



City of Chandler, Arizona  
Public Works & Utilities Department  
Capital Projects Division

# CONSTRUCTION BID

## TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD

**CITY PROJECT NO.: DS2202.401**

**MAYOR**

Kevin Hartke

**VICE MAYOR**

OD Harris

**COUNCIL**

Matt Orlando Christine Ellis

Mark Stewart Angel Encinas Jane Poston

*Daniel Haskins*

---

Daniel Haskins, P.E.

CIP City Engineer

**CITY OF CHANDLER, ARIZONA**

**CONSTRUCTION BID**

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**INVITATION TO BID**

**TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD  
CITY PROJECT NO.: DS2202.401**

NOTICE IS HEREBY GIVEN that sealed bids will be received and date/time stamped by the City of Chandler Capital Projects Office, 215 East Buffalo Street, Chandler, Arizona 85225 until the bid submission date specified below.

All firms must be registered on the Arizona Procurement Portal (<https://app.az.gov/>) vendor registration system prior to submitting a Bid. Non-registered firms will not receive addenda notifications. Download the Bid Documents and any Addenda at [www.chandleraz.gov/business/vendor-services/capital-projects/construction-bids](http://www.chandleraz.gov/business/vendor-services/capital-projects/construction-bids). It is the contractor's sole responsibility to obtain all addenda from the City website prior to submitting their bid proposal, and to acknowledge receipt and acceptance of the addenda in their bid proposal submittal. No separate notification of addenda will be issued. The City recommends Contractors regularly check the website for updated information.

**PRE-BID CONFERENCE:**

|  |                                     |
|--|-------------------------------------|
|  | THERE WILL BE NO PRE-BID CONFERENCE |
|--|-------------------------------------|

**SOLICITATION QUESTIONS DUE DATE:**

|   |   |
|---|---|
| <b>October 25, 2024</b><br><b>5:00 p.m.</b><br>Arizona time | All solicitation questions must be emailed to <a href="mailto:Bid.Questions@chandleraz.gov">Bid.Questions@chandleraz.gov</a> with the subject line of <b>"DS2202.401 Traffic Signal at Layton Lakes Boulevard and Queen Creek Road BID QUESTION"</b> . Questions received after the due date and time will NOT be considered. |
|---|---|

**BID SUBMISSION:**

|  |  |
|--|--|
| <b>November 13, 2024</b><br><b>3:00 p.m.</b><br>Arizona time | <p>Sealed bids must be delivered to the City of Chandler Capital Projects Office located at 215 East Buffalo Street, Chandler, Arizona, 85225. <b>Bids must be received on or before date and time specified.</b> At that time, bids will be publicly opened and read aloud in the <b>Middle Atrium Conference Room</b>. Bids received after the due date and time will be returned unopened without consideration.</p> <p>All bids must be submitted in a sealed envelope plainly marked as follows:</p> <p style="text-align: center;">BID OF _____, CONTRACTOR</p> <p style="text-align: center;">FOR: <i>"Traffic Signal at Layton Lakes Boulevard and Queen Creek Road"</i><br/><i>"DS2202.401"</i></p> |
|--|--|

Work under this Agreement includes: **The project scope of work consists of installing new traffic signal equipment and associated infrastructure at all four corners of the Layton Lakes Blvd and Queen Creek Rd intersection. In addition to the signalized intersection, the scope also includes updated pavement markings, signage, Intelligent Transportation Systems (ITS) equipment, new SRP power service coordination, and ADA-compliant directional sidewalk ramps.** Work must be completed within **120** consecutive calendar days from the Notice to Proceed. The Engineer's Estimate range is **\$800,000 - \$1,100,00.**

Bids must be submitted on the Proposal Form provided and be accompanied by the Bid Bond for not less than ten percent (10%) of the total bid, payable to the City of Chandler, Arizona, or a certified or cashier's check. PERSONAL OR INDIVIDUAL SURETY BONDS ARE NOT ACCEPTABLE.

The successful bidder will be required to execute the standard form of agreement for construction prior to Council award

The successful bidder must furnish a Payment Bond and Performance Bond in the amount equal to one hundred percent (100%) of the Agreement Price.

The right is hereby reserved to accept or reject any or all bids or parts thereto, to waive any informalities in any proposal and reject the bids of any persons who have been delinquent or unfaithful to any agreement with the City of Chandler.

All Bids will remain open for 90 days after the Bid opening day, but the City may, in its sole discretion, release any Bid and return the bid security prior to that date. No Bidder may withdraw his Bid during this period without written permission from the City.

Find PRELIMINARY BID RESULTS at: <https://www.chandleraz.gov/business/vendor-services/capital-projects>

Protest Policy - A protest of a proposed award must be filed WITH THE PURCHASING OFFICE within 5 calendar days of the first posting of the award recommendation. Award recommendations are posted on the Capital Projects web site or the City Clerk web site. If the due date occurs on a weekend or holiday the protest must be filed the next business day.

A Protest must include:

- The name, address and telephone number of the protester;
- The signature of the protester or its representative;
- Identification of the project and the solicitation or agreement number;
- A detailed statement of the legal and factual grounds of the protest including copies of relevant documents; and
- The form of relief requested.

City will review the protest and issue a written response.

PUBLISHED DATE:

**October 16, 2024**

**October 23, 2024**

Arizona Republic

AFFIDAVIT OF PUBLICATION

# BID SUBMITTAL LIST

This list may not include all required bid submission items. It is the Contractor's responsibility to read the entire bid and determine all items required by the submission date and time.

**DO NOT DOUBLE-SIDE ANY PART OF THE BID SUBMITTAL**

PROJECT NAME: **TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD  
AND QUEEN CREEK ROAD**

CITY PROJECT NO.: **DS2202.401**

**PLEASE INCLUDE THE FOLLOWING ITEMS IN YOUR SUBMITTAL ACCORDING TO THE DATE  
AND TIME LISTED IN THE INVITATION TO BID ADVERTISEMENT:**

- A. Bid Bond (Original - with Seal)
- B. Signed Proposal Acknowledgement, and licenses
- C. Bid Schedule
- D. Subcontractor's List Form
- E. Non-Collusion Bidding Certification
- F. Certificate of Insurability and Bonding
- G. Arizona Department of Revenue Privilege Tax License

**BID BOND**

ARIZONA STATUTORY BID BOND PURSUANT TO  
TITLES 28, 34 AND 41,  
OF THE ARIZONA REVISED STATUTES  
(Penalty of this bond must not be less than 10% of the bid amount)

KNOW ALL MEN BY THESE PRESENTS: That, \_\_\_\_\_, (hereinafter "Principal"), as Principal, and \_\_\_\_\_, (hereinafter "Surety"), a corporation organized and existing under the laws of the State of \_\_\_\_\_, with its principal offices in \_\_\_\_\_, holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, held and firmly bound unto \_\_\_\_\_, (hereinafter "Obligee"), as Obligee, in the amount of Ten Percent (10%) of the amount of the bid of Principal, submitted by Principal to the Obligee for the work described below, for the payment of which sum, the Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for construction of:

**TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD  
DS2202.401**

NOW, THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter into an agreement with the Obligee in accordance with the terms of the proposal and give the bonds and certificates of insurance as specified in the agreement document with good and sufficient surety for the faithful performance of the agreement and for the prompt payment of labor and materials furnished in the prosecution of the agreement, or in the event of the failure of the Principal to enter into the agreement and give the bonds and certificates of insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect provided, however, that this bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of that section to the extent as if it were copied at length herein.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
**Principal** SEAL

\_\_\_\_\_  
**SURETY** SEAL

By: \_\_\_\_\_

By: \_\_\_\_\_  
Attorney-in-Fact

Its: \_\_\_\_\_

\_\_\_\_\_  
**AGENCY OF RECORD**

\_\_\_\_\_  
**AGENCY ADDRESS**

CITY OF CHANDLER  
CHANDLER, ARIZONA

**TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD  
DS2202.401**

**PROPOSAL ACKNOWLEDGEMENT**

PROPOSAL to the City Engineer of the City of Chandler,  
In compliance with the Advertisement for Bids, the undersigned bidder:

Having examined the agreement documents, site of work, and being familiar with the conditions to be met, hereby submits the following Proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute the agreement documents and furnish the required bonds and certificates of insurance for the completion of said work, at the locations and for the prices set forth on the inside pages of this form.

Understands that construction of this project shall be in accordance with all applicable Uniform Standard Specifications and Standard Details except as otherwise required by the Project Plans and Project Specific Provisions.

Understands that the Proposal shall be submitted with a Proposal guarantee of cash, certified check, cashier's check, or surety bond for an amount of not less than ten percent (10%) of the amount bid.

Agrees that upon receipt of Notice of Award from the City of Chandler, the undersigned bidder will execute the agreement documents.

Work shall be completed within **120** consecutive calendar days, beginning with the day following the starting date specified in the Notice to Proceed. Said Notice will be issued in accordance with the Project Specific Provisions "NOTICE TO PROCEED," or, when, in the opinion of the Engineer, sufficient materials are, or will be available for the continuous prosecution of the work.

Acknowledges that bid prices submitted include all applicable sales and/or use taxes, and no further compensation will be approved for these items.

