacted as a direct effect of such delay. Substantial impact to the cash flow for the work is defined as a reduction of at least ninety percent (90%) of the planned cash flow for the entire project for a period of one (1) month or more.

(D) The Contractor shall also document that:

(1) The delay caused by the City was of an unknown or uncertain duration at the time the delay arose; and,

(2) The Contractor was unable to resequence or reorganize the work in order to continue working and maintain the cash flow for the work.

(E) Provided that the Contractor complies fully with all of the above requirements, unabsorbed home office overhead costs shall be calculated in strict accordance with the following formulas. No modifications to this formula shall be allowed.

$CB / TB \times TO = OH_p$

CB = Contract Billings for the Actual Contract Period
TB = Total Company Billings for the Actual Contract Period
TO = Total Company Overhead Expenses during the Actual Contract Period
OH_p = Overhead Allocable to the Project

$OH_p / D_c \times D_d$ = Unabsorbed Home Office Overhead

D_c = Actual Days of the Contract
D_d = Number of Days of Compensable Delay for Contractor

(F) The Contractor shall submit the annual audited financial statements for the company for every year in which the work was performed in order to document the numbers used in the formula for “Total Company Billings for the Actual Contract Period” and “Total Company Overhead Expenses During the Actual Contract Period”.

(G) Any payment of unabsorbed home office overhead costs shall not be subject to any other markups (overhead or profit). If payment is made for unabsorbed home office overhead costs under this section, such payment shall be adjusted by subtracting the amount of overhead costs paid to the Contractor on change order work during the period in which the unabsorbed home office overhead occurred.

Disallowances: Cost which shall not be allowed or paid in Change Orders or Claim settlements under this Contract include, but are not limited to, interest cost of any type other than those mandated by statute; claim preparation or filing costs; legal expenses; the costs of preparing or reviewing proposed Change Orders or Change Order proposals; lost revenues; lost profits; lost income or earnings; rescheduling costs; cost of idled equipment when such equipment is not yet at the site or has not yet been employed on the work; lost earnings or interest on unpaid retainage; claims consulting costs; the cost of corporate officers or staff visiting the site or participating in any meetings with the City; loss of other business; or any other cost not specifically attributable to direct costs associated with the Change Order or Claim.

Add the following Section:

112 PRECONSTRUCTION CONFERENCE/ WEEKLY MEETINGS

Preconstruction Conference: The Contractor **and all subcontractors** shall attend a preconstruction conference meeting at a time and location designated by the Construction Admin Supervisor. The Construction Admin Supervisor shall be prepared and ready to present to the Construction Admin Supervisor all required schedules, plans, etc. as described elsewhere in these special provisions and within the MAG Standard Specifications.

Weekly Meetings: The Contractor shall plan for and attend weekly meetings with the City at a location and designated time determined by the Construction Admin Supervisor. The Contractor shall include in the construction schedule adequate time for weekly construction progress meetings.

PART C: BID ITEMS

The following bid items are numbered to correspond to the Schedule of Bid Items and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

ITEM 104150 PROJECT SIGNS

Note to Consultant – This Item shall be implemented only if requested by the Project Manager.

General: Signs will be furnished and installed by the Contractor (2 required). The City's representative will mark the location for the signs. Sign details are shown on the attached illustration. **Make sure there is an illustration to go with this.**

Materials: The vinyl sheeting for the background, legend, and border shall be applied by heat bonding, except that the decal and the legend for project title, cost, and Contractor's name shall be pressure sensitive application.

Weekly Updates: The progress graph shall be updated weekly by the City Inspector, using red pressure sensitive tape.

Salvage: At the completion of the project, the signs will become the property of the City and will be carefully removed by the Contractor and delivered to Transportation Maintenance, at the City’s North Corporation Yard, 9191 San Salvador Drive, Scottsdale, Arizona.

Measurement and Payment: Payment for the project signs will be made at the unit price per each, as shown on the Schedule of Bid Items, and shall be considered full compensation for all material, equipment, labor, and appurtenances to complete the work as described and specified herein.

ITEM 104250 PROJECT HOTLINE

Note to Consultant – This Item shall be implemented only if requested by the Project Manager.

General: "Project Hotline" signs shall be installed at one-quarter mile intervals on each side of the road throughout the length of the project. The signs shall contain the number of a Contractor telephone that will be manned at all times (24 hours per day, 7 days per week) during the construction period to receive calls from concerned motorists or property owners that relate to job site conditions.

The telephone will be manned by a responsible representative of the Contractor who has authority to take immediate action to correct potentially dangerous conditions.

The Contractor shall provide the Inspector with records of all calls received and the response or action taken each day.

Materials: Details for signs are shown on the plans, and shall conform to the requirements for traffic management signs shown on the plans and specified herein.

Measurement and Payment: Project Hotline will be measured as a single complete item of work and will be paid at the lump sum price indicated on the Schedule of Bid Items, which shall be considered full compensation for the work as described and specified herein.

ITEM 105801 CONSTRUCTION SURVEYING

MAG Section 105.8, Construction Stakes, Lines and Grades is deleted and the following inserted:

Note to Consultant – This Item shall be implemented only if requested by the Project Manager.

General: The Contractor shall furnish all materials, personnel, and equipment necessary to perform all surveying, staking, laying out of control lines and verifications of the accuracy of all existing control points which are delineated in the Contract Documents. The work shall be done under the direction of a Registered Land Surveyor licensed to practice in the State of Arizona.

Staking Outline: Prior to beginning any survey operations, the Contractor shall furnish to the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** for approval, a written outline detailing the method of staking, interval of stakes, marking of stakes, grade control for various courses of materials, referencing, structure control, and any other procedures and controls necessary for survey completion. A part of this outline shall also be a schedule which will show the sequencing of the survey and layout work, throughout the course of the contract, listing a percentage of completion for each month.

Field Books: The Contractor shall furnish field books to be used for recording survey data and field notes. These books shall be available for inspection by the City at any time and shall become the property of the City upon completion of the work.

Survey Control Verification:

(A) Control Points (horizontal and vertical) - The existence and location of all survey monuments, bench marks, and control points shall be verified prior to demolition or construction activity. Immediately notify the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** when location discrepancies greater than two-hundredths

(0.02) foot horizontal or one-hundredth (0.01) foot vertical are found. All datum shall be City of Scottsdale.

(B) Control Lines - Construction control lines with grade breaks, transition points, horizontal and vertical curves, etc., shall be established and referenced prior to construction.

(C) Temporary Bench Marks - Temporary bench marks shall be established and referenced at this time.

Pre-Construction Location Survey: All existing features which are located prior to construction shall be referenced to survey monuments along control lines by stationing in accordance with the construction documents and by offset distance from the control lines. All features shall be relocatable after construction. Distances measured shall be within one-hundredth (0.01) foot.

(A) Survey monuments - All survey monuments that lie within the construction area that may be disturbed shall be referenced to a specific point on at least four (4) stable objects by distance measurement. Reference objects shall be located no greater than three-hundred (300) feet from the survey monument being referenced.

(B) Water and Sewer line appurtenances - Water and sewer line surface appurtenances such as manholes, valves, and cleanouts that lie within the construction area shall be located and compared to the location shown on the Contractor's approved construction documents. Deviations shall be noted on Contractor’s As-Built set and relayed to Engineer and Inspector **Project Manager, Construction Admin Supervisor** prior to any demolition or excavation.

(C) Match Points and Removals - Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** when location discrepancies of connecting facilities greater than one- tenth (0.10) foot horizontal or two-hundredths (0.02) foot vertical are found.

Construction Stakes: The Contractor shall set construction stakes and marks establishing lines and grades for road work, curbs, gutters, sidewalks, structures, buildings, centerlines for utilities, and necessary appurtenances and other work as indicated in the Contract Documents and shall be responsible for their conformance with the plans and specifications.

The stakes shall be established in accordance with the following guidelines which represent the minimum standard and the Contractor shall provide additional stakes and controls necessary to perform the work. The Contractor shall be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the City, any construction stakes or marks which have been carelessly or willfully destroyed by any party.

(A) Curbs, Curb and Gutter, Valley Gutter:

(1) Curb and gutter shall be staked and installed prior to sidewalk construction.

(2) Cut/fill stakes for rough grade shall be set at one-hundred (100) feet intervals with cuts to the top of curb.

(3) Finish grade stakes shall be set to curb grade at twenty-five (25) feet intervals, at grade brakes, angle points, transitions, returns, driveways, alley entrances, sidewalk ramps, and other curb control points. The stakes shall be tacked for line on a two (2) foot offset to the back of curb.

(4) Face of curb forms shall be checked for grade at flow line prior to placing concrete where longitudinal grades are one- tenth (0.10) percent or less.

(5) Face of curb forms shall be checked for grade at gutter line prior to placing concrete for transitions from or to MAG 220 Type “A” and City of Scottsdale 2220 Type “A” curb and gutter at 30 foot intervals.

(6) Valley gutter stakes shall be set offset five (5) feet from the centerline of the valley gutter at twenty-five (25) feet intervals, marked with cuts to the flowline of the valley gutter.

(B) Roadway:

(1) Subgrade stakes shall be set to subgrade elevation at fifty (50) feet intervals on straight sections, twenty-five (25) feet intervals through vertical curves, on horizontal curves with radius of six-hundred (600) feet, or less, and/or slopes of less than four-tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and grade breaks. Stakes shall be set at crown lines, at grade break lines and at edges of pavement which do not abut concrete curb and gutter or at the edge of pavement abutting vertical curbs or other structures whose surface grade will not be flush with the finished pavement grade. Quarter lines will be staked where the distance between the crown line stakes and the curb and gutter face exceeds twenty (20) feet.

(2) Select Material shall be staked the same as subgrade.

(3) ABC stakes shall be set to ABC elevation at thirty-three (33) feet intervals on straight sections, twenty-five (25) feet intervals through vertical curves, on horizontal curves with radius of six-hundred (600) feet, or less, and/or slopes of less than four-tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and grade breaks. Stakes shall be set at crown lines, at grade breaks and at edges of pavement which do not abut concrete curb and gutter or at the edge of pavement abutting vertical curbs or other structures whose surface grade will not be flush with the finished pavement grade. Quarter lines will be staked where the distance between the crown line stakes and the curb and gutter face exceeds twenty (20) feet.

(4) Pavement edges shall be controlled by utilizing a wire control mechanism or screeding along a concrete gutter or other structure whose surface grade is flush with the finished pavement grade. Stakes shall be set to finished elevation at thirty-three (33) feet intervals on straight sections, twenty- five (25) feet intervals on curves with radius of six-hundred (600) feet, or less, and/or slopes of less than four-tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and grade breaks.

(C) Sidewalk and Bike Paths:

(1) Stakes are not required for sidewalks five (5) feet or less in width which are adjoining existing curb and gutter.

(2) Sidewalk stakes shall be set to grade on an offset and tacked for line at twenty-five (25) feet intervals at the beginning and end of horizontal and vertical curves and grade breaks.

(D) Sanitary Sewer: All cuts will be to the invert of the pipe, given to the nearest one-hundredth (0.01) of a foot.

(1) Stakes for sanitary sewer will be driven flush with the existing ground, set on an offset at twenty-five (25) feet intervals and tacked for line. Stakes will be marked with the offset and indicated cut.

(2) Wyes for laterals will be marked with a line only stake.

(3) Manholes shall be marked with the offset and indicated cut to top of manhole grade and inverts.

(4) Cut sheets shall be supplied to the Contractor and City Inspector.

(E) Storm Sewer and Drainage: All cuts will be to the invert of the pipe, given to the nearest one-hundredth (0.01) of a foot.

(1) Stakes for storm sewer will be driven flush with the existing ground, set on an offset at fifty (50) feet intervals. Stakes will be marked with the offset and indicated cut.

(2) Wyes for laterals will be marked with a line only stake.

(3) Manholes shall be marked with the offset and indicated cut to top of manhole grade and inverts.

(4) Stakes for storm water inlets, two (2) per inlet, will be set on a line normal to the roadway at the center line of the inlet five (5) and ten (10) feet from the face of curb. The stakes will be marked with the offset to the face of curb and the cut or fill to the top of curb and inverts.

(5) Cut sheets shall be supplied to the Contractor and City Inspector.

(F) Water: All cuts will be to the invert of the pipe, given to the nearest one-tenth (0.10) of a foot.

(1) Stakes for water will be driven flush with the existing ground, set on an offset at fifty (50) feet intervals and specified grade breaks. Stakes will be marked with the offset and indicated cut.

(2) Fittings or other critical points such as tees will be marked with a line only stake.

(3) Fire hydrants will be located with two (2) stakes per hydrant set parallel with the roadway five (5) feet from the centerline of the hydrant. The stakes will be marked with the offset to the hydrant and indicated cut to the top of curb at the centerline of the hydrant.

(4) Water meters will be located with two (2) stakes per meter set parallel with the roadway five (5) feet from the centerline of the meter. The stakes will be marked with the offset to the meter and indicated cut to the top of curb at the centerline of the meter.

(5) Cut sheets shall be supplied to the Contractor and City Inspector.

(G) Traffic Signing, Striping and Detector Loops: The Contractor shall delineate the procedures and controls to be utilized in the Staking Outline.

(H) Landscaping: The Contractor shall delineate the procedures and controls to be utilized in the Staking Outline.

(I) Pipe Culverts: All cuts will be to the invert of the pipe, given to the nearest one-hundredth (0.01) of a foot.

(1) Stakes for culverts will be driven flush with the existing ground, set on an offset at fifty (50) feet intervals. Stakes will be marked with the offset and indicated cut.

(2) Cut sheets shall be supplied to the Contractor and City of Scottsdale Inspector.

(J) Concrete Box Culverts:

(1) Cut stakes for Box Culvert floor slab subgrade excavation will be driven flush with the existing ground, set on an offset at twenty five (25) feet intervals. Stakes will be marked with the offset and indicated cut given to the nearest one-hundredth (0.01) of a foot.

(2) Blue top grade stakes for Box Culvert floor slab ABC will be set at grade on a 2-foot offset, each side of the slab, at twenty five (25) feet intervals.

(3) Two line and grade stakes at ten (10) feet intervals shall be placed on the centerline extension of each wingwall. Stakes will be marked with the offset and indicated cut to the top of wall and top of footing.

(K) Bridges: The Contractor shall delineate the specific procedures and controls to be utilized in the Staking Outline. Stakes will be marked with the offset and indicated cut given to the nearest one-hundredth (0.01) of a foot. **Note to Consultant – The following staking requirement are sample guidelines, however they shall not be used without careful consideration and customizing for specific bridge requirements.**

(1) The centerline of the bridge will be accurately established and monumented. Monuments will be "tied" to permanent reference points at each end of the bridge.

(2) Offset stakes shall be set for each pile location. Stakes will be marked with the offset and indicated cut to the of top pile elevation.

(3) Centerline controls lines will be established for each abutment, pier, column, and bent. Two stakes on each side of the bridge will be set on the prolongation of each centerline beyond the lines of excavation.

(4) Offset stakes shall be set for corners of footings. Stakes will be marked with the offset and indicated cut to the top of footing elevation. Forms in place will be checked for line and grade before concrete will be poured.

(5) Forms for columns on footings will be checked for line and concrete pour cut off line will be marked on the forms.

(6) Offset stakes shall be set for corners and grade breaks of abutments and pier cap beams. Anchor bolt locations for girders will be staked or marked on the forms. Stakes will be marked with the offset and indicated cut to the top of abutment and/or beam elevation. Forms in place will be checked for line and grade before concrete will be poured. Pour cut off line will be marked on the forms.

(7) Offset stakes shall be set for corners of approach slabs. Stakes will be marked with the offset and indicated cut to the top of the slab. Large approach slabs will require ABC blue top grade stakes on a twenty five (25) feet grid maximum.

(8) Top of placed girder elevations will be recorded at five (5) feet intervals. Actual top of girder elevations will be used to set deck forms between girders. Forms will compensate for final bridge camber as determined by the Bridge Engineer.

(9) Ends of diaphragm locations will be marked on girders with cut off of concrete pour elevations marked on forms.

(10) Line and grade stakes will be set for falsework construction for soffits. Allowances will be made to accommodate deflection of falsework after reinforcing steel and concrete loading. Steel placement will be checked for accuracy prior to concrete pour.

(11) Screed rails will be set at five (5) foot intervals and checked for accuracy prior to concrete pour.

(12) Curbs and handrail will be staked for line at twenty five (25) feet on straight lines and ten (10) feet on curves.

(L) Parking Lots:

(1) Subgrade stakes shall be set on a 50-foot grid plus grade breaks, valley gutters, and crown lines. If parking lot pavement is installed on compacted subgrade, subgrade stakes shall be set on a 25-foot grid plus grade breaks, valley gutters, and crown lines.

(2) ABC grade stakes shall be set on a 25-foot grid plus grade breaks, valley gutters, and crown lines.

(3) Curbs, gutters, sidewalks, waterlines, sewer lines, etc., shall be staked as described in their respective sections.

Re-establishment Survey:

(A) Monument locations will be marked with "straddlers" (four (4) nails with metal "shiners") driven into the pavement, placed in pairs approximately six feet apart and opposite to each other. Lines connecting opposing pairs shall form a ninety (90) degree cross with three foot legs. The center of the cross will signify the exact location of the center of the monument to be set. Monuments will be drilled or punched after they have been set.

(B) Manhole, valve box and cleanout locations shall be painted on the pavement.

Inspection and Acceptance of Work: The City reserves the right to make inspections and random checks of any portion of the staking and layout work. If, in the City's opinion, the work is not being performed in a manner that will assure proper control and accuracy of the work, the City will order any or all of the staking and layout work redone at no additional cost.

Measurement and Payment: Construction surveying will be measured as a single complete item of work and paid at the lump sum price indicated on the Schedule of Bid Items, which shall be considered full compensation for the work as described herein and required to provide all necessary survey stakes and control. The approved schedule showing the sequencing and percentage of the survey and layout work shall be the basis on which monthly progress payments shall be made. This schedule shall be subject to periodic review, at the request of either party, if the survey and layout work lags or accelerates. If

necessary, the schedule will be revised to reflect changes in survey and layout progress. When approved, the revised schedule will become the basis for payment.

ITEM 105802 CONSTRUCTION SURVEYING AS-BUILTS

General: The as-built work shall conform to the City of Phoenix Survey Section Standard Requirements For: Staking, As-Builts, Quantity Calculations; dated January 1, 1980.

A full size set of project drawings shall be kept on-site and updated on a weekly basis with a red pencil or red ink to reflect any field adjustments, changes, omissions, additions, etc. as they occur on the project. The City Inspector will check site as-builts on a weekly basis to insure all modified project elements have been properly recorded on the field plan set. The City will be the sole judge in determining whether the as-builts are acceptable.

All work included in the contract documents as well as changes to the contract shall be noted as correct or modified by either checking off the information if it is correct, or by drawing a neat line through the original data and writing in the correct information in red opaque ink if the information is incorrect. Unless noted otherwise below in the minimum as-built requirement section, station/offset measurements will be from construction centerline/ monument line both parallel and transverse to roadway; added items or location changes shall be physically drawn at revised or new locations on the as-builts; and all measurements and stations should be to the nearest tenth of a foot.

The minimum requirements for as-built acceptance are as follows:

(1) Project Drawing Quantity Notations: Any project drawing or quantity summary sheet that shows a quantity on it that is incorrect shall be corrected by drawing a neat line through the original quantity and writing in the correct information. When space on the drawing does not allow room to indicate the corrections, a separate table may be drawn on a separate sheet with reference on both plan sheets to the plan sheet that the table refers to or to the sheet where the table is located.

(2) Existing/New Utilities: All underground infrastructure utilities, whether depicted on the project plans or not, shall be verified, corrected or added to the as-builts noting the beginning and ending station/offset location and elevation of utility relative to finished roadway grade or other identifiable ground or permanent roadway/project features. Any electrical installation work for street lighting or power connection shall be located relative to construction centerline/monument line or relative to back of curb and gutter (whichever is closer) including the depth of the facility.

(3) Removals: Dimensions and/or other volumetric descriptions and station/offset location of all removed items.

(4) Curb/Gutter/Valley Gutter: Beginning and ending station/offset location of straight curb /gutter/valley gutter runs relative to construction centerline/monument line; flow line elevation; and station/offset location of PC's and PT's.

(5) Driveway/Alley Entrances: Beginning and ending station/offset including driveway wings.

(6) Sidewalk: Beginning and ending station/offset and any other modification necessary to incorporate or avoid existing facility conflicts.

(7) Sidewalk Ramp: Curvilinear distance deviations measured along gutter flow line from curb and gutter PC/PT or other shifts/adjustments to properly align with pedestrian crosswalks or other modifications necessary to incorporate/avoid existing facility conflicts.

(8) Median Island: Beginning and ending station/offset of median and straight run median widths measured from back of curbs; beginning and ending station/offset of decorative median paving; bullnose radiuses; and measured widths of median in transition sections from back of curbs in 25 foot minimum increments or to bullnose radius PT/PC (whichever is less).