The Bidder hereby acknowledges receipt of and agrees that the submitter's Proposal is based on the following Addenda:

| Addendum | Date Received | Addendum No. | Date Received |
|----------|---------------|--------------|---------------|
| _____    | _____         | _____        | _____         |
| _____    | _____         | _____        | _____         |

## **PROPOSAL ACKNOWLEDGEMENT**

**THIS BID IS SUBMITTED BY:** \_\_\_\_\_,  
a corporation organized under the laws of the State of \_\_\_\_\_; a  
partnership consisting of \_\_\_\_\_;  
or individual trading as \_\_\_\_\_  
and is the holder of an Arizona State Contractor's License: \_\_\_\_\_

### **ATTACH PHOTOCOPY**

Classification \_\_\_\_\_ No. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Failure to fill in the information above, regarding the bidder being a holder of Arizona State Contractor's License is grounds for rejection of the bid.

Joint venture bid proposals will not be accepted for projects bidding in the amount (for base bid) of less than \$5 million dollars.

Contractors are reminded it is a violation of State law to submit a bid if not properly licensed. Bids submitted without designating the Contractor's license classification and number, in the spaces provided above, shall be rejected. Bids submitted by Contractors without the required license shall be rejected.

Contractor acknowledges by signing below that bid prices submitted include all applicable sales and/or use taxes, and no further compensation shall be approved for these items. If there is a conflict between the unit bid price and the unit price extension for a particular pay item, the unit prices shall govern, per MAG 102.5. Also, per MAG 102.7, a proposal shall be considered irregular and may be rejected if there are unauthorized additions, statements, conditional or alternate bids, or irregularities of any kind.

Respectfully submitted,

\_\_\_\_\_  
Firm

\_\_\_\_\_  
Federal Tax ID Number

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State and Zip Code

\_\_\_\_\_  
Phone

\_\_\_\_\_  
By (Signature Required)

\_\_\_\_\_  
Name and Title (Print)

\_\_\_\_\_  
Email Address



NAME OF BIDDER: \_\_\_\_\_

CITY OF CHANDLER  
**TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD**  
**DS2202.401**

**BID SUBMITTAL**

| NO. | DESCRIPTION  | UNIT | EST. QTY. | UNIT PRICE   | EXTENDED PRICE |
|-----|--|------|-----------|--------------|----------------|
| 1   | Construction Surveying and Layout  | LS   | 1         |              |                |
| 2   | Owners Allowance   | AL   | 1         | \$ 95,000.00 | \$ 95,000.00   |
| 3   | Erosion Control (SWPPP Preparation, Installation, Maintenance, and Removal)  | LS   | 1         |              |                |
| 4   | Mobilization/Demobilization  | LS   | 1         |              |                |
| 5   | Subgrade Preparation   | SY   | 99        |              |                |
| 6   | Remove and Replace Asphaltic Concrete Pavement                               | SY   | 99        |              |                |
| 7   | Vertical Curb & Gutter, Type A, H=6 In, MAG Det 220-1                        | LF   | 182       |              |                |
| 8   | Concrete Sidewalk, MAG Det 230   | SF   | 210       |              |                |
| 9   | Dual Directional Concrete Curb Ramp With Detectable Warning, COC Det C-258-1 | EA   | 4         |              |                |
| 10  | Concrete Valley Gutter, MAG Det 240  | SF   | 1,116     |              |                |
| 11  | Adjust Pull Box To Grade   | EA   | 1         |              |                |
| 12  | Remove Concrete Curb and Gutter  | LF   | 182       |              |                |
| 13  | Remove Sidewalk  | SF   | 1,303     |              |                |
| 14  | Remove Concrete Valley Gutter  | SF   | 1124      |              |                |
| 15  | Remove and Salvage Streetlight Pole and Equipment                            | EA   | 1         |              |                |
| 16  | Remove and Relocate Streetlight  | EA   | 1         |              |                |
| 17  | Traffic Control  | LS   | 1         |              |                |
| 18  | Uniformed Off-Duty Law Enforcement Officer                                   | HOUR | 80        |              |                |
| 19  | Landscape / Irrigation Restoration   | LS   | 1         |              |                |
| 20  | 4 In White Traffic Paint Stripe  | LF   | 3450      |              |                |
| 21  | 4 In White Thermoplastic Traffic Stripe                                      | LF   | 2950      |              |                |
| 22  | Thermoplastic/Preformed Symbol Left Turn Arrow                               | EA   | 2         |              |                |
| 23  | Thermoplastic/Preformed Symbol Right Turn Arrow                              | EA   | 2         |              |                |
| 24  | Bike Lane Symbol Set, Type II (High-Build)                                   | EA   | 4         |              |                |
| 25  | Remove and Salvage Sign  | EA   | 3         |              |                |
| 26  | Remove Pull Box  | EA   | 4         |              |                |
| 27  | No. 7 Pull Box   | EA   | 2         |              |                |
| 28  | No. 7 Pull Box w/ Extension  | EA   | 1         |              |                |
| 29  | No. 9 Pull Box   | EA   | 1         |              |                |
| 30  | Sch. 40 PVC Electrical Conduit, 2 In   | LF   | 210       |              |                |
| 31  | Sch. 40 PVC Electrical Conduit, 2½ In (SRP Service Conduit)                  | LF   | 350       |              |                |
| 32  | Sch. 40 PVC Electrical Conduit, 3 In   | LF   | 120       |              |                |
| 33  | Sch. 40 PVC Electrical Conduit, 4 In (Directional Drill)                     | LF   | 490       |              |                |
| 34  | Pole Foundation, Type A, ADOT Dwg T-SL 4.01                                  | EA   | 2         |              |                |
| 35  | Pole Foundation, Type PB (Push Button), ADOT Dwg T-SL 4.27                   | EA   | 3         |              |                |
| 36  | Pole Foundation, Type QC   | EA   | 2         |              |                |
| 37  | Pole Foundation, Type RC   | EA   | 2         |              |                |
| 38  | Audible Pedestrian Push Button w/ Sign                                       | EA   | 8         |              |                |
| 39  | Video Detection System (Camera)  | LS   | 1         |              |                |
| 40  | Sign Assembly (IISNS)  | EA   | 4         |              |                |

CITY OF CHANDLER  
**TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD**  
**DS2202.401**

**BID SUBMITTAL (continued)**

| NO. | DESCRIPTION   | UNIT | EST. QTY. | UNIT PRICE | EXTENDED PRICE |
|-----|---|------|-----------|------------|----------------|
| 41  | Type A Signal Pole, Type A, ADOT Dwg T-SL 4.01              | EA   | 2         |            |                |
| 42  | Type PB, Push Button Pole. ADOT Dwg T-SL 4.27               | EA   | 3         |            |                |
| 43  | Type QC Signal Pole   | EA   | 2         |            |                |
| 44  | Type RC Signal Pole   | EA   | 2         |            |                |
| 45  | 20 FT Mast Arm (Tapered)                                    | EA   | 4         |            |                |
| 46  | 35 FT Mast Arm (Tapered)                                    | EA   | 1         |            |                |
| 47  | 40 FT Mast Arm (Tapered)                                    | EA   | 1         |            |                |
| 48  | 55 FT Mast Arm (Tapered)                                    | EA   | 2         |            |                |
| 49  | Meter Pedestal Cabinet                                      | EA   | 1         |            |                |
| 50  | Control Cabinet   | EA   | 1         |            |                |
| 51  | Emergency Pre-Emption System                                | EA   | 4         |            |                |
| 52  | Traffic Signal Mounting Assembly (Type II)                  | EA   | 10        |            |                |
| 53  | Traffic Signal Mounting Assembly (Type IV)                  | EA   | 2         |            |                |
| 54  | Traffic Signal Mounting Assembly (Type V)                   | EA   | 8         |            |                |
| 55  | Traffic Signal Mounting Assembly (Type VII)                 | EA   | 3         |            |                |
| 56  | Traffic Signal Face (Type F) (LED)                          | EA   | 14        |            |                |
| 57  | Traffic Signal Face (Type Flashing Yellow Arrow) (LED)      | EA   | 4         |            |                |
| 58  | Traffic Signal Face (Pedestrian) (Man/Hand) (LED Countdown) | EA   | 8         |            |                |
| 59  | LED Luminaire (Traffic Signal)                              | EA   | 4         |            |                |
| 60  | Electrical Conductors                                       | LS   | 1         |            |                |
| 61  | Fiber Optic Cable (Single Mode 144)                         | LF   | 4000      |            |                |
| 62  | Underground Fiber Optic Splice Closure                      | EA   | 1         |            |                |
| 63  | Fiber Optic Patch Panel (12 Port)                           | EA   | 1         |            |                |
| 64  | CCTV Camera System  | EA   | 1         |            |                |
| 65  | Field Hardened Ethernet Switch                              | EA   | 1         |            |                |
| 66  | SRP Design & Construction Cost                              | LS   | 1         |            |                |

**TOTAL BASE BID:** \_\_\_\_\_

**Note 1:** Bidders must fill in all blank spaces with an entry. Bids submitted with blank spaces will be considered "Non-Responsive".

**Note 2:** Bids will be opened and read aloud at an open public meeting at the time and place designed in the invitation for bids. Bids will not be modified after the bid opening. A bidder withdrawing a bid after the bid opening will be deemed non-responsible and the City may make a claim against the bidder's bid bond.

**Note 3:** The City reserves the right to determine the low bidder based on the Base Bid with or without any Bid Alternate(s).