(9) Roadway Pavement: Beginning/ending station and measured completed roadway width from edge of pavement to edge of pavement in straight roadway sections; measured completed roadway width perpendicular to construction centerline/monument line from both edges of pavement to construction centerline/monument line in curved roadway sections; and actual sawcut removal/tie-in to existing pavement locations.

(10) Pipelines: When a pipeline parallels the construction centerline/monument line, verify or correct the perpendicular distance between the two. When a pipeline angles relative to the construction centerline/monument line or is in a curved roadway section, as-built measured straight pipe run distances, angle points, changes in size, fitting/tee locations tied-in with practical known construction centerline/monument line location or other easily verifiable permanent point. Distances between fittings are from fitting centerline. Fire hydrant and catch basin branch lines are to be shown in profile including pipeline bends and collars. All project drawing pipeline cross sections and profiles are to be corrected to reflect modified pipeline locations/alignments. Station and offset locations for sewer line laterals are from main line to ROW line with beginning/ending line location tied to a monument or to a property corner. Locations where waterlines cross curb and gutter are to be noted by station. Where waterlines run parallel to curb and gutter, note locations relative to back of curb or construction centerline/monument line (whichever is closer) including angle points and elevation.

(11) Manhole/Catch Basin/Valve/Cleanout/Tee: Beginning/ending station and offset. Stationing is to commence at the downstream manhole (or as depicted on drawings) with location of tap/wye/tee/lateral locations clearly noted.

(12) Landscaping and Irrigation: Note beginning and ending station/ offset/ elevation including size of PVC; sleeve/pull-box/electrical-valve/water-service/tap/meter/bubbler/drip-line locations.

(13) Traffic Signal: Signal pole station/offset; electrical conduit, sleeve, controller, meter pedestal and pull box station/offset with distances of electrical conduit runs noted and tied in with known point.

(14) Roadway Striping/Signage: Any relocated sign shall be located by station and offset from construction centerline/monument line. Any change in roadway marking is to be noted on as-builts.

(15) Bridges, Box Culverts, and Other Structures: Station/offset distances/centerline-bearing line/finished elevations of all bridge or structure elements. Bridge deck and girder elevations must reflect before and after concrete placement elevations.

(16) Roadway Street Lighting: Street light poles are to be located by station and offset from construction centerline/monument line.

(17) Linear Items: Fences, walls, ditches, etc. should be located by station/offset and tied in with a permanent point.

The as-built drawings shall be certified by an Arizona Registered Land Surveyor. As-built drawings shall be delivered to the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** within thirty (30) calendar days from the date of final inspection and acceptance by the City of the work completed under this contract. Work under this bid item includes transfer of all information noted by the Contractor during Construction Surveying as described under Bid Item number 105801, to the on-site as-built drawing set. Final payment will be made only after submitted as-builts are accepted by the City (see “Measurement and Payment” below).

Measurement and Payment: Construction Surveying As-Builts will be measured as a single complete item of work and paid at the lump sum price indicated on the Schedule of Bid Items, which shall be considered full compensation for the work as described herein and required to clearly indicate all specific as-built information.

Payment for survey work under this bid item will be made when the City accepts the final as-built drawings. Should the Contractor fail to submit acceptable as-builts within the maximum 30 calendar day period noted above, the City will execute a deduct change order for 10% of the Construction Survey As-Built bid item total from the contract **(or $2,500.00, whichever is greater)** for every 5 working day period that the Contractor fails to provide acceptable as-builts (not including City review time). If the Contractor fails to submit acceptable as-builts after the 3rd submittal, the City will deduct 50% from the Construction Survey As-Built bid item total from the contract **(or $10,000.00, whichever is greater)** and

execute a final change order noting the City's justification for imposing liquidated damages upon the contractor for unacceptable as-built preparation

ITEM 201101 REMOVAL AND DISPOSAL OF BUSINESS SIGNS

General: This item shall consist of the removal and disposal of existing business signs within the right-of-way.

This is a contingent item since the property owner may have already removed the signs prior to the Contractor's clearing operations.

Contractor shall give property owners two weeks written notice prior to removal. Disconnection of electrical service shall be performed by a licensed electrician.

Measurement and Payment: Will be made at the unit price bid, as indicated on the schedule of bid items, for each sign removed and disposed of by the Contractor.

ITEM 220??? THRU 220??? RIPRAP CONSTRUCTION

General: This item is supplementary to the applicable portions of MAG Section 220, Riprap Construction.

Preparation of Ground Surfaces: Text in MAG Section 220.3 is deleted and the following inserted:

Areas of riprap placement shall be excavated and compacted to the lines, grades, and densities indicated by the plans.

Grouted Riprap: MAG Section 220.6 is supplemented by the following:

Riprap which shall be exposed at the surface shall be hand placed to securely embed the bottom two-thirds of the material in mortar. The top one-third shall be uniform, tight and natural in appearance. Immediately after completion of placement, all excess mortar shall be removed from the exposed faces by brushing or other methods approved by the City of Scottsdale Inspector.

Prior to acceptance, all exposed rock shall be final cleaned by brushing or sandblasting to a natural and uniform appearance. The finished surface shall be uniform and shall not vary from the finish grades depicted on the plans.

Coloring agents acceptable to the City of Scottsdale Inspector shall be added to the mortar to blend with the surrounding ground.

Measurement: Text in MAG Section 220.7 is deleted and the following inserted:

Measurement of riprap shall be made at the ground surface and shall be the number of square yards covered, measured along the top surface of the riprap.

Payment: Text in MAG Section 220.8 is deleted and the following inserted:

Payment for riprap shall be at the unit price bid per square yard as indicated on the schedule of bid items and shall be full compensation for completing the item in place, as described herein and on the plans.

ITEM 310??? THRU 310??? AGGREGATE BASE COURSE

General: Text in MAG Section 310.5 is deleted and the following inserted:

Payment: All base course materials will be measured and paid for per the square yard of indicated thickness of base material shown on the Schedule of Bid Items, which shall be considered full compensation for the item complete and in place.

ITEM 321??? THRU 321??? ASPHALT CONCRETE PAVEMENT

General: Text in MAG Sections 315.4, 315.5, 329.6, and 329.7 regarding measurement and payment for bituminous prime and tack coats is deleted.

The applicable portions of MAG Section 321, Asphalt Concrete Pavement, are amended as follows:

Materials and Manufacture: All asphaltic concrete used in the project shall conform to MAG Section 710 except as herein described. Paving asphalt shall comply with the provisions set forth by the East Valley Asphalt Committee in “Hot Asphalt Mix Design Criteria”, revised September 2014.

A mix design shall be submitted to the Inspector **Project Manager, Construction Admin Supervisor** by the Contractor and be approved before any mix is placed. The mix design shall be prepared by a Professional Engineer or Certified Lab Technician experienced in the design and testing of asphaltic concrete mixes. The submittal shall be signed by a responsible representative of the Contractor.

Recycled Asphaltic Concrete (RAC) containing Reclaimed Asphalt Pavement (RAP) may be used subject to the approval by the Inspector **Project Manager, Construction Admin Supervisor** of the mix design submitted by the Contractor. The submittal shall include all test data required by MAG Sections 709 and 719. Mixing and placing of the RAC shall conform to MAG Sections 710 and 719.

Placing, Spreading, and Finishing: No pavement construction shall start until conflicting underground utility construction is completed or as directed by the Inspector **Project Manager, Construction Admin Supervisor**. The base course shall not be placed on

prepared subgrade until compaction tests have been completed and accepted by the City of Scottsdale Inspector.

When new pavement is to meet existing pavement, the edges of the existing pavement shall be sawcut to a true and visually neat horizontal alignment and a regular vertical line, cleaned of all foreign material, and painted with emulsified asphalt before the new pavement is placed adjacent to the existing pavement.

The exact point of matching termination and overlay, if necessary, shall be determined in the field by the City of Scottsdale Inspector.

Measurement: Text in Section 321.12 shall be deleted and the following inserted:

Measurement of Asphaltic Concrete Pavement will be made to the nearest square yard for each thickness of pavement, as indicated in the Schedule of Bid Items, and within the designated limits of paving shown on the plans.

Payment: Text in Section 321.13 shall be deleted and the following inserted:

Asphalt concrete pavement will be paid at the unit price bid per square yard as indicated on the Schedule of Bid Items, which amount will be considered full compensation for the work complete and in place including any specified tack and/or prime coats.

ITEM 324??? CONCRETE BUS BAY

General: This item shall consist of constructing a concrete bus bay and transit shelter pad per the details and at the locations indicated on the plans in conformance with MAG Standard Specification Sections 324 and 340.

Measurement and Payment: Measurement and payment will be made at the unit price bid as indicated on the schedule of bid items and will be considered full compensation for all pavement, combined curb and gutter, concrete sidewalk, concrete driveway, shelter pad and subgrade preparation incorporated into the bus bay as shown on the plans.

Costs for removal of any existing curb and gutter, sidewalk, or other items in the bus bay area shall be included in the appropriate removal bid items.

ITEM 336301 PAVEMENT MATCHING & SURFACE REPLACEMENT

General: Conform to MAG Section 336 except as modified herein.

Add a description of the intent of this bid item as related specifically to this project, i.e. widening pavement, replacing asphalt over trench, etc.

Description: Delete the second paragraph of MAG Section 336.1 and insert the following:

Asphalt concrete pavement replacement shall be constructed in accordance with City of Scottsdale Standard Detail No. 2200, or as indicated on the plans and MAG Section 321 and 710.

Measurement: Text in MAG Section 336.4 shall be deleted and the following inserted:

Measurement of this item shall, as described in MAG Section 336.4(A), be to the nearest square yard of pavement replaced and shall include the total thickness required of AC surface, AC base and/or any aggregate base material. Trench backfill and removal of any temporary pavement or trench cover is not covered in this item. Replacement due to Contractor damage shall not be included in the measurement for Payment.

No additional payment will be allowed for remnant pavement replacement as specified in City of Scottsdale Standard Detail No. 2200.

Payment: Append MAG Section 336.5 as follows:

Payment for this item will be made at the unit price bid per square yard of pavement matching and surface replacement as indicated on the schedule of bid items, which shall be considered full compensation for the work complete and in place.

ITEM 340??? THRU 340??? SIDEWALK RAMPS

General: Conform to MAG Section 340 except as modified herein. This section is to cover the costs of forming, shaping, and detailing sidewalk ramps as indicated in the details referenced on or included in the plans.

Measurement: Add the following paragraph to MAG Section 340.5:

The measurement of concrete in the sidewalk ramp will be to the nearest square foot of concrete complete in place and is to be included in Item 340204- Concrete Sidewalk. The additional work required in forming, shaping and detailing the ramp will be measured by the number of each type of sidewalk ramp indicated on the plans.