## SUBCONTRACTOR'S LIST FORM

### TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD DS2202.401

If Bidder intends to subcontract any portion of this Agreement, the bidder must submit the name, address, and contractor's license number (if applicable) of each subcontractor, including the work component of such subcontracting. Include this form with the bid submittal documents. Prime Contractor must self-perform according to MAG Specification 108.2. Bidder may make multiple copies of this form as needed.

|                                     |  |                                     |  |
|-------------------------------------|--|-------------------------------------|--|
| <b>Company Name:</b>                |  | <b>Company Name:</b>                |  |
| Contact Name:                       |  | Contact Name:                       |  |
| Contact Email:                      |  | Contact Email:                      |  |
| Contact Phone:                      |  | Contact Phone:                      |  |
| Work Component:                     |  | Work Component:                     |  |
| Percentage of Total Work Performed: |  | Percentage of Total Work Performed: |  |

|                                     |  |                                     |  |
|-------------------------------------|--|-------------------------------------|--|
| <b>Company Name:</b>                |  | <b>Company Name:</b>                |  |
| Contact Name:                       |  | Contact Name:                       |  |
| Contact Email:                      |  | Contact Email:                      |  |
| Contact Phone:                      |  | Contact Phone:                      |  |
| Work Component:                     |  | Work Component:                     |  |
| Percentage of Total Work Performed: |  | Percentage of Total Work Performed: |  |

|                                     |  |                                     |  |
|-------------------------------------|--|-------------------------------------|--|
| <b>Company Name:</b>                |  | <b>Company Name:</b>                |  |
| Contact Name:                       |  | Contact Name:                       |  |
| Contact Email:                      |  | Contact Email:                      |  |
| Contact Phone:                      |  | Contact Phone:                      |  |
| Work Component:                     |  | Work Component:                     |  |
| Percentage of Total Work Performed: |  | Percentage of Total Work Performed: |  |

|  |                       |
|--|-----------------------|
| Subcontractor Total Work Performed: \$       | Overall Bid Total: \$ |
| Overall Prime Contractor Self-performance %: |                       |



**CERTIFICATE OF INSURABILITY AND BONDING**

I hereby certify that as Bidder to City of Chandler **TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD, DS2202.401**, I am fully aware of the City of Chandler’s Insurance and Bonding Requirements for Contractors and that by the submission of this Bid Proposal, assure the City of Chandler that I am able to produce the insurance and bonding coverage required should I be selected to be the successful bidder.

Should I be selected to be the successful bidder by the City of Chandler, and then become unable to produce the insurance and bonding coverage specified within ten working days I am fully aware and understand that my Bid Proposal will be rejected by the City of Chandler, and that I will forfeit my posted Bid Bond.

\_\_\_\_\_  
Signature of Bidder

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**ARIZONA DEPARTMENT OF REVENUE  
PRIVILEGE TAX LICENSE**

**PROJECT NAME: TRAFFIC SIGNAL AT LAYTON LAKES BOULEVARD AND QUEEN CREEK ROAD**

**PROJECT NUMBER: DS2202.401**

**ATTACH, TO THIS FORM, CURRENT PRIVILEGE TAX LICENSE CERTIFICATE.**



**CITY OF CHANDLER, ARIZONA  
PUBLIC WORKS & UTILITIES DEPARTMENT  
CAPITAL PROJECTS DIVISION**

**CONSTRUCTION AGREEMENT**

**TRAFFIC SIGNAL AT LAYTON LAKES  
BOULEVARD AND QUEEN CREEK ROAD**

**CITY PROJECT NO.: DS2202.401**

**MAYOR**

**Kevin Hartke**

**VICE MAYOR**

**OD Harris**

**COUNCIL**

**Matt Orlando    Christine Ellis**

**Mark Stewart    Angel Encinas    Jane Poston**

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**Daniel Haskins, P.E.  
CIP City Engineer**

**CITY OF CHANDLER, ARIZONA**

**Traffic Signal at Layton Lakes Boulevard and Queen Creek Road**

**CITY PROJECT NO.: DS2202.401**

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**CONSTRUCTION SERVICES AGREEMENT**

**PROJECT NO.: DS2202.401**

This Agreement ("Agreement") is made and entered into on the \_\_\_\_ day of \_\_\_\_\_, 202\_\_\_\_, by and between City of Chandler, an Arizona municipal corporation, hereinafter called "City" and **INSERT CONTRACTOR NAME** the "Contractor" designated below (City and Contractor may individually be referred to as "Party" and collectively referred to as "Parties").

City and Contractor agree as follows:

**ARTICLE 1 - PARTICIPANTS AND PROJECT**

**CITY:** CIP City Engineer: Daniel Haskins, P.E.  
Public Works & Utilities Department  
P.O. Box 4008, Mail Stop 407 Chandler, AZ 85244-4008  
Phone: 480-782-3335 Email: Daniel.haskins@chandleraz.gov

**CITY:** Construction Project Manager: Raymond Potts  
Public Works & Utilities Department  
P.O. Box 4008, Mail Stop 407 Chandler, AZ 85244-4008  
Phone: 480-782-3326 Email: Raymond.Potts@chandleraz.gov

**Contractor: Legal Company Name:** \_\_\_\_\_

**Mailing Address:** \_\_\_\_\_

**Physical Address:** \_\_\_\_\_

**Arizona Roc No.:** \_\_\_\_\_

**Federal Tax Id No.:** \_\_\_\_\_

**State Where Organized:** \_\_\_\_\_

**Business Organization:** \_\_\_\_\_

**Statutory Agent Name:** \_\_\_\_\_

**Statutory Agent Mailing Address:** \_\_\_\_\_

**Statutory Agent Physical Address:** \_\_\_\_\_

**Contractor's Authorized Project Representative:**

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**PROJECT DESCRIPTION:**

The project scope of work consists of installing new traffic signal equipment and associated infrastructure at all four corners of the Layton Lakes Blvd and Queen Creek Rd intersection. In addition to the signalized intersection, the scope also includes updated pavement markings, signage, Intelligent Transportation Systems (ITS) equipment, new SRP power service coordination, and ADA-compliant directional sidewalk ramps.

**PROJECT LOCATION:**

Intersection of Layton Lakes Boulevard and Queen Creek Road

## **ARTICLE 2 - AGREEMENT DOCUMENTS**

### **2.1 AGREEMENT DOCUMENTS**

The Agreement between City and Contractor will consist of the following Agreement Documents:

1. This Construction Services Agreement and all of its Exhibits, including Project Plans and Technical Specifications.
2. General Conditions and General Conditions Appendices, incorporated by reference.
3. Project Specific Special Provisions as set forth in Exhibit A, incorporated by reference.
4. Project Bid Proposal.

2.2 In the event of any inconsistency, conflict, or ambiguity between or among the Agreement Documents, the Agreement Documents will take precedence as described in Section 14.1.4 of the General Conditions.

### **2.3 DEFINITIONS**

The definitions in Section 2 of the General Conditions apply to all the Agreement Documents, including this Agreement.

## **ARTICLE 3 - CONSTRUCTION SERVICES**

### **3.1 GENERAL**

3.1.1 Scope of Work. All terms and conditions are set forth in the Agreement. Any terms and conditions and exceptions noted in the Contractor's proposal or other documents do not apply unless agreed to in this Agreement or an approved addendum.

3.1.2 Contractor agrees this is a Unit Price Agreement. Contractor agrees at its own cost and expense, to do all Work necessary required to fully, timely and properly complete the construction of the Project in strict accordance with the Agreement Documents in a good and workmanlike manner, free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified, within the Agreement time.

3.1.3 Contractor must provide all of the labor and materials, and perform the Work in accordance with Section 4 of the General Conditions. Some, but not all, of the major components of the Construction Services and the corresponding subsections of Section 4 of the General Conditions are set forth below.

3.1.4 At all times relevant to this Agreement and performance of the Work, the Contactor must fully comply with all Laws, Regulations, or Legal Requirements applicable to City,

the Project and the Agreement, including, without limitation, those set forth on attached Exhibit A.

- 3.1.5 Contractor must perform the Work under this Agreement using only those firms, team members and individuals designated by Contractor consistent with Contractor's accepted Bid, or otherwise, approved by City pursuant to the General Conditions. No other entities or individuals may be used without the prior written approval of the Project Manager.
- 3.1.6 Contractor must comply with all terms and conditions of the General Conditions.
- 3.1.7 In the event of a conflict between this Agreement and the General Conditions or an exhibit hereto or appendix thereto, the terms of this Agreement will control.
- 3.1.8 Ownership of Work Product. Notwithstanding anything to the contrary in this Agreement, all Work Product prepared or otherwise created in connection with the performance of this Agreement, including the Work, are to be and remain the property of City. For purposes of this provision, "Work Product" will include all designs, drawings, plans, specifications, ideas, renderings and other information or matter, in whatever form created (e.g., electronic or printed) and in all media now known or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C. § 101 (Copyright Act). If for any reason, any such Work is found not to be a Work Made for Hire, Contractor hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.

### 3.2 **CONTRACTOR'S PRE-AGREEMENT AND PRE-WORK DELIVERABLES**

- 3.2.1 The Contractor must provide the Deliverables in accordance with Section 4.2 of the General Conditions.

### 3.3 **PRE-CONSTRUCTION CONFERENCE**

Contractor must attend the Pre-Construction Conference in accordance with Section 4.3 of the General Conditions.

### 3.4 **PERFORMANCE OF THE WORK (INCLUDING FIELD MEASUREMENTS, SUBCONTRACTORS, AND SUPPLIERS)**

Contractor must perform the Work in accordance with Section 4.4 of the General Conditions.

### 3.5 **CONTROL OF THE PROJECT SITE**

Contractor must control and maintain the Project Site in accordance with Section 4.5 of the General Conditions.

3.6 **PROJECT SAFETY**

Contractor must implement and enforce Project safety in accordance with Section 4.6 of the General Conditions.

3.7 **MATERIALS QUALITY, SUBSTITUTIONS AND SHOP DRAWINGS**

Contractor must provide materials testing and submit substitute materials and Shop Drawings in accordance with Section 4.7 of the General Conditions.