Payment: Add the following paragraph to MAG Section 340.6:

Payment for the concrete used in constructing sidewalk ramps will be provided in Item 340204- Concrete Sidewalks as measured above. Payment for the additional work in forming, shaping and detailing the sidewalk ramp will be per each as indicated in the Schedule of Bid Items, which payment will be considered full compensation for the work complete and in place.

ITEM 345??? THRU 345??? ADJUSTING FRAMES, COVERS, VALVE BOXES, AND WATER METER BOXES

General: Conform to MAG Section 345 except as modified herein. The Contractor shall reference City of Scottsdale Supplemental Specification Section 345. The Contractor shall verify the type of existing water valve boxes and covers within the limits of the project and shall adjust or remove and replace as required.

Water Meter Boxes: The Contractor shall adjust existing water meter boxes to finish grade after completion of final grading behind the curb or sidewalk. The conditions of existing water meter boxes will be recorded by the Contractor in the presence of the City Inspector prior to beginning construction. Replacement boxes will be provided by the City, at no cost to the Contractor, for any previously damaged. Should any boxes become damaged during construction, the Contractor shall replace them with new boxes at no additional cost to the City.

Measurement: The quantities measured will be the actual number of frames, covers and valve boxes of each type, adjusted and accepted including the removal and replacement of non-complying valve box and covers as described herein.

ITEM 350??? THRU 350??? REMOVAL OF EXISTING IMPROVEMENTS

General: Comply with MAG Section 350 except as modified herein.

Miscellaneous Removal and Other Work: Modify Section 350.3 as follows:

The work under this section shall consist of removing and disposing of any obstacles to construction that are not included in any other bid item, whether shown on the plans or not, unless specifically called out on the plans to be removed or relocated by other agencies.

This work shall also include, but not be limited to, the following:

The removal of existing water services to be abandoned and providing capping taps at the main as shown on the plans.

All existing pipe to be abandoned in place shall be capped with a water-tight pipe plug, the cost of which shall be included in this item, unless specifically shown to be paid for under other bid items.

The removal of asbestos cement pipe (ACP) either at locations where it is exposed during other work, called out for removal on the plans, or noted for replacement with ductile iron pipe as part of vertical or horizontal realignments of waterlines.

ACP shall be removed and disposed of in accordance with all applicable federal, state, and local requirements. Manifest copies shall be provided to the City for all ACP removed and disposed of under this or any other bid item.

The removal of the existing asphalt concrete pavement and base material necessary to construct the landscaping improvements and the removal of temporary pavement and base materials.

The removal of existing abandoned traffic signal foundations to at least 36 inch below grade or as directed by the City Inspector.

The removal of existing landscape sprinkler systems, bubblers, faucets, control wires and backflow preventers within those areas identified for removal of landscaping and irrigation. This work shall include coordination with property owners to identify and coordinate modifications to keep their existing system layout operational or restore it to a properly operational system. The Contractor shall notify the property owner of any impact to their irrigation system. The irrigation system shall not be out of order for more than 48 hours.

Salvage and Disposal: The City shall determine which items are to be salvaged. Salvaged items shall be removed with care and delivered at no additional cost, by the Contractor, to the City's North Corporation Yard, 9191 San Salvador Drive, Scottsdale, Arizona.

Items identified for salvage include existing traffic signs, signalization hardware, bus stop benches and shelters.

All other items shall become the property of the Contractor and shall be legally disposed of by the Contractor. The disposal of all waste materials removed under this item shall be the responsibility of the Contractor. The disposal site shall be approved by the City. Remove tree and landscape debris from the site the same day as demolition.

Measurement: Removal of AC pavement, grouted rip-rap, gunite, and or other paved surfaces will be measured parallel to the surface, by the square yard, regardless of depth, to the nearest square yard, including any temporary pavement placed by the Contractor.

Removal of miscellaneous items not described herein will be measured in a lump sum basis and shall include removing and disposing of any obstacle to construction that is not included in any other bid item, whether it is shown on the plans or not, unless specifically called out on the plans to be removed or relocated by other agencies.

Payment: Delete text in Section 350.4 and insert the following:

Payment for itemized removals will be per the bid prices indicated on the Schedule of Bid Items, which will be considered full compensation for that work complete as described herein and shown on the plans.

Payment for Miscellaneous Removal and Other Work shall be paid at the lump sum amount indicated on the Schedule of Bid Items and shall be considered full compensation for that work complete as described herein.

ITEM 401001 TRAFFIC CONTROL

General: Conform to MAG Section 401, City of Scottsdale Section 401, City of Phoenix Traffic Barricade Manual and the Manual of Uniform Traffic Control Devices, except as modified herein.

Description: Delete text in MAG Section 401.1 and insert the following:

This bid item is for all barricades, signs, lights, off-duty police officers, flagmen, etc. needed to keep traffic moving at a minimum of one 10 foot lane in each direction through the work site. All traffic control signing, haul routes, and barricading plans will be submitted to the Inspector for approval prior to starting the work and all Contractor changes to the plans will be approved by the City prior to implementation.

The Contractor shall notify the Inspector seven days in advance of the time work will be started in areas requiring the rerouting of traffic, traffic lane striping, and removal of street signs. The foregoing shall apply to progressive modifications of traffic routing within an area in which work is in progress.

Traffic Control Devices: Append MAG Section 401.2 with the following:

All existing signs in conflict with the construction signs shall be removed, covered with plywood, or relocated.

Existing traffic signals shall be covered, relocated or disconnected any time that they are nonfunctional or in conflict with construction signs. Sign mounting height shall be 7 feet. The measurement shall be from the bottom of the sign to the top of curb.

All regulatory and warning signs shall have flags and lights displayed.

All Type II Barricades, Type III Barricades, and vertical panels shall be equipped with steady burning lights.

All orange construction signs shall use high reflectivity sheeting. All other signs shall use standard reflective sheeting. All signs to be used on the job during periods of darkness shall be reflectorized.

Pavement marking for temporary lane striping shall be 4 inch wide by 10 foot length strips of either temporary pavement marking tape or paint placed at 30 foot intervals except as otherwise shown. The pavement temperature must be 60 degrees Fahrenheit or above when tape is applied.

Temporary lane striping shall be removed by sandblasting or other approved means when the construction phase is complete if they are not covered by asphaltic concrete.

Flagmen or Pilot Cars: Delete text in section and insert the following:

Flagmen or pilot cars shall consist of providing sufficient flagmen, uniformed off-duty law enforcement officers or pilot cars to expedite the safe passage of traffic.

City of Scottsdale uniformed off-duty law enforcement officers shall be provided by the Contractor when construction activities occur within 300 feet of a signalized intersection. If Scottsdale officers are not available, law enforcement officers from other local agencies may be used in their place.

The officers shall be knowledgeable of City traffic control systems and their manual use. Contact the Inspector **Project Manager, Construction Admin Supervisor** for a key for the traffic control cabinet along with any special instructions.

Traffic Control Measures: Append Section 401.4 as follows:

Whenever construction operations create a condition hazardous to the public, the Contractor shall furnish such flagmen and guards as are necessary to give adequate warning to the public of any dangerous conditions.

Flagmen, guards, and safety devices shall conform to applicable City, County, and State requirements. It is the Contractor's responsibility to inform the City Inspector of hazardous conditions immediately.

The Inspector may direct attention to the existence of hazards and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the City.

Failure of the Inspector to identify hazards or point out the inadequacy of warning and protective measures shall not relieve the Contractor from any responsibility for public safety or abrogate his obligation to furnish and pay for those devices. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining any protective facility.

General Traffic Regulations: Contractor shall comply with MAG Section 401.5 as supplemented by City of Scottsdale Section 401 and appended as follows:

Delete City of Scottsdale reference to lane closures between the hours of 7 to 9 a.m. and 4 to 6 p.m. One lane of traffic in each direction must be provided at all times unless advance approval in writing is obtained from the City of Scottsdale Traffic Engineering Director.

All traffic lanes, to be considered satisfactorily open, shall be paved with a minimum of two inches of asphaltic concrete pavement.

Contractor will develop routes for haul trucks on public streets which will be submitted in writing through the City of Scottsdale Development Services for review and approval. The submittal shall include, but not be limited to, the proposed travel direction, turn movements, hours of use, street sweeping, watering, and clean-up. Presently established truck routes must be used.

Approach speed limits and speed limits within the construction area shall be determined by the City of Scottsdale Traffic Engineering Department.

Measurement: Delete text of MAG Section 401.6 and insert the following:

Measurement of all traffic control work as described herein and as required for the project will be measured on a lump sum basis.

Payment: Delete text of MAG Section 401.7 and insert the following:

Payment for all traffic control work including the use of off-duty uniformed police officers as described above will be paid for at the lump sum amount indicated on the Schedule of Bid Items, which will be considered full compensation for the work complete as described herein and on the plans, and as modified or instructed on-site by City staff. Adjustments to approved traffic control plans, barricading or signing to accommodate specific on-site needs at the sole discretion of the City is included in the lump sum bid item payment.

ITEM 401101 OFF-DUTY POLICE OFFICER CONTINGENCY

General: This is a separate contingent bid item to be used in the event the City of Scottsdale requests the Contractor to provide the services of off-duty uniformed police officers under special circumstances as directed by the Inspector **Project Manager, Construction Admin Supervisor**.

Authorization: The use of this bid item is only through written direction of the Inspector **Project Manager, Construction Admin Supervisor** and will include the maximum allowable hourly charge rate authorized by the Inspector **Project Manager, Construction Admin Supervisor**. Daily reports itemizing the use and number of hours worked for each officer authorized shall be submitted with each payment application along with a copy of the Inspector's **Project Manager's, Construction Admin Supervisor's** written authorization. All reports shall be verified and signed daily by the City Inspector.

Officers: City of Scottsdale off-duty uniformed police officers shall be used. In the event Scottsdale officers are not available, law enforcement officers from other local agencies may be used in their place. The officers shall be thoroughly familiar with the requirements for which their use is intended.

Measurement and Payment: The provisions of MAG Subsections 401.6 and 401.7 apply.

This is a contingency item in which the total amount indicated on the schedule of bid items will be adjusted accordingly by the Inspector **Project Manager, Construction Admin Supervisor** through a change order to reflect the actual amount used.

Payment for this bid item is not to include off-duty police officers required when construction activities are within 300 feet of a signalized intersection as described under bid item 401001.

ITEM 402??? THRU 402??? PAVEMENT MARKINGS AND SIGNING

General: The work under this item will comply with City of Scottsdale Supplemental Specification Section 402, except as modified herein.