3.8 **PROJECT RECORD DOCUMENTS**

Contractor must maintain and make available the Project Record Documents in accordance with Section 4.8 of the General Conditions.

3.9 **WARRANTY AND CORRECTION OF DEFECTIVE WORK**

Contractor must provide warranties and correct defective Work in accordance with Section 4.9 of the General Conditions.

**ARTICLE 4 - CITY RESPONSIBILITIES**

4.1 City will have the responsibilities, and provide the information specified in, and subject to the conditions set forth in, Section 5 of the General Conditions.

**ARTICLE 5 - AGREEMENT TIME**

5.1 **GENERAL**

5.1.1 The total Agreement Duration is **120** Calendar Days (including Substantial Completion by **90** Calendar Days and Final Acceptance by **120** Calendar Days).

5.1.2 The Agreement Time will start with the Notice to Proceed (NTP) and end with Final Acceptance, as set forth in Article 5.4 below.

5.1.3 The Agreement Time will be as set forth in the Project Schedule. Contractor agrees that it will commence performance of the Work and complete the Project through Final Acceptance within the Agreement Time.

5.1.4 Time is of the essence of this Agreement for the Project, and for each phase and designated Milestone thereof.

5.1.5 Failure on the part of Contractor to adhere to the approved Project Schedule will be deemed a material breach and sufficient grounds for termination of this Agreement by City.

5.2 **PROJECT SCHEDULE**

5.2.1 The Project Schedule will be updated and maintained throughout Contractor’s performance under this Agreement in accordance with Section 6.2 of the General Conditions.

5.2.2 Work must be completed to meet the following milestones after the Notice to Proceed:

|    | <u>Milestone</u> |        | <u>Time</u> | <u>Liquidated damages for delay</u> |                  |
|----|------------------|--------|-------------|-------------------------------------|------------------|
| 1. | █                | within | █ days      | \$ █                                | per calendar day |

5.3 **SUBSTANTIAL COMPLETION**

Substantial Completion must be achieved no later than the Substantial Completion Date set forth in the Project Schedule. Substantial Completion will be determined in accordance with Section 6.3 of the General Conditions.

5.4 **FINAL ACCEPTANCE**

5.4.1 Final Acceptance will be obtained within the time period set forth in the Project Schedule.

5.4.2 Final Acceptance will be issued pursuant to Section 6.5 of the General Conditions.

5.5 **LIQUIDATED DAMAGES**

5.5.1 Substantial Completion Liquidated Damages. Contractor acknowledges and agrees that if Contractor fails to obtain Substantial Completion of the Work within the Agreement Time, City will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, City and Contractor agree that if Contractor fails to achieve Substantial Completion of the Work within the Agreement Time, City will be entitled to retain or recover from Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9.

5.5.2 Final Acceptance Liquidated Damages. For the same reasons set forth in Article 5.5.1 above, City and Contractor further agree that if Contractor fails to achieve Final Acceptance of the Work within the Agreement Time, City will be entitled to retain or recover from Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9 commencing from the actual date of Substantial Completion or Final Acceptance as required under the Agreement.

5.5.3 MAG Liquidated Damages. Liquidated damages provisions in MAG § 108.9 will apply.

5.5.4 City may deduct liquidated damages described in this Article 5.5 from any unpaid amounts then or thereafter due Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due Contractor will be payable to City at the demand of City, together with interest from the date of the demand at the highest lawful rate of interest payable by Contractor.

**5.6 MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES ONLY**

5.6.1 Contractor and City waive claims against each other for consequential damages arising out of or relating to this Agreement. This mutual waiver includes.

1. Damages incurred by City for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
2. Damages incurred by Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

5.6.2 This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination of this Agreement. Nothing contained in this Article 5.6 will be deemed to preclude an award of liquidated damages, when applicable, in accordance with Article 5.5 above.

5.6.3 Nothing herein will be deemed to constitute a waiver of any other remedy available to City in the event of Contractor's default under this Agreement prior to full performance of the Work including, as applicable, specific performance or completion of the Work on behalf of Contractor, the cost and expense of which will be offset against any monies then or thereafter due to Contractor (if any) and otherwise immediately reimbursed to City by Contractor.

**ARTICLE 6 - AGREEMENT PRICE**

**6.1 AGREEMENT PRICE**

6.1.1 In exchange for Contractor's full, timely, and acceptable performances and construction of the Work under this Agreement, and subject to all of the terms of this Agreement, City will pay Contractor the "Agreement Price," which is \$\_\_\_\_\_.

6.1.2 The Agreement Price is all-inclusive and specifically includes all fees, cost, insurance and bond premiums, and taxes of any type necessary to fully, properly and timely perform and construct Work.

**6.2 CHANGES TO AGREEMENT PRICE**

Shall be determined under Section 9 of the General Conditions.

**ARTICLE 7 - PAYMENT**

Payments will be made to Contractor in accordance with Section 8 of the General Conditions.

**ARTICLE 8 - CHANGES TO THE AGREEMENT**

Changes to the Agreement may be made in strict accordance with Section 9 of the General Conditions.

**ARTICLE 9 - SUSPENSION AND TERMINATION**

This Agreement may be suspended or terminated in accordance with Section 10 of the General Conditions.

**ARTICLE 10 - INSURANCE AND BONDS**

10.1 Contractor must provide insurance in accordance with Sections 11.1 through 11.3 of the General Conditions. Contractor must provide proof of such insurance and all required endorsements in forms acceptable to City prior to commencing any Work under this Agreement.

10.2 Contractor must provide performance and payment bonds to City in Accordance with Section 11.4 of the General Conditions and A.R.S. § 34-222.

10.3 Failure to provide proof of insurance and the required endorsements, or the required bonds, in forms acceptable to City, will be a material breach and grounds for termination for cause of this Agreement.

**ARTICLE 11 - INDEMNIFICATION**

Contractor must have and assume the indemnity obligations set forth in Section 12 of the General Conditions.

**ARTICLE 12 - DISPUTE RESOLUTION**

Any claims or disputes relating to this Agreement will be resolved according to the dispute resolution process set forth in Section 13 of, and Appendix 6 to, the General Conditions.

**ARTICLE 13 - FORCED LABOR OF ETHNIC UYGHURS PROHIBITED** By entering into this Agreement, Contractor certifies and agrees Contractor does not currently use and will not use for the term of this Agreement: (i) the forced labor of ethnic Uyghurs in the People's Republic of China; or (ii) any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (iii) any contractors, subcontractors or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.



SIGNATURE PAGE TO FOLLOW

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement through their duly authorized representatives and bind their respective entities as of the effective date.

**"CITY" CITY OF CHANDLER**

**"CONTRACTOR"**

\_\_\_\_\_  
MAYOR

\_\_\_\_\_  
Signature Date

**RECOMMENDED BY:**

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Daniel Haskins, P.E.  
CIP City Engineer

\_\_\_\_\_  
Title

**APPROVED AS TO FORM:**

\_\_\_\_\_  
Signer Email Address

\_\_\_\_\_  
City Attorney

**ATTEST:**

\_\_\_\_\_  
City Clerk Seal

**EXHIBIT A**

**PROJECT SPECIFIC  
SPECIAL PROVISIONS**

**4.2.7 Aerial Construction Photography**

General Conditions Section 4 Subsections 4.2.7.1 & 4.2.7.2 are not applicable to this project.

**4.2.8 Government Approvals and Permits**

General Conditions Section 4 Subsection 4.2.8.1, City permit fees will be paid internally by the City and all other fees will be the responsibility of the Contractor.

**Subletting of Agreement**

Contractor must perform, with his own organization, work amounting to not less than 50 percent of the total Agreement cost.

Failure to submit Subcontractor's List Form, demonstrating self-performance not less than 50 percent of the total Agreement cost, will cause the bid to be deemed non-responsive.

Bidders should contact the Arizona Registrar of Contractors for information on license requirements.

**EXHIBIT B**

**GENERAL CONDITIONS**



# GENERAL CONDITIONS

Approved date: July 20, 2022

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## **SECTION 1 - SCOPE OF THESE GENERAL CONDITIONS**

These General Conditions encompass provisions that apply, and are incorporated into all construction Agreements entered into by the City of Chandler, unless otherwise specifically excluded in the executed Agreement.

## **SECTION 2 - GENERAL DEFINITIONS**

Allowance: A specific amount for a specific item of Work, if any, that City agrees has not been sufficiently designed, detailed, or selected (including design changes from 90% to 100% as authorized by and at the discretion of the City) at the time the Agreement Price is agreed to for Contractor to provide a definitive price.

Alternate Systems Evaluations or Alternative Analysis: Alternatives for design, means and methods or other scope considerations that are evaluated using value analysis principles and have the potential to reduce construction costs while still delivering a quality and functional Project that meets City requirements.

Change Order: A written instrument issued after execution of the Agreement Documents signed by City and Contractor, stating their agreement upon all of the following: the addition, deletion or revision in the scope of services or deliverables; the amount of the adjustment to the Agreement Price, the extent of the adjustment to the Agreement Time, or modifications of other agreement terms. The Agreement Price and the Agreement Time may be changed only by Change Order.

Consultant: Person or firm that provides professional services.

City (Owner or OWNER): City of Chandler, a municipal corporation, with whom Contractor has entered into the Agreement and for whom the Work or Services are to be provided pursuant to the Agreement(s).

Contingent Bid Items: This is a minor bid item which is likely, but not certain, to occur during the course of work. If the Engineer determines that this work is required, the Contractor will accomplish the work and payment will be made based on the contingent unit bid price included in the proposal. Since the quantity listed in the proposal is primarily for bid comparison, the amount of work required by the Engineer may vary materially from this.

Agreement: The written agreement executed between City and Contractor, including all of the Agreement Documents.

Agreement Documents: The documents which together form the Agreement between City and Contractor, as identified in Article 2 of the Agreement, or are otherwise incorporated into the Agreement, including the Agreement, the exhibits thereto, these General Conditions, any Notice to Proceed, and any Job Order (if applicable), the Plans and Specifications, Project Schedule, written and properly executed Change Orders, MAG Specifications and City's amendments thereto, and any other documents so designated in the Agreement.

Agreement Price: The agreed-upon price to be paid to Contractor for full, timely, and acceptable completion of the Work or Services under the terms of the Agreement.

Agreement Time(s): The number of calendar days or the dates related to the applicable phase, Substantial Completion, or Final Acceptance as stated in Agreement Documents. Agreement Time starts

with the Notice to Proceed (NTP) and ends with Final Acceptance. The Agreement Time is set forth in the Agreement and is based upon the Project Schedule agreed to by City in writing.

Contractor: The person or business association with whom City has entered into an agreement for construction related Work or Services in relation to the Project at issue.

Contractor Payment Request: The form that is accepted by City and used by Contractor in requesting progress payments or final payment and which must include such supporting documentation as is required by the Agreement Documents or City.

Construction Budget: The City's budget for construction of the Project.

Construction Documents: The Plans, Specifications, and Drawings prepared and issued by the Design Professional and approved by City for construction, meaning the documents are sealed by the Design Professional (as required), acceptable for permitting and incorporated into the Agreement by this reference. All amendments and modifications to the Construction Documents must be approved in writing by City prior to incorporation into the Agreement.

Cost of the Work: The term Cost of the Work will mean costs necessarily incurred by Contractor in the proper performance of the Work. Such costs will be at rates not higher than the standard paid at the place of the Project except with prior consent of City.

Critical Path Method (CPM): A scheduling technique which identifies the logical sequence of the activities occurring in a Construction Project, the anticipated time required to complete each activity in the Project, and the activities that must be completed on schedule to finish the Project within the anticipated time. Typically, activities are arranged in a network that shows both activities and their dependencies. CPM is also used as a management technique which enables contracting parties to predict when activities may occur so that resources can be effectively used and limitations can be identified.

Critical Path: Critical Path is the sequence of project network activities which add up to the longest overall duration. Once established in the Project Schedule, the Critical Path for the Project must not be changed without prior written approval of City.

Day: Calendar day(s) unless otherwise specifically stated in the Agreement Documents.

Design Professional: The qualified, licensed person, firm or corporation who furnishes design and construction administration services required under the Agreement Documents. These services may include, but are not limited to: development of Construction Drawings and Documents, review of Contractor Submittal(s), review of and response to Requests for Information, approval and certification of progress payment applications, construction administration, and construction agreement close out.

Differing Site Conditions: Concealed or latent physical conditions or subsurface conditions at the Site that, (i) materially differ from the conditions indicated in the Agreement Documents, or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work at the general area of the Site. Caliche, rock, hard-digging or sandy/silty soil encountered on a project is not considered a "Differing Site Condition."

Drawings (Plans): Documents, which visually represent the scope, extent and character of the Work to be furnished and performed by Contractor during the construction phase and which have been prepared



or approved by the Design Professional and City. These documents include Drawings that have reached a sufficient state of completion and released by Design Professional solely for the purposes of review and use in performing constructability or bid-ability reviews by Contractor and in preparing cost estimates (e.g. Master Planning and Programming, Schematic Design, Design Development, and Construction Drawings), but *"not for construction."* Shop Drawings are not Drawings as so defined.

Final Acceptance: The City's acceptance of the facility or project from the Contractor after all Work is completed, tested, and inspected in accordance with the Agreement requirements. Final Acceptance results in a Letter of Acceptance (LOA).

Fixed Price: A fixed price or amount for an Agreement Price, Scope of Work, materials, or other item under an Agreement, Change Order, or other agreement, which City agrees, in writing, to pay instead of the actual cost.

Float: The number of Days by which an activity can be delayed without lengthening the Critical Path and extending the Agreement Time. Unless otherwise expressly agreed in writing, all Float belongs to City.

Laws, Regulations, or Legal Requirements: Any and all applicable laws, rules, regulations, ordinances, codes and orders applicable to the Project of any and all governmental bodies, agencies, authorities and courts having jurisdiction and any applicable provisions of the Development Agreement for the Project (if any), including, without limitation, those provisions relating to the design and construction of the Project.

Line Item: The individual elements of Work identified on a bid or other schedule and associated with a price or a unit price and quantity particular to that individual element of the Work. Also refers to individual items of work within the Schedule of Values.

Liquidated Damages: Designated damages for the City to collect as compensation upon a specific breach (example: late delivery).

Long-Lead Item: Long-lead item refers to the equipment, product, or system that is identified at the earliest stage of a project to have a delivery time long enough to affect directly the Critical Path/the overall lead time of the project.

MAG: The Maricopa Association of Governments.

MAG Specifications: The most current version of the Uniform Standard Specifications for Public Works Construction published by MAG.

MAG Standard Details: The most current version of the Uniform Standard Details as published by MAG.

Minor change: A change in the Work having no impact on cost or time or the City-approved design intent, as determined by City.

Notice to Proceed (NTP): A written notice given by City to Contractor fixing the date on which Contractor will start to perform Contractor's obligations under the Agreement.

Project: The Project specified in the Agreement (including a Job Order).

Project Manager: The Project Manager designated in Article 1 of the Agreement, or any successor thereto

designated by City. The Project Manager has the authority to act on behalf of City, as delineated and limited by the Agreement Documents and applicable law. And City will communicate with Contractor through the Project Manager. However, the Project Manager has no authority to bind City or City Council in contravention of any City code, State or Federal statute or regulation, or these General Conditions.

Project Schedule: The schedule for the completion of the Project agreed to and required by City.

Project Specific Conditions: Additional conditions which apply to the specific Project and Scope of Work which are set forth in Exhibit D of the Agreement.

Project Team: The Project Team consisting of the Design Professional, Contractor, Project Manager, and such others as City may designate.

Punch List: The list initially prepared by Contractor pursuant to the Agreement Documents, reviewed and supplemented by the Project Manager (and at the sole option of the Project Manager, the Design Professional) and approved by City containing items of incomplete work not impacting Substantial Completion, if allowed for under the Agreement, and to be completed or corrected by Contractor after Substantial Completion and before Final Acceptance in accordance with the Agreement Documents.

Quality Assurance (QA) Testing: Testing performed to verify the accuracy and applicability of the QC testing results and to ascertain that the materials installed meet the specified levels of quality in accordance with the Agreement Documents.

Quality Control (QC) Testing: Testing performed to assure that the materials installed comply with the requirements in the Agreement Documents.

Requests for Information (RFIs): Formal written request from Contractor to City or Design Professional for the Project seeking clarification or additional information needed for Contractor to properly complete the Work or Services under the Agreement. City may require RFI's to be submitted on a specific form or in a specified format.

Schedule of Values (SOV): The specified document prepared by Contractor, and approved and accepted by City, which divides the Agreement Price into pay items, such that the sum of all pay items equals the Agreement Price for the construction phase Work, or for any portion of the Work having a separate specified Agreement Price.

Scope of Work: The scope of work agreed to or required by City and incorporated into the Agreement as Exhibit A.

Shop Drawings: All drawings, diagrams, schedules and other data specifically prepared for the Work by Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

Site: The land or premises on which the Project is located.

Specifications: The part(s) of the Agreement Documents for the construction phase consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto. Where specified, the Project must be constructed using the current Uniform Standard Specifications and Details for Public Works

Construction as furnished by the Maricopa Association of Governments, as amended by City.

Subconsultant: A person, firm or corporation having an Agreement with Consultant/Contractor to furnish services required as its independent professional associate or consultant with respect to the Project.

Subcontractor: An individual or firm having a direct Agreement with Contractor or any other individual or firm having an Agreement with the aforesaid contractors at any tier, who undertakes to perform a part of pre-construction services or construction phase Work at the Site for which Contractor is responsible. Subcontractors must be selected through the Subcontractor selection process described in the Agreement Documents, if any.

Substantial Completion: The date when the City determines that the Work (or separable units of Phases as provided in the Agreement Documents) is essentially and satisfactorily complete in accordance with the Agreement Documents such that the Project is ready for use by the City for its intended purpose, opening to the general public, full occupancy or use by City (including, without limitation, all separate units, or rooms, facilities, access, income-generating areas, and all areas serving the general public, as applicable, must be ready for full operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories, and similar elements are installed in the proper manner and in operating condition, inspected, and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air conditioning, vertical transportation, and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and other work as applicable, has been performed to a similar state of essential and satisfactory completion.

Supplier: A manufacturer, fabricator, distributor, or vendor having a direct Agreement with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the construction phase Work by Contractor or any Subcontractor.

Total Float: Number of Days by which pre-construction services or construction phase Work or any part of the same may be delayed without necessarily extending a pertinent Agreement Time or schedule milestone in the Project Schedule.

Work: The entire completion of construction or the various separately identifiable parts thereof, required to be furnished during the construction phase. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials, resources and equipment into the construction, and performing or furnishing services and documents as required by the Agreement Documents for the construction phase.

Writing: Typing, printing, photography and other modes of representing or reproducing words in a visible form, including email, and expressions.