All pavement arrows and legends shall be ADOT Type I preformed, unless noted otherwise on the plans.

All crosswalks and/or stop bars shall be 90 mil extruded thermoplastic per ADOT Specification Section 704, unless noted otherwise on the plans.

ITEM 403??? THRU 403??? TRAFFIC SIGNALIZATION

General: This work shall consist of installing and/or removing all traffic signal equipment, conduit, and wiring up to and including the junction boxes as shown on the plans. The detector loops and lead-ins to the junction boxes are covered elsewhere in these provisions.

All traffic signal equipment and construction shall conform to the most recent editions of ADOT Standard Drawings and Specifications unless otherwise specified in City of Scottsdale "Design Standards and Policies Manual" Section 5-4 and MAG Supplemental Specification Section 403.

All traffic signal construction shall be accomplished by a certified International Municipal Signal Association (IMSA) Traffic Signal Construction Technician Level II.

All existing traffic signal equipment and street lights shall remain in operation until new installations are energized. A uniformed off-duty Scottsdale police officer shall be provided by the Contractor to control traffic during the changeover when the traffic signal is not in operation (See provisions under special provision 401001 Traffic Control).

If a City of Scottsdale signal technician is needed after hours, the Contractor shall contact the City of Scottsdale Police Department to arrange a page.

Materials and Installation: All equipment and materials required for a complete installation shall be furnished by the Contractor. All purchased equipment must conform to City of

Scottsdale MAG Supplemental Specification Section 403. Equipment from a manufacturer other than those previously approved shall receive approval prior to bidding (see Instructions for Bidders, Approved Alternates). Substitutions after the bid opening and award of the contract shall not be approved.

The City recognizes certain delays in ordered materials may result in conflicts with the Contractor's construction schedule. Substitutable materials may be available in City stock. The Contractor shall contact the Inspector **Project Manager, Construction Admin Supervisor** to set up a meeting with City of Scottsdale Transportation Maintenance Manager for availability of materials. Poles and mast arms, if available, will be provided to the Contractor in exchange for the ordered items. The Contractor shall replace borrowed equipment with equipment from the same manufacturer. Any materials provided to the Contractor will be picked up at the City's North Corporation Yard, 9191 San Salvador Drive, Scottsdale, Arizona. Contractor shall return the signal poles to a finished state, to include, but not limited to, plugging and welding unused drilled holes in the signal pole, sanding and grinding welded areas, primer painting exposed metal and painting pole and mast arms with ADOT white enamel (two coats). When the original materials are received by the Contractor they shall be delivered to the City's North Corporation Yard, 9191 San Salvador Drive, Scottsdale, Arizona.

The City does not guarantee stock of the materials to provide to the Contractor in the event of a delivery schedule conflict. If materials are not available from the City of Scottsdale, it shall be the Contractor's responsibility to locate other sources of materials to meet the project specifications and contract schedule.

(A) Traffic Signal Conduit: The following requirements apply to conduits to be installed:

(1) Use 2-inch conduit for pole runs and drop. Use 2-1/2 inch conduit on all other runs.

(2) On every street crossing, provide two 2-1/2 inch PVC conduits.

(3) Use galvanized conduit for exposed above-ground runs through the first sweep below grade.

(4) Warning tape shall be placed in all trenches, 12 inches below final grade.

(5) Provide expansion joints every 50 feet.

(6) Except for service runs above ground, use Schedule 40 PVC.

(B) Electrical Conductors: The following requirements apply to conductors to be installed:

(1) Use THHN/THWN wire for circuits.

(2) Use Belden 9883 or approved equal for telephone drops.

(3) Any existing run which is disturbed shall be repulled completely with new wire, and old wire removed.

(4) No conductor splicing shall be permitted, except in pull boxes, terminal compartments control cabinets, and pedestal cabinets. All loop detector connections shall be soldered.

(C) Luminaries: Luminaries shall be 120V, 250-watt HPS, 2-door, 90-degree cutoff with filter GE Model M-250 or ITT Model 25-5232DJ with photo cell.

(D) General:

(1) All poles shall be primed. Paint traffic signal poles, mast arms and electric service panel ADOT white enamel, two coats.

(2) All signals shall be connected to the Scottsdale computer intertie system through telephone lines as shown on the plans. All traffic signal equipment is to be mounted on the back side of corner signal poles with proper orientation and allowance for rotation without any pole conflict.

(3) Reinstall "Metro Street Name" signs from existing/salvaged signal poles to new poles, or install new signing per the City's direction.

(4) Pedestrian push button placards shall be installed per the requirements of the City's sign shop. The Contractor shall provide sign blanks to the City of Scottsdale sign shop and shall install the completed placards.

(5) Existing concrete signal pole foundations to be abandoned shall be removed to an elevation at least 36 inches below finish grade of new improvements- See Miscellaneous Removals and Other Work. New signal pole foundation elevations shall be surveyed by the Contractor and approved by the City prior to concrete placement. Clearance from the bottom of the signal head back plates on mast arms and poles to the roadway crown and back of sidewalk shall be calculated and provided to the City for approval.

(6) Pavement replacement to conform to Scottsdale Standard Detail 2200, and MAG Specifications.

(7) All pull boxes shall be ADOT No. 5 unless otherwise noted on the plans.

(E) Remove and Salvage Traffic Signals: Contractor shall provide for all removals and relocations as noted on the plans. The Inspector will designate those items to be disposed of by the Contractor and all other items shall be delivered, by the Contractor, to the Traffic Signal Shop at the City's North Corporation Yard, 9191 San Salvador Drive, Scottsdale, Arizona.

Measurement and Payment: The work described herein and indicated on the plans shall be measured and paid for on a lump sum basis for each intersection as indicated on the Schedule of Bid Items. Payment will be considered full compensation for all removals, salvage materials, new installation, setup procedures, and testing as required by the City of Scottsdale Traffic Engineering Department.

ITEM 404??? THRU 404??? LOOP DETECTORS

General: This work shall consist of furnishing all materials and services necessary to install a complete intersection loop detector system or loop detector counting system at the approximate locations shown on the plans and in conformance with the requirements of:

(A) Section 732, "Electrical Underground Material" of the ADOT Standard Specifications for Road and Bridge Construction, latest version, for:

- Roadway loop detector wire (732-2.01)
- Wire marking tags (732-2.01)
- Shielded cable for lead-ins (732-2.01)
- Electrical conduit and warning tape (732-2.02)
- Pull boxes (732-2.03)
- Construction requirements (732-3.01, 732-3.02).

(B) ADOT Traffic Signals and Lighting, Standard Drawings, latest version, for:

- Stubouts and pull box installation (TS 7-3)
- No. 5 pull box (TS 1-2)
- 6' x 40' loop configuration (TS 7-1).

(C) State of California, Dept. of Transportation, Standard Plans, latest version, for:

- Loop installation procedure (ES 5-A)
- Type 'A' loop configuration (ES 5-B).

A complete vehicle detector loop system shall consist of the required number and size of loops, wire, conduit, cable, pull boxes, and associated incidental work as necessary to provide a detector link to the signal controller cabinet.

Coordinate with the City of Scottsdale Traffic Engineering Department for exact locations of the loop detectors, pull boxes, conduit, etc. prior to start of the work.

Materials: The Contractor shall submit to the City of Scottsdale three (3) copies of a complete list of materials the Contractor proposes to incorporate into the project indicating brand or trade names, identification numbers, type and quantity. No materials shall be ordered or installed without the approval of the City.

(A) All loops are to be wire-in-duct type wire (Detecta-duct or approved equivalent, #14 stranded, inside 1/4 inch PVC tubing).

(B) Lead-in cable between each loop wire and controller shall be Belden 8404 or an approved equivalent. The Contractor shall provide separate conductors for each loop to the control cabinet.

(C) Pull boxes shall conform to the requirements of ADOT Standard Specification Section 732-2.03 and shall have covers marked "TRAFFIC SIGNALS".

(D) Loop sealant shall be Griggs Epoxy, 3-M Loop Sealant or an approved equivalent.

Construction: The Contractor shall give three (3) working days advance notice to the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** and Traffic Engineering Department prior to construction of the loop detectors.

Loops shall be installed, where applicable, prior to the installation of the final pavement lift.

Loops shall be sawcut and centered in existing or proposed striped traffic lanes unless otherwise directed by the City of Scottsdale Traffic Engineering Department. Each through lane shall contain a single detector loop unless shown otherwise on the plans.

All loop corners shall be sawcut 1 foot x 1 foot to prevent sharp bends in the wires. Overcut the diagonals so that the corners are to the full depth of the sawcut. All sawcuts shall be cleaned with clean water and blown dry by means of an air stream free of oil or water. All sawcuts shall be visually inspected for jagged edges or protrusions prior to placement of the wire.

Wiring shall be placed as far down in the sawcut as possible and in a manner such that the insulation is not damaged. Use 3/16" to 1/4" thick wooden paddle or other means as approved by City of Scottsdale Traffic Engineering Division. Wire bends at any one point shall not exceed 45 degrees. Wiring shall be held in place during installation by strips of polyethylene foam sealant backers two inches in length, placed approximately two feet apart. Wires crossing pavement joints shall be protected with a plastic sleeve extended to a minimum of four inches each side of the joint. Loop wire will not be spliced. All connections will be made in the pull box and sealed with 3M (or other City approved) waterproof sealant.

Adjacent loops on the same sensor unit shall be wound in opposite directions.

No more than four loop conductors (two twisted pairs) shall be installed in the same sawcut. Twisting shall be a minimum of two turns per foot of conductors. Lead-in sawcuts shall be a minimum six inches apart and of sufficient width to permit the required twisting of the pairs. PVC conduits shall be provided from six inches (6") past the lip of gutter to pull box.

At the pull box: Identify and tag loop circuit pairs. Identify and tag loop number, start (S) and finish (F) of conductor.

Identify and tag lead-in cable with sensor and phase. Lead-in cable shall be taped and waterproofed prior to installing in conduit to prevent moisture from entering cable.

Where loop conductors are to be spliced into a lead in cable (at pull box), the ends of the conductors shall be taped and waterproofed with an electrical insulating coating.

(A) Intersection detectors:

(1) Shall be rectangular loops (6 feet x 40 feet) with three turns unless directed otherwise by the City of Scottsdale Traffic Engineering Division.

(2) Should extend a minimum of five feet into the existing or proposed crosswalk unless shown otherwise on the plans.

(B) Vehicle counting detectors:

(1) Shall be square loops (6 feet x 6 feet) with four turns per California Department of Transportation, Traffic Signal and Highway Lighting Detail ES-5B, Type A loop configuration, modified as noted herein.