### **SECTION 3 - STANDARD SPECIFICATIONS AND DETAILS**

- 3.1 City operates under the latest revision of the MAG Specifications and MAG Standard Details as amended by City. City's current amendment to the MAG Specifications, part of the City's Unified Development Manual, may be found and downloaded from City's website at <http://www.chandleraz.gov>.

- 3.2 Copies of the MAG Specifications and MAG Standard Details are available at the Maricopa Association of Governments office, 302 N. 1<sup>st</sup> Avenue, Suite 300, Phoenix, Arizona. They may also be downloaded from their website at: <http://www.azmag.gov/Newsroom/Publications>
- 3.3 The MAG Specifications and Standard Details and City's amendments thereto are incorporated into the Agreement by this reference.

**SECTION 4 - CONTRACTOR'S RESPONSIBILITIES FOR CONSTRUCTION SERVICES**

4.1 **GENERAL**

- 4.1.1 Contractor must construct the Work in accordance with the Agreement Documents and as outlined in Exhibit A of the Agreement to the satisfaction of City, exercising the degree of professional care, skill, diligence, quality and judgment that a professional construction manager engaged, experienced and specializing in the construction management of construction and facilities of similar scope, function, size, quality, complexity and detail in urban areas throughout the United States comparable to Chandler, Arizona would exercise at such time, under similar conditions. Contractor must, at all times, perform the Work in conformance with sound and generally accepted engineering principles and construction management and construction contracting practices.
- 4.1.2 If Contractor observes errors, discrepancies or omissions in the Agreement Documents, Contractor must promptly notify the Design Professional and City and request clarification. If Contractor, with the exercise of reasonable care, should have recognized such error, inconsistency, omission, or difference and fails to report it to City, and if Contractor proceeds with the Work affected by such observed errors, discrepancies or omissions, without receiving such clarifications, Contractor does so at its own risk and will be liable to City for damages resulting from proceeding without clarification.
- 4.1.3 Project Team and agents of each of them, testing agencies and governmental agencies with jurisdictional interests will be provided access to the Work at reasonable times for their observation, inspection, and testing. Contractor must provide proper and safe conditions for such access.
- 4.1.4 Contractor must comply with, and require all Subcontractors to comply with, the Arizona Contractors' license laws, including all requirements with respect to being duly registered and licensed.
- 4.1.5 Contractor must ensure that all employees performing any Work for which Contractor is responsible have a legal right to live and work in the United States. In addition, all compensation of any such employee must meet all applicable requirements of the Fair Labor Standards Act (FLSA) and Federal Minimum Wage laws.
- 4.1.6 Contractor must comply with the Immigration Reform and Control Act of 1986 (IRCA). Contractor understands and acknowledges the applicability of the IRCA activities. Contractor agrees to comply with the IRCA while performing their work and to permit City inspection of Contractor personnel records to verify such compliance.
- 4.1.7 Pursuant to MAG Specifications §§ 107.4, Contractor must report immediately any discovery of archeological ruins or artifacts. Excavation must stop immediately so that City can decide on the pertinent steps to follow such discovery.

- 4.1.8 All property owners that may be affected by the proposed construction activities must be notified of the scope, duration of the construction activities and possible interference with their day-to-day activities by Contractor prior to start of construction. In addition, individual residential or commercial interferences, such as driveway restrictions, water outages, and all other Work adjacent to residence/business, require 48-hour notification in advance of specific adjoining Work. Notification may be through door hangers or other procedures approved by the City.
- 4.1.9 Access must be maintained to adjacent properties at all times during construction. Where property has more than one point of access, no more than one access will be restricted or closed at any one time. Access to adjacent private driveways will be maintained during all non-working hours.
- 4.1.10 Contractor must furnish and erect construction signs in accordance with Project Specifications. The signs must be professionally prepared and subject to approval by City, must be maintained by Contractor for the duration of the project, and must be removed by Contractor during the final project clean up.
- 4.1.11 The number of signs required, the size, shape, installation requirements and information to be included for construction signs is established on the detail sheet, provided, however, signs must be a minimum of 4 foot by 8 foot and must be installed so that the bottom of the sign is at least 4 foot above grade. No direct payment will be made for furnishing and erecting construction signs. The cost thereof must be included in other items for which direct payment is made. Sign locations will be determined by City.
- 4.1.12 All required construction signs must be installed by Contractor within 7 Days of Notice to Proceed.
- 4.1.13 The Work to be accomplished under these Agreement Documents has been designed for City by a Design Professional retained by City for this purpose. It is understood that normal construction Administration for the purpose of interpretation of the Agreement Documents is provided by City. Should any services of the Design Professional be required to assist in the corrections of errors or omissions by Contractor, or services of the Design Professional be required because of changes in structure or equipment where Contractor has requested approval of substitute methods or material, or any other items detailed herein below, those services will be provided by the Design Professional at the standard hourly rates previously negotiated with City and must be paid for by the Contractor.
- 4.1.14 Contractor must reimburse City for costs incurred by the Design Professional for additional services to the Project through no fault of City or the Design Professional including, but not limited to, the following conditions:
  - a. Additional Site visits, investigations, inspections, design work or reports by the Design Professional which are required due to damages to existing facilities or completed Work caused by the Contractor in his performance, Contractor's negligence, or Contractor's Work which is rejected as defective or as failing to conform to the Agreement Documents;
  - b. Design Professional construction phase services rendered on the project during the time the project remains incomplete after the Agreement date of final completion will be charged to Contractor at a rate previously negotiated City; and

- c. All retesting required due to the failure of Contractor's Work to meet the requirements of the Agreement Documents will be at Contractor's expense. All standby and travel time by the City's testing lab, the Design Professional or City due to Contractor's inability to be prepared for testing at the agreed upon time will be at the Contractor's expense.

4.1.15 City may withhold from any payment otherwise due to Contractor any amounts necessary to pay the Design Professional for such additional services as provided herein above.

4.1.16 Contractor will not be required to bear additional costs incurred by City due to errors by the Design Professional.

4.2 **CONTRACTOR'S PRE-AGREEMENT AND PRE-WORK DELIVERABLES**

4.2.1 Prior to award of the Agreement, Contractor must execute Agreement and deliver to City. Failure to do so may delay Agreement award. Contractor must also provide to City its Contractor's License classification and number and its Federal Tax I.D. number.

4.2.2 Before beginning any Work under the Agreement, Agreement must be fully executed by City.

4.2.3 After Agreement award, City will issue to Contractor an award letter. At that time Contractor must deliver to City such bonds and certificates of insurance with endorsements in such amounts (and other evidence of insurance requested by City) required under Section 11 of these General Conditions, and as the Agreement requires.

4.2.4 As evidence of Workmen's Compensation Insurance, Contractor must, upon request, provide a letter of certification from the Industrial Commission of Arizona that Contractor is insured by the State Compensation Fund or is an authorized self-insurer or a certificate of insurance issued by an insurance company authorized by the Insurance Department of Arizona to write Workmen's Compensation and Occupational Disease Insurance in the State of Arizona.

4.2.5 Within 10 Days of the date of the executed Agreement letter issued by City, Contractor must submit to City for review and acceptance the following items:

4.2.5.1 Comprehensive construction Project Schedule including a Critical Path Method (CPM) diagram schedule as described in Section 6.2. Project Schedule must be in Microsoft Project standard file format. Within 10 Days of receipt of City's comments, Contractor must make all required corrections, adjustments, and additions to complete the Project Schedule and resubmit to City for review.

4.2.5.2 Preliminary schedule of submittals and Shop Drawings. Within 10 Days of receipt of City's comments, Contractor must submit the corrected and completed schedule of Shop Drawings submissions for approval. Contractor's schedule of Shop Drawings and sample submittals will be acceptable to City if it provides a workable arrangement for reviewing and processing the required submittals.

4.2.5.3 Schedule of Values in a form specified by City reflecting the subcontracts and other categories that will be used to submit Pay Applications for the Work. The total amount of the Schedule of Values must not be greater than the Agreement Price. The Schedule of Values will be reviewed at the Pre-Construction Conference and revised by Contractor within 10 Days after Pre-Construction Conference in response to comments and questions from

City. Once accepted by City in writing, the Schedule of Values for the Project must not be changed without the prior written approval of City.

4.2.6 Video Recording Requirement. Prior to performing any Work, Contractor must document the existing conditions of the Site, all other areas where Work will occur and all adjacent areas that may be impacted by the Work via digital video format. Contractor must video record and index all areas, features, buildings and other public and private improvements that could potentially be impacted by the Work. Video recording must be coordinated with City. When video recording private property, Contractor must also coordinate the video recording with the private property owner, if possible. Contractor must provide City with a copy of said digital video format prior to performing any Work.

4.2.7 Government Approvals and Permits.

4.2.7.1 Contractor must obtain all necessary permits for the Work and pay all applicable fees, unless otherwise noted on the Plans and in the Specifications. City permit fees will be paid internally by City. For bidding purposes, an allowance for all permit fees is included in the bid schedule under the item "allowance for permit fees." The Contractor will be paid for the actual cost of the permit fees upon submitting a receipt showing the fee Contractor has paid. Excluded from the above allowance are items such as all costs incurred by the Contractor in securing the permit except for the actual permit fee established by the agency, cost for all shutdowns or outages, cost for pole bracing, cost of permits for construction water, cost of construction water, cost for any additional insurance requirements, cost for any licenses, and other similar type costs. Contractor is specifically notified of the need to obtain the necessary environmental permits or file the necessary environmental and regulatory permit notices.

4.2.7.2 Copies of all permits and the associated notices must be provided to City prior to starting the permitted activity.