(2) Loops, lead-ins and pull boxes shall be installed as described by Caltrans Standard Plans Detail ES-5A.

(3) If vehicle counting detectors are to be used for portable counters, a lockable cabinet of sufficient size is to be used in place of a pull box.

All new conduit shall have a minimum 24 inches bury depth below finish grade and shall be installed with warning tape located at 12 inches below finish grade.

Contractor shall install all conduit and cable from the pull box to the base of the controller cabinet. The City will provide access to existing controller cabinets.

Testing: Any loop that fails to meet the requirements listed below shall be replaced at the Contractor's expense. The City Inspector **Project Manager, Construction Admin Supervisor** and Traffic Engineering Department shall be notified a minimum of three working days prior to the testing.

(A) Preliminary testing, in presence of the City, at the pull box will be performed by the Contractor on each loop circuit prior to pouring the loop sealant. This test involves the roadway loop wire only and will involve:

(1) Test for continuity

(2) Test for circuit resistance (not to exceed 0.5 ohms)

(3) Test for insulation resistance to ground (not less than 100 megohms at 500 volts D.C.).

(B) Final testing after completion of paving operations (or sealing if existing pavement) at the controller cabinet will be performed by the Contractor and will be done in the presence of the City. If no controller cabinet exists the location will be designated by the City. The following tests shall be performed on each loop circuit:

(1) Test for continuity

(2) Test for circuit resistance (not to exceed 0.5 ohms plus 0.35 ohms for each 100 foot increment of lead-in cable length)

(3) Test for insulation resistance to ground (not less than 100 megohms at 500 volts D.C.)

(4) Operational test. The City has the option to request the lead-in be connected to a detector unit (supplied by the City).

Measurement and Payment: Intersection detectors will be measured as an assembly for each intersection specified on the Schedule of Bid Items, including all loops, lead-ins, conduit and wiring to the base of the controller cabinet, and paid for at the indicated lump sum amount per each intersection, which shall be full compensation for the work complete and in place as described herein and as shown on the plans.

Vehicle counting detectors will be measured as the complete system of loops, pull boxes, conduit, and wiring, etc. to a controller cabinet and paid for at the lump sum amount per each installation, which shall be full compensation for the work complete and in place as described herein and as shown on the plans.

ITEM 405??? THRU 405??? MONUMENTS

General: Conform to MAG Section 405, except as modified herein.

Description: Append Section 405.1 as follows:

Locations and elevations shall be set and checked by an Arizona Registered Land Surveyor.

Construction: Append Section 405.3 as follows:

The plans may indicate areas where a monument was not found during the design field survey. The Contractor shall exercise caution and care in excavating around these areas to ascertain that no marker exists.

If a marker is found, the Contractor shall contact the City of Scottsdale Inspection Services Department and request that they identify the marker and establish reference points. The City will replace the marker after completion of construction.

Payment: Delete text in Section 405.5 and insert the following:

Payment for monuments will be made at the unit price bid for each type of monument installed as indicated on the schedule of bid items, which shall be considered full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the work as described herein and shown on the plans.

ITEM 430??? THRU 430??? LANDSCAPING AND PLANTING

General: Conform to MAG Section 430 except as modified herein.

Section 430.2 shall be appended as follows:

Landscaped areas shall be smooth graded to the elevations shown on the drawings. Imported topsoil shall conform to MAG Section 795.2.

Decomposed Granite Area: Delete text from Section 430.4 and insert the following:

Decomposed granite shall be **3/8 inch** **1/2 inch** screened red **or specify to match the existing decomposed granite at __**. The Contractor shall confirm that a sufficient quantity is available so that the entire area will be of the same composition and appearance, and shall furnish a sample to the City of Scottsdale Inspector for approval of color and appearance. Installation shall conform to City of Phoenix Supplement to MAG Section 430.

Tree, Shrub, and Ground Cover Planting: The Contractor shall comply with MAG and City of Scottsdale Section 430.

Native Plants: The plans indicate protected native species which shall be protected in place or relocated per the provisions of the Native Plant Permit, which the Contractor is required to obtain from the City of Scottsdale. The Contractor shall also be required to contact the Arizona Department of Agriculture, Plant Services Division.

Plant Establishment Period: Section 430.9 shall be modified as follows:

Plants and lawns shall be planted, established, and maintained in accordance with MAG Section 430 and City of Phoenix Supplement thereto, except that the establishment period shall be 90 calendar days. **If this period extends beyond the final acceptance date of the project, the City will retain 10 percent of the bid price for landscaping until the final acceptance at the end of the establishment period.**

Measurement and Payment: Delete text in Section 430.10 and insert the following:

Payment for all landscaping work will be at the lump sum amount indicated on the bid schedule which will be considered full compensation for all labor, equipment, tools,

materials, and incidentals necessary to furnish and install the complete landscaping system as described herein and shown on the plans.

Costs of work to restore existing landscaping that is disturbed by any work under this project is included in this bid item. Materials and installation shall conform to MAG Sections 795 and 430 respectively.

The Contractor shall complete the following unit price schedule for landscaping materials used on this project. The unit prices will be used as a basis of adjustment to the lump sum cost, only if the City requests the Contractor to install additional or less landscaping from the quantities indicated by the plans.

Insert itemized unit price listing for landscaping materials.

ITEM 440??? THRU 440??? SPRINKLER IRRIGATION SYSTEM INSTALLATION

General: Conform to MAG Section 440 except as modified herein.

Append to Section 440.1 the following:

The Contractor shall be responsible for contacting City of Scottsdale Development Services and arranging for the water meter to be set and initiating the account. The irrigation service line up to and including the meter stop, box, and cover is provided elsewhere on the plans. Fees for the water meter will be pre-paid by the City.

The plans indicate a detailed layout of irrigation lines, laterals, and emitter or bubbler locations. The Contractor shall follow the intent of the plans layout and shall review and get approval from the City of Scottsdale Inspector for any requested changes.

The sprinkler system shall be constructed using the emitters, bubblers, valves, piping, fittings, controllers, wiring, etc., of sizes and types as shown on the drawings and as called for in these specifications. The system shall be constructed to grades and conform to areas and locations as shown on the drawings.

Pipe Installation: Modify Section 440.6 as follows:

Class or schedule of PVC pipe shall be as shown on the plans.

Valves, Valve Boxes, and Special Equipment Installation: Append Section 440.4 as follows:

Backflow Preventer shall be reduced pressure principle and shall conform to City of Scottsdale Supplemental Detail No. 2354. The Contractor shall submit to the City of Scottsdale Inspector shop drawings for review of the security enclosing cage.

All remote control valves, gate valves, or globe valves unless otherwise indicated shall be installed in suitable plastic or other type valve access box of proper size as required for easy access to the valve.

Access boxes shall be complete and constructed of plastic or other approved type material. Valve boxes shall be AMETEX or equal approved by the City of Scottsdale Inspector. All valve boxes shall be installed with a six (6) inch minimum pea gravel sump.

Sprinkler Head Installation and Adjustment: Modify Section 440.5 as follows:

Bubbler heads as referred to in the MAG Specifications shall also mean emitter heads, whichever is indicated on the plans. All bubbler and/or emitter heads shall be of the types and sizes indicated on the plans.

The Contractor shall be responsible for head adjustment for a period of ninety (90) days as described in the establishment period below.

Automatic Control System Installation: Modify Section 440.9 as follows:

The automatic controller shall be as specified on the drawings. Controller shall have a two-week minimum programmable clock, shall be grounded per the details on the plans, and shall be securely enclosed in a cabinet per City of Scottsdale Details No. 2631 through No. 2634. The Contractor shall provide station area coverage maps, sealed in plastic, for each controller. Surge protection shall be provided on the power source.

Automatic remote control valves shall be electric solenoid operated of the types and sizes as indicated on the plans. They shall be compatible with the system operating pressure and design. The solenoid shall be for 24 volt, 60 cycle operation with running current of 2 watts. The solenoid shall be completely epoxy encapsulated for positive waterproofing with a stainless steel shunt band. The valve shall be slow opening and closing by means of potential shunt resistor to avoid damage from surge pressures. Opening and closing speed shall not be less than 5 seconds. The valve body and bonnet shall be constructed of heavy cast bronze with accurately machined valve seat surfaces, internal parts, and female pipe thread connections.

The inlet port of the diaphragm chamber shall have self-fusing nylon screen in valve inlet connected to porting area under solenoid by means of a plastic tube. The outlet port from the diaphragm chamber shall discharge into the downstream side of the valve. The solenoid plunger shall be spring loaded so the valve may be operated when installed in any position and shall be constructed of stainless steel with wear resistant neoprene seat and exclusive grit-fitter protection against solenoid plunger "hang-up". The diaphragm shall be of durable nylon reinforced neoprene. Valve bonnet shall be equipped with a slotted plug or a bleed screw for manual operation of the valve at any time. Valve bonnet shall be secured to the valve body by corrosion resistant stainless steel bolts.

Control wiring shall be U.L. approved for direct underground burial. Controller shall have its own common wire to respective valves. If placed in the same trench as pipes, the minimum horizontal separation shall be four (4) inches.

(A) Wire connections to remote control electric valves and splices in the field, if allowed by the City of Scottsdale Inspector, shall be made in the following manner and as shown on the details on the Plans, using Pen-Tite wire connectors and sealing cement:

(1) Strip ends of wires and push wires through the holes of the base socket.

(2) Twist wires together and mechanically bond together using crimp sleeve and crimp pliers.

(3) Pull wire connection back into base socket as far as possible.

(4) Apply solvent cement to outside of sealing plug, then fill cavity of sealing plug completely with solvent cement.

(5) Push sealing plug into base socket, using slight twisting motion, until it bottoms.

(6) Push wires unseating sealing plug. This assures cement completely sealing around wire insulation and waterproofing the connection.

It is important that the joint be absolutely waterproof so that there is no chance for leakage of water and corrosion build-up on the joint.

Flushing and Testing: Append Section 440.10 with the following:

The Contractor shall test the irrigation system in the presence of a City of Scottsdale Inspector. Contractor shall notify Inspector of testing schedule three working days prior to testing.

The Contractor shall test the backflow preventer in the presence of the City of Scottsdale Water and Wastewater Operations. Coordinate the timing of this through the City Inspector **Project Manager, Construction Admin Supervisor**.

Measurement and Payment: Delete text of Section 440.11 and insert the following:

This work will be paid for at the lump sum price indicated on the schedule of bid items which shall be considered full compensation for all labor, equipment, materials, work, and incidentals shown on the plans that is not covered by any other bid item.

The water services up to and including the meter box and PVC sleeves that must be installed under roadway pavements are included under other bid items.