4.3 **PRE-CONSTRUCTION CONFERENCE**

4.3.1 Prior to the commencement of any Work, City will schedule a Pre-Construction Conference.

4.3.2 The purpose of this Conference is to establish a working relationship between Contractor, the utility firms, and various City agencies. The agenda will include critical elements of the Work schedule, submittal schedule, cost breakdown of major lump sum items, Payment Requests and processing, coordination with the involved utility firms, and emergency telephone numbers for all representatives involved in the course of construction.

4.3.3 Minimum attendance by Contractor at any mandatory meeting with City must be (1) Contractor's Representative, who is authorized to execute and sign documents on behalf of the firm, (2) Contractor's on-site Superintendent, and (3) Contractor's Safety Office, or other employee responsible for safety.

4.4 **PERFORMANCE OF THE WORK (INCLUDING FIELD MEASUREMENTS, SUBCONTRACTORS, AND SUPPLIERS)**

4.4.1 Unless otherwise provided in the Agreement Documents to be the responsibility of City or a separate Contractor, Contractor must provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Contractor to complete the

- Work consistent with the Agreement Documents.
- 4.4.2 Contractor must perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Agreement Documents. Contractor must at all times exercise complete and exclusive control over the means, methods, safety, sequences and techniques of construction.
- 4.4.3 Contractor's Superintendent must be present at the Site at all times that material Work under this Agreement is taking place. Contractor's Superintendent or designee must be present at the Site at all times any other Work under this Agreement is taking place. Superintendent must not be replaced without written notice to City. Whenever the Superintendent is not present at a particular part of the Work where the City or Design Professional may desire to inform the Contractor relative to interpretation of the Drawings and Specifications or to disapproval or rejection of materials or Work performed, the City or Design Professional may provide such information in writing to the foreman or other worker in charge of the particular part of the Work in reference to which the information is given. Information so given will be as binding as if given to the Superintendent.
- 4.4.4 All elements of the Work must be under the direct supervision of a foreman or his designated representative on the Site who must have the authority to take actions required to properly carry out that particular element of the Work.
- 4.4.5 Working Hours. Except in connection with the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise indicated, all Work at the Site must be performed during regular working hours, and Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without City's written consent given after prior written notice to City. If it will become absolutely necessary to perform Work at night or on Saturdays, Sundays or legal holidays, the City must be informed at least 24 hours in advance of the beginning of performance of such Work. Only such Work will be done at night as can be done satisfactorily as determined by the City. Good lighting and all other necessary facilities for carrying out and inspecting the Work must be provided and maintained at all points where such Work is being done. Further, unless such non-normal work hours are performed at City's request or required by the Agreement Documents, Contractor must pay to City all additional costs incurred by City by reason of such non-normal working hours. Expenses incurred by City for overtime compensation must be reimbursed by Contractor as follows: (i) City staff at the rate set forth in current City Fee Schedule as published on City website, (ii) Design Professional and staff at the standard hourly rates previously negotiated with City, and (iii) all others at actual cost plus ten percent administrative overhead. Such costs may be deducted by City from any payments due to Contractor. Provided, however, if overtime work or work during other than normal hours is at the request of City and not due to Contractor delay, City will pay the cost of City overtime expenses.
- 4.4.6 Where the Agreement Documents require that a particular product be installed or applied by an applicator approved by the manufacturer, it is Contractor's responsibility to ensure the Subcontractor employed for such work is approved by the manufacturer. All materials and equipment must be stored, applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Agreement Documents; but no provisions of any such instructions will be effective to impose on City of Design Professional responsibility for the means, methods, techniques, sequences or procedures of



- construction or for safety precautions incident thereto.
- 4.4.7 Before starting the Work, Contractor must carefully study and compare the various Plans, Drawings, other Agreement Documents, and Specifications relative to that portion of the Work, as well as the information furnished by City, must take field measurements of any existing conditions related to that portion of the Work and must observe any conditions at the Site affecting it. The exactness of grades, elevations, dimensions, or locations given on any Drawings, or the Work installed by other contractors, is not guaranteed by City.
- 4.4.8 Before ordering materials or doing Work, Contractor and each Subcontractor must verify measurements at the Site and will be responsible for the correctness of such measurements. No extra charge or compensation will be allowed because of differences between actual dimensions and the dimensions indicated on the Agreement Documents, including the Drawings.
- 4.4.9 Underground Facilities.
- 4.4.9.1 The existence and number of facilities as shown on the Plans are estimated from information furnished by the particular utility. Contractor is responsible for field verification and location of all utilities prior to the start of construction. No field work will be allowed to start until Contractor has contacted Arizona 811 and all affected utilities have been located. In addition, Contractor must expose and physically locate all potentially conflicting utilities prior to construction. The actual locations of the utilities must be compared to locations shown on the Plans and any required changes in alignment and grade must be made at the time of construction in consultation with Project Manager. It is generally recognized and Contractor should anticipate that information from Arizona 811 or information from utility companies during project design, frequently fails to disclose all underground facilities. The fact that more utility lines or other underground facilities are located in the Project Site than shown on the Project Plans does not constitute an "unforeseen Condition" and such undisclosed underground facilities do not differ materially from the conditions which Contractor should expect. The provisions of Sections 105.4, 105.6, 107.11 and 109.8.1 of the MAG Uniform Standard Specifications for Public Works Construction apply and are incorporated herein by this reference.
- 4.4.9.2 Contractor is responsible for all coordination with utility companies. The provisions of Sections 105.4, 105.6, 107.11 and 109.8.1 of the MAG Uniform Standard Specifications for Public Works Construction strictly apply and no additional compensation will be paid to Contractor for delays due to utility work on the project.
- 4.4.10 Relocation of Existing Water Meters. When a service line has been extended and a line setter installed in a meter box, City forces will re-install meter. No compression fittings will be utilized.
- 4.4.11 Water Turn-On or Turn-Off.
- 4.4.11.1 Contractor must coordinate all water line turn-ons and turn-offs through the City. Application must be made to the Municipal Utility Division and Contractor must pay the established charges. The City will close existing valves, but will not guarantee a bone-dry Shutdown.
- 4.4.11.2 Contractor must notify all customers affected by the turn-off not less than 48 hours in advance. Notification must be in writing, must give the reason for the turn-off and must

give the estimated time and duration that water service will be interrupted. Contractor is also notified that water turn-off will not be permitted on the Day before and after Thanksgiving Day and Christmas Day.

4.4.11.3 No direct payment will be made to Contractor for turn-ons or turn-offs. Costs associated therewith will be included in other items for which direct payment is made.

4.4.12 Tests and Inspections.

4.4.12.1 Contractor must give City timely (at a minimum, twenty-four hours) notice of readiness of the Work for all required inspections, tests or approvals. Contractor must give timely notice to City in advance of backfilling or otherwise covering any part of the Work so that city representative may, if desired, observe such part of the Work before it is concealed. Whenever Contractor varies the normal period during which Work or any portion of it is carried on each Day, Contractor must give timely notice to City so that city representative may, if desired, be present to observe the Work in progress. If Contractor fails to give such timely notice, any Work done in the absence of city representative will be subject to rejection. If Contractor gives such notice to City, but then is not ready for such inspections, tests, approvals or observations at the time so noticed, Contractor must reimburse City for all costs incurred by the attendance of city representatives.

4.4.12.2 If any law, ordinance, rule, regulation, code, or orders of any public body having jurisdiction requires any Work (or part thereof) to be inspected, tested or approved, Contractor (unless another party is specified in the Agreement Documents) must assume full responsibility therefor, pay all costs in connection therewith and furnish City the required certificates of inspection, testing, or approval. Contractor must also be responsible for and must pay all costs in connection with any inspection or testing required by the Specifications in connection with City's acceptance of a manufacturer, fabricator, supplier or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. The cost of all other inspections, tests and approvals required by the Agreement Documents will be paid by City (unless otherwise specified).

4.4.12.3 All inspections, tests or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction must be performed by organizations acceptable to City and by the Design Professional if so specified.

4.4.12.4 Neither observations by City, the Design Professional nor inspections, tests or approvals by others will relieve Contractor from their obligations to perform the Work in accordance with the Agreement Documents.

4.4.13 Uncovering Work. If any Work that is to be observed, inspected, tested or approved is covered without written concurrence of City, it must, if requested by City be uncovered for observation. Unless Contractor has given City timely notice of Contractor's intention to cover such Work and City has not acted with reasonable promptness in response to such notice, Contractor must furnish all necessary labor, material and bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order will be issued.

4.4.14 In all cases of interconnection of its Work with existing or other Work, Contractor must verify at the Site all dimensions relating to such existing or other Work. Any errors due to

Contractor's failure to so verify all such grades, elevations, locations or dimensions must be promptly rectified by Contractor without any increase in the Agreement Price. Any design errors or omissions noted by Contractor during this review must be reported promptly to City.

4.4.15 Contractor must establish and maintain all construction grades, lines, levels, and benchmarks, and will be responsible for accuracy and protection of same. This Work must be performed or supervised by a licensed civil engineer or surveyor in the State of Arizona.

4.4.16 Contractor must photograph all buried piping of greater than four (4) inches in diameter prior to backfill.

4.4.17 Contractor is responsible for the proper performance of the work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Agreement Documents is intended or deemed to create any legal or contractual relationship between City and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

4.4.18 Contractor must coordinate the activities of all Subcontractors. Contractor must coordinate performance of the Work with City's Public Works & Utilities Department and other departments or agencies within City. The Design Professional and other contractors or parties involved in the Project. If City performs other work on the Project or at the Site with separate contractors under City's control, Contractor agrees to cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

4.4.19 Contractor will not substitute or change any Subcontractor or Supplier without the prior written approval of City. Any substitute or replacement Subcontractor or Supplier must be required to meet the same qualifications and selection criteria and process as the original Subcontractor or Supplier. If a Subcontract/Supplier selection plan has been approved by City, Contractor will follow that plan unless otherwise approved by City in writing.