Costs of work to restore existing irrigation systems that are disturbed by any other work done under this project are included in this bid item.

The Contractor shall complete the following unit price schedule for landscape irrigation materials used on this project. The unit prices will be used as a basis of adjustment to the lump sum cost, only if the City requests the Contractor to install additional or less landscaping irrigation components from the quantities indicated by the plans.

Insert itemized unit price listing for landscape irrigation materials.

ITEM 610??? THRU 610??? WATER LINE CONSTRUCTION

General: Conform to MAG and City of Scottsdale Section 610 except as modified herein.

Materials: Delete text of Section 610.3 and insert the following:

Unless a specific material is noted of the plans, water distribution lines with nominal diameter of six (6) inches through twelve (12) inches may be constructed of ductile iron (DIP). Minimum pressure classes of these pipe lines shall be as follows: ACP- class 150, DIP- class 150.

Water pipe lines with nominal diameter of fourteen (14) inches and larger shall be ductile iron, concrete pressure (steel cylinder pretensioned pipe), steel mortar lined, or an approved equal by the City of Scottsdale Water Resources Department.

Construction Methods: Modify Section 610.4 as follows:

Trenching, backfilling, and compaction shall be in accordance with this Section as modified by City of Scottsdale Detail No. 2201. All compaction efforts within public right-of-way will be Type I per Table 601.2 unless otherwise noted. Compaction testing will be as required by the City of Scottsdale Inspector or his authorized representative.

Connection To Existing Mains: Append MAG Section 610.11 with the following:

Taps into existing City owned water lines will be made using tapping sleeves and valves unless prior written permission is received from City of Scottsdale Water and Wastewater Department. Tapping sleeves shall conform to City of Scottsdale Specification 630. Wet taps into existing City mains will only be made by City of Scottsdale approved vendors at the Contractor's expense. Contact Water and Wastewater Operations by coordinating with City Inspector **Project Manager, Construction Admin Supervisor**.

For water service connection taps, see the applicable special provision.

Measurement and Payment: Modify MAG Section 610.16 as follows:

The costs of all pipe line fittings are to be included in the unit cost per linear foot of pipe installed as indicated on the Schedule of Bid Items.

The costs of taps to City mains will be made at the bid price for each size of tapping sleeve and valve as indicated on the schedule of bid items, which shall be considered full compensation for work complete and in place, including all costs for subcontracting the tapping service.

ITEM 6107?? VERTICAL REALIGNMENT OF WATER LINES

General: Conform to Section 610 except as modified herein.

Locations of the expected water line realignment are shown on the plans. **Pothole information, where obtained during the design phase, is shown on the plans. The Contractor shall verify the accuracy of the information and extent of the work required to complete the work.** **The Contractor will pothole each water line relocation and arrange for measurement of actual depth.** Any field adjustments to slopes of the new pipe construction to go over or under the conflicting utility line will be approved by the Inspector **Project Manager, Construction Admin Supervisor**.

The water line relocation shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, offsets, couplings sleeves, gate and air release valving, blocking, joint restraint hardware, and shall conform to the details on the plans. The realigned water main shall be visually inspected for leaks under line pressure prior to backfilling.

The Contractor shall arrange with the City, and pay all applicable fees, to have the line shut down in order to perform the work. **Night time operations shall be necessary to complete this work.**

Measurement and Payment: Vertical realignment of water mains will be measured and paid for each size at the price indicated on the schedule of bid items per linear foot of pipe installed and shall be considered full compensation for all removals, replacements, connections to exiting mains, etc. as necessary for the work complete and in place except as noted herein. Payment for air, vacuum and line valves will be made under other bid items as indicated on the schedule of bid items.

ITEM 610803 FIRE HYDRANT RELOCATION

General: Fire hydrant relocations shall include all work and materials necessary to remove the hydrant and piping to the tee, provide a blind flange, and reinstall the fire hydrant at the new location as shown on the plans and in accordance with MAG Standard Details 360 and 362. Fire hydrant connecting pipe shall be Ductile Iron Pipe Class 50. The unobstructable radius for fire department access shall be three feet.

Prior to removing the fire hydrant from service and prior to reactivating the fire hydrant, the Contractor shall notify the City and arrange and pay for any required shutdowns. The Contractor shall minimize the time the fire hydrant is out of service but in no event shall the out of service time exceed 24 hours.

Measurement and Payment: Fire hydrant relocations will be measured and paid for each at the price indicated on the schedule of bid items, which shall be considered full compensation for work complete and in place. Compensation for any tapping sleeves and valves on existing lines and six inch (6") connecting pipe as shown on the plans will be paid for as provided elsewhere in the special provisions.

ITEM 6108?? NEW WATER SERVICE CONNECTION

General: Conform to MAG and City of Scottsdale Section 610 except as modified herein.

Meter Service Connections: Delete text of MAG Section 610.13 and insert the following:

Water service construction shall comply with the details referenced on the plans. **Note to Consultant – confirm details on plans match this special provision section.** All new water service taps on existing mains will be made only by City of Scottsdale approved vendors at Contractor's expense. Coordinate with Water and Wastewater Operations through the City Inspector **Project Manager, Construction Admin Supervisor**. Taps on new water mains will be made by the Contractor prior to testing and disinfection of the new line.

Meter service piping shall be type K soft copper and will be installed by mechanical/pneumatic underground boring or open cut construction as specified on the plans.

All new water meters shall be installed by City of Scottsdale after initiation of account and payment of fees (see Permits).

Measurement and Payment: New water service connections shall be made at the price for each size of service as indicated on the schedule of bid items which shall be considered full compensation for all materials and services necessary to complete the work as shown on the plans.

ITEM 610851 RELOCATE WATER METER

General: This item shall consist of extending existing water service lines and relocating the water meter and vault as indicated on the plans in accordance with MAG and City of Scottsdale Sections 610.

The City will determine when the existing lines are unsatisfactory and must be replaced per Item 610861 Water Service Replacement, 3/4 inch to 2 inch. Generally, existing copper services in good condition with sufficient cover will be extended.

Materials: The Contractor shall extend existing water service lines. Only type K soft copper shall be used. Materials for water service connections shall conform to MAG Standard Specifications Section 754 and City of Phoenix Supplemental Specifications 610.4.4 and 610.4.5. Joints in the copper tubing shall be approved by City of Scottsdale Water Operations department and shall consist of properly soldered fittings or compression fittings. Pack joints may be used if approved by the City of Scottsdale Water Operations Department. No salvaged service connection components shall be used.

Installation: Water meter relocation consists of disconnecting the meter, moving the meter, meter box and cover from the existing location to the new location and reconnecting in accordance with the details on the plans. **Note to Consultant – confirm details on plans match this special provision section.** The meter box and cover shall be set to match the grade at the new location. Water meters shall not, unless shown otherwise on the plans, be located in driveways or sidewalks.

Bedding and backfill shall be per City of Scottsdale Detail No. 2201. The Contractor shall schedule his work so that no open trenches are left overnight.

It is anticipated that some water meter boxes and/or covers may require replacement due to prior damages not due to the fault of the Contractor. The City will furnish these replacement water meter boxes and covers at no cost. Any water meter boxes and/or covers damaged by the Contractor during the course of construction shall be replaced in kind at his expense.

When it becomes necessary to shut down an existing water service in order to construct a replacement, it shall be the Contractor's responsibility to notify all customers in advance that the water service will be turned off. The customers shall be notified in writing at least 24 hours in advance and also verbally the day the shutdown will occur. Initial notification shall include the reason for the shutdown, the date, the time, and duration the water service will be shut off. A copy of the notification shall be given to the City. Shutdown shall not exceed 2 hours unless prior written approval is obtained from the City.

Measurement and Payment: Relocations shall be measured and paid at the price for each as indicated on the schedule of bid items which shall be considered full compensation for all materials and services necessary to complete the work as shown on the plans.

ITEM 610861 WATER SERVICE REPLACEMENT, 3/4 INCH TO 2 INCH

General: Conform to MAG and City of Scottsdale Sections 610 except as modified herein.

Description: This is a contingent item in that the condition of some existing services is unknown and the City may request new ones to be provided with this project.

The Water Service Replacement shall include, but is not limited to, locating the present tap, trenching, bedding, backfilling per City of Scottsdale Detail No. 2201, pavement replacement per City of Scottsdale Detail No. 2200, disconnecting the existing service pipe from the corporation stop, furnishing and installing a new copper service pipe, new appurtenant fittings, new curb stop, and new meter coupling.

If the existing tapping saddle and corporation stop are constructed of bronze and are in good condition, they shall remain, otherwise the Contractor shall provide a new saddle and corporation stop. The Contractor shall not use any other salvaged service connection components. The new water service line shall run in a straight line between the main tap and the new meter box location and conform to the details on the plans. **Note to Consultant – confirm details on plans match this special provision section.** The new water service line shall be 1 inch minimum diameter.

Existing Service Abandonments: Existing services where designated on the plans to be abandoned shall be severed and capped at the main. If the existing service saddle is iron, the Contractor shall coordinate with the City, and pay the applicable fees, to shut down the line and replace it with a bronze saddle.

Measurement and Payment: Water Service Replacement shall be measured and paid at the price indicated on the schedule of bid items, for each installed which shall be considered full compensation for all materials, services, fees, etc. necessary to complete the work as described herein.

ITEM 615??? THRU 615??? SEWER LINE CONSTRUCTION

General: Conform to MAG and City of Scottsdale Sections 615 except as modified herein.

Description: Insert the following:

Unless a pipe material is specifically noted on the plans, sewer lines may be constructed of vitreous clay (VCP), polyvinylchloride (PVC), or ductile iron (DIP). Trunk lines may be constructed with plastic lined reinforced concrete pipe (RCP).

Materials shall conform to the applicable MAG Specifications Sections 743- Vitrified Clay Pipe, Section 745- PVC Sewer Pipe and Fittings, and Section 735- Reinforced Concrete Pipe with Section 741- Lining for Reinforced Concrete Sanitary Sewer Pipe. DIP shall conform to ASTM A746 with polyethylene encasement conforming to ASTM A674.

ITEM 618??? THRU 621??? STORM DRAIN CONSTRUCTION

General: Conform to MAG and City of Scottsdale Sections 618, 620, and 621 except as modified herein.

The Contractor shall have the option of installing reinforced concrete pipe, cast-in-place concrete pipe, spiral rib metal pipe, corrugated metal pipe, concrete lined corrugated metal pipe, high density polyethylene pipe, or approved equals **except at the following locations:

a. .....**

Reference MAG Specification Section 621 and the special provisions herein for the requirements of corrugated metal pipe and City of Scottsdale MAG Supplemental Specification Section 620 for the requirements of cast-in-place pipe.

Plans Reference: The plans design is based upon the materials indicated by the Design Engineer on the plan and profile sheets. The pipe summary sheet specifies the requirements for additional piping materials acceptable for use in this project. The schedule of bid items indicates diameters of pipes based upon the design plan and profile sheets. This diameter is to be considered equivalent as a basis of costs for other required diameters of piping materials indicated on the pipe summary sheet.

Alternate conduit materials will be reviewed by the City, provided the Contractor provides the City with supporting documentation indicating the alternate material is in compliance with the design as shown on the plans. All tests required to comply with these specifications will be at Contractor's expense.

Conduit materials other than those referenced for design may require changes in details or profiles. It shall be the responsibility of the Contractor, at no cost to the City, to prepare detailed shop drawings should the conduit material proposed by the Contractor require modifications of design or details shown on the plans. The shop drawings shall be submitted to the City of Scottsdale Inspector **Project Manager, Construction Admin Supervisor** for approval at the preconstruction conference or two weeks prior to the start of construction of the pipelines.

Materials:

(A) Reinforced Concrete Pipe:

(1) Reinforced concrete pipe shall conform to the requirements of MAG Section 735 with rubber gasketed joints.

(B) Cast-In-Place Pipe:

(1) Cast-in-place pipe shall not be installed in the following locations:
a. **Insert descriptions.**

(2) Cast-in-place concrete pipe shall conform to City of Scottsdale Supplemental Specification 620.

(C) Corrugated Metal Pipe and Spiral Rib Metal Pipe:

(1) Metal pipes shall be certified by the Contractor prior to installation to have a service life of 75 years minimum. Service life is defined as the length of time the pipe goes with no perforations in the shell or liner.

(2) Steel manholes will not be allowed.

(3) The soil pH and resistivity values used to determine life shall be determined by a certified testing laboratory at the Contractor's expense. The Contractor must also certify that the pipe backfill has a pH over 7.3, and a resistivity greater than 1200 ohms/cm. Soil samples shall be obtained at the pipe depth, every 500 feet along the proposed alignment.

(4) The metal pipe shall comply with the requirements of MAG Section 621, except that aluminum coating conforming to the requirements of AASHTO M-274-81, may be substituted for galvanizing, subject to the same lifetime certification.

(5) Pipe corrugations shall be as indicated on the plans. **Confirm corrugations and pipe gage are called out on plans or included herein.**

(D) Concrete Lined CMP:

(1) Corrugated pipe for this pipe option shall comply with MAG Section 621, with corrugations and gauge as indicated on the plans. **Confirm corrugations and pipe gage are called out on plans or included herein.**

(2) Concrete lining shall be certified by the Contractor to meet the following requirements:

(a) Composition - concrete for the lining shall be composed of cement, fine aggregate and water that are well-mixed and of such consistency as to produce a dense, homogenous, non- segregated lining.

(b) Cement - Portland cement shall conform to the requirements of ASTM C-150 Type II, low alkali.

(c) Aggregates - aggregate shall conform to MAG Section 701.

(d) Mixture - the aggregate shall be sized, graded, proportioned, and thoroughly mixed with such proportions of cement and water as will produce a homogenous concrete mixture of such quality that the pipe will conform to the design requirements of this specification. In no case, however, shall the proportions of Portland cement, blended cement or Portland cement plus pozzolanic admixture be less than 564 lb/cu. yd. of concrete.

(e) Thickness - the lining shall have a minimum thickness of 1/4 inch above the crest of the corrugations.

(f) Lining Procedure - the lining shall be plant applied by a machine traveling through a stationary pipe. The rate of travel of the machine and the rate of concrete placement shall be mechanically regulated so as to produce a homogenous non-segregated lining throughout.

(g) Surface Finish - the lining machine shall also mechanically trowel the concrete lining as the unit moves through the pipe.

(E) Coupling Bands:

(1) All coupling bands shall be annular corrugated or hugger type metal bands.

(2) Fabricated coupling bands shall meet the requirements of AASHTO M-36, except as modified herein. Metal bands may be manufactured of material two gages lighter than that gage specified for the pipe to a minimum thickness of 0.064 inch (16 gage).

(3) Coupling bands shall be one-piece for all pipe diameters to 48 inches. Pipe diameters larger than 48 inches shall use two-piece coupling bands. Coupling bands shall be a minimum 10 1/2 inches wide, formed with a minimum of two annular corrugations that are spaced to provide nesting of the second annular corrugation of each pipe.

(F) Coatings:

(1) Bituminous coatings will not be allowed.

Construction Methods:

(A) Reinforced Concrete Pipe:

(1) Pipe trenching and bedding shall conform to the requirements of City of Phoenix Supplement to MAG Section 601.2.3 and City of Scottsdale Supplement to MAG Sections 601.4.2 and 601.4.6.

(2) Existing utility lines shall be protected and/or supported when necessary as required by MAG Section 601.3. Cost for this work will be included in the unit price cost of the storm sewer lines.

(3) Prefabricated fittings shall be used for lateral pipe connections unless shown and detailed otherwise on the plans.

(4) Backfill for all pipes shall be in accordance with **City of Scottsdale Detail No. 2201** **MAG Specification Section 601** or as specified and detailed on the plans.

(5) All other construction methods and testing shall be in accordance with MAG Specification Section 618.

(B) Cast In Place Concrete Pipe

(1) Conform to City of Scottsdale Section 620.

(C) Metal Pipes:

(1) Corrugated Metal and Spiral Rib Metal Pipes:

(a) Pipe trenching and bedding shall conform to the requirements of MAG Section 601 as modified by City of Scottsdale Section 601.

(b) Metal pipe shall be joined using annular corrugated or hugger type metal bands locking in at least one annular corrugation and shall be installed to form a watertight joint. Annular corrugated bands shall use a 1/4 inch thick rubber sleeve gasket the same width as the band. Hugger type metal bands shall use an "O" ring gasket placed in the first annular corrugation of the pipe.

(c) Coupling bands shall be evenly drawn together by a minimum of two 1/2 inch diameter galvanized bolts through the use of a bar and strap assembly suitably welded to the band. "O" ring gaskets shall be compressed by tightening the coupling band in accordance with the manufacturer's installation instructions.

(d) Annular joints in corrugated metal pipe shall be filled to the springline after couplings are secured with an appropriate compound approved by the Inspector **Project Manager, Construction Admin Supervisor**.

(e) Other methods of joining may be used subject to approval of the Inspector **Project Manager, Construction Admin Supervisor**.

(2) Concrete Lined CMP:

(a) Handling and Transportation - the Contractor is responsible for seeing that the pipe arrives and is installed undamaged.

(b) During loading, transportation, unloading, storage, and laying, every precaution shall be taken to prevent damage to the corrugated pipe, linings, and coatings. Approved slings of nylon or other suitable material which will minimize point loading and coating abrasion shall be used during all handling operations and to install the pipe in trenches. The straps of the slings shall be spaced closely so as to ensure a minimum deflection in the pipe to preserve the integrity of the mortar lining. Under no circumstances shall holes be made in the pipe for lifting purposes.

Open ends of shop applied, mortar lined pipe shall be tightly sealed with a plastic wrap consisting of at least two thicknesses of 6 mil polyethylene plastic sheet, and shall remain on the pipe until the time of installation. If the wrap is removed or damaged during shipment, it shall be immediately replaced upon delivery to the job site or during any delays in route to the job site. Any damage to the lining or coating shall be repaired as described herein if, in the opinion of the City, a satisfactory repair can be made. Otherwise, the damaged section shall be removed from the job site and replaced at the expense of the Contractor.

(c) Installation of the pipe shall conform to MAG Section 621. Joints shall be made using rubber "O" ring gaskets. All joints shall be mortared smooth, to a steel trowel finish.

(d) Repairs - all cracks, any part of which is 1/16 inch or more in width shall be repaired for their entire length. The crack shall be filled with an approved epoxy joint filling material that will bond the two faces of the crack. The finished interior surface of the pipe at the location where cracks are repaired shall be cleaned with any extraneous material removed, such that the surface matches the adjacent mechanically troweled surface. The pipe shall be inspected for cracks after all backfilling of the pipe trench has been completed and accepted. The type of material used for crack repairs shall be submitted to the Inspector **Project Manager, Construction Admin Supervisor** for approval prior to the start of any corrective work. Spalling, separations, or offsets in the lining shall be repaired by approved methods using epoxy materials.

Equalizing Gasket Stresses: Stresses in all ring type gaskets shall be equalized around the perimeter of the pipe by raising the gasket material off the pipe using a screw driver or similar tool and smoothly revolving around the pipe perimeter a minimum of two passes.

Backfill: Shall be per **City of Scottsdale Detail No. 2201** **MAG Specification Section 601** or as specified and detailed on the plans.

Measurement and Payment: Per MAG Sections 618 and 621 and City of Scottsdale Section 620 for each size and type of pipe as indicated on the schedule of bid items, except as modified herein.

Main line pipe: No separate payment will be made for prefabricated tees, fittings and/or lateral pipe connections, the costs of which shall be included in the price per linear foot of storm drain line as indicated on the Schedule of Bid Items.

ITEM 640??? THRU 640??? UTILITY CONDUITS

General: The plans reference items related to street lighting **and utility trenching** which are to be installed by the Contractor. Installation of these items is to be in accordance with specifications and requirements of the respective utility agency. The Contractor is responsible for all coordination, scheduling, acquisition, and installation of materials and the required inspections by others.

Materials : All materials installed shall be as specified on the plans. The Contractor shall obtain all materials as directed by the utility agency.

Construction: The Contractor shall provide all trenching, furnish (if necessary) and install all conduit, pull boxes, pull wires, etc. as specified on the plans.

Bedding of the utility conduits shall be per the specifications of the utility agency. Where trenching crosses existing or proposed pavement areas, all backfilling shall be in accordance with City of Scottsdale Supplemental Detail No. 2200.

Conduit for Cable TV will be provided by the cable company and be installed by the Contractor, where applicable. Contractor shall coordinate this work with the cable television company.

The Contractor shall coordinate conduit installations with the telephone company where indicated on the plans or street lighting design drawings. The Contractor shall furnish and install all sleeves for telephone conduit as shown on the plans. All sleeves shall be schedule 40 PVC, buried to a minimum thirty (30) inches below finish grade and shall be provided with PVC caps.

Measurement and Payment: All work as described herein and shown on the plans shall be paid for at the **lump sum amount** **unit prices** indicated on the Schedule of Bid Items. This amount shall be considered full compensation for the work complete and in place per the requirements of the individual utility companies.