4.4.20 Contractor must not change or replace any members of its Project team, including Contractor's Representative, Project Manager, or Superintendent, without an explanation for the change being given to City, and receiving prior written approval of the change from City, which approval will not be unreasonably withheld.

4.4.21 Subcontractors whose scope of work has a value greater than 15% of the total Agreement Price are required to furnish performance and payment bonds to Contractor, unless otherwise approved in writing by City.

4.4.22 Contractor must comply with MAG Specification § 108.2 (E) unless otherwise specified in Agreement Documents.

4.5 **CONTROL OF THE PROJECT SITE**

4.5.1 Throughout all phases of construction, including suspension of Work, Contractor must keep the Site reasonably free from debris, trash and construction wastes to permit Contractor to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Prior to Final Acceptance of the Work, or a portion of the Work,

- Contractor must remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit City to occupy the Project or a portion of the Project for its intended use.
- 4.5.2 Contractor must take whatever steps, procedures or means necessary to prevent dust nuisance due to construction operations. The dust control measures must be maintained at all times to the satisfaction of City and in accordance with the requirements of the Maricopa County Bureau of Air Pollution Control Rules and Regulations.
- 4.5.3 Contractor must maintain Americans with Disabilities Act (ADA) and American National Standards Institute (ANSI) accessibility requirements during construction activities, including without limitation compliance with the 2010 regulations governing implementation of the ADA to the extent applicable. ADA and ANSI accessibility requirements must include, but not be limited to, parking, building access, areas of refuge, and emergency exit paths of travel. Contractor is responsible for the coordination of all Work to minimize disruption to residents and the public.
- 4.5.4 Only materials and equipment used directly in the Work will be brought to and stored on the Site by Contractor. When equipment is no longer required for Work, it must be removed promptly from the Site. Protection of construction materials and equipment stored at the Site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.
- 4.5.5 Contractor agrees all persons working on the Site must act at all times in the best interest of the Project and will comply with all applicable rules and regulations reasonably set forth by City related to the Site. Notwithstanding the foregoing or anything in this Agreement to the contrary, City may remove from the Site any individual who City deems in their reasonable discretion to be creating a disturbance or causing any problem on the Site.
- 4.5.6 Contractor will be responsible to City for the acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and any other person performing any of the Work under an Agreement with Contractor, or claiming by, through or under Contractor, for all damages, losses, costs and expenses resulting from such acts or omissions.
- 4.5.7 City may conduct criminal, drive history, and all other requested background checks of Contractor and Subcontractor personnel performing Work or who have access to City's information, data, or facilities in accordance with City's current background check policies, or the provisions of the Project Specific Conditions. Any officer, employee or agent that fails to background check must be replaced immediately.
- 4.5.8 City will have a final authority, based upon security reasons: (i) to determine when security clearance of Contractor's and Subcontractor's personnel is required; (ii) to determine the nature of the security clearance, up to and including fingerprinting personnel; and (iii) to determine whether or not any individual or entity may provide Services or perform Work under the Agreement.
- 4.5.9 If City objects to any personnel for any reasonable cause, then Contractor must, upon notice from City, remove such individual from the Project.
- 4.6 **PROJECT SAFETY**
- 4.6.1 The Project and all Work performed in relation thereto is governed by applicable provisions

- of the federal laws, including but not limited to, the latest amendments of the following:
- a. Williams-Steiger Occupational Safety & Health Act of 1970, Public Law, 91-596.
  - b. Part 1910 and Part 1926 – Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
  - c. Part 1518 – Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.
- 4.6.2 Contractor is responsible for safety of the job Site for employees of Contractor as well as for members of the general public and others who may drive or walk through or be at the Site.
- 4.6.3 Contractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to: (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work and stored On-Site or Off-Site; and (iii) all other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and (iv) the owners or tenants of adjacent property and their patrons, employees and invitees.
- 4.6.4 Contractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.
- 4.6.5 Contractor must provide a “competent person” as required by O.S.H.A regulations. The “competent person” must be identified at the Pre-Construction Conference with City advised in writing of any changes.
- 4.6.6 The “competent person” must make routine daily inspections of the Site and must hold weekly safety meetings with Contractor’s personnel, Subcontractors and others as applicable.
- 4.6.7 Contractor and Subcontractors must comply with all legal and regulatory requirements relating to safety, as well as any City specific safety requirements set forth in the Agreement Documents, provided that such City-specific requirements do not violate any applicable legal and regulatory requirements.
- 4.6.8 Contractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Project Manager and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.
- 4.6.9 Contractor’s responsibility for safety under this Section is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.
- 4.6.10 As between City and Contractor, Contractor is responsible to City for any and all the safety issues relating to the Work on the Project. Contractor must administer and manage the safety program. This will include, but not necessarily be limited to review of the safety programs of each Subcontractor. Contractor must monitor the establishment and

execution of compliance with all applicable regulatory and advisory agency construction safety standards. Contractor's responsibility for review, monitoring, and coordination of the Subcontractor's safety programs will not extend to direct control over execution of the Subcontractors' safety programs. Notwithstanding Contractor's safety obligations to City, it is agreed and understood that each individual Subcontractor will remain controlling employer responsible for the safety programs and precautions applicable to its own work and the activities of other's work in areas designated to be controlled by such Subcontractor for purposes of workers compensation insurance coverage.

4.6.11 Nothing in this agreement will relieve Contractor of his responsibility to maintain traffic, structures, etc., as noted on the Plans, Specifications, and Project Specific Conditions. Contractor is responsible to provide all necessary shoring, bracing and trench support as is necessary to maintain traffic structures, etc., as stipulated in the Plans, Specifications, and Special Provisions. If the stability of adjoining building, walls, roadways, etc., is endangered by Contractor's excavation, shoring, bracing, or under pinning must be provided as necessary to ensure project safety. Cost for shoring, bracing, underpinning, and trench support will be included in the appropriate items listed in the Agreement Price, and no additional payment will be made for this work.

4.7 **MATERIALS QUALITY, SUBSTITUTIONS, AND SHOP DRAWINGS**

4.7.1 Quality Control and Quality Assurance Testing.

4.7.1.1 All construction materials to be used or incorporated in the Project are subject to inspection, Quality Control & Quality Assurance Testing, and approval or rejection by City. Any material rejected by City must be removed immediately and replaced in an acceptable manner to City at no additional cost to City. When QC/QA tests indicate noncompliance with the Agreement Documents, retesting must be performed by the same testing laboratory that performed the tests that indicated noncompliance.

4.7.1.2 The Contractor must establish, provide, and maintain an effective Quality Control Testing Program (QCTP). The Contractor must develop his own program or procure the services of a consultant. In either case, the party performing the tests must be currently certified by the National Bureau of Standards in the National Voluntary Laboratory Accreditation Program (NVLAP) for construction services or the AASHTO Accreditation Plan (AAP) for Soils, Asphalt and Concrete. The Contractor must provide all support necessary to perform QC and QA testing and sampling (i.e. shoring for testing trench backfill, backhoes, motor graders, loaders, etc. to facilitate testing and sampling). The City will perform the QA testing.

4.7.1.3 The Contractor must submit a written QCTP to the City as a required submittal. The Contractor must not begin Work until the Quality Control Program has been reviewed and accepted by the City. Resumes of all personnel that will be associated directly or indirectly with the QCTP must be included.

4.7.1.4 The QCTP must include, but not be limited to, on-site/field and laboratory testing of all material delivered to the Site and any existing materials or conditions pertinent to the project.

4.7.1.5 All testing must be under the direction of a Professional Engineer registered in the State of Arizona, knowledgeable in Materials Testing. All "Test Report" forms must be stamped by said Engineer.

- 4.7.1.6 The written QCTP will set forth the responsibilities of the engineer, project manager, supervisory personnel and each technician assigned to this project. Substitutions or replacement of personnel must require prior written approval by the City. All personnel must be proficient within their assigned duties and possess certification(s) commensurate with their position and responsibilities. The minimum certification(s) for each technician must be NICET Level II, Arizona Technical Testing Institute, American Concrete Institute, or other nationally recognized program applicable to the project and approved by the City of Chandler. The written QCTP must include a description of the required field and construction materials laboratory tests, including required frequencies that meet the minimums established herein.
- 4.7.1.7 The Contractor must establish a system to record and report all material test results. The daily test reports must include, but not be limited to:
- a. Test designation;
  - b. Date of test;
  - c. Name of tester;
  - d. Location of test/sample (station and offset);
  - e. Product suppliers and product codes (as applicable);
  - f. Depth/elevation of test/sample;
  - g. Test result;
  - h. Control requirement(s);
  - i. Cause of rejection (if applicable);
  - j. Results of retests (if applicable); and
  - k. Remedial action (if applicable).
- 4.7.1.8 The Contractor must submit test results to the designated City representative.
- 4.7.1.9 The Contractor must also submit a weekly report to the City summarizing the testing and construction activities completed by emailing the report to the email addresses noted above. All weekly reports must be submitted simultaneously to the Contractor and the City of Chandler. The report must include individual summary sheets for each utility line, structure, and portion of the pavement section. Cores must be numbered sequentially throughout the Project. Re-cores must reference the original core by number and must contain the averaged values for thickness and density. Total pavement thickness must be reported. Vertical location of tests for underground utilities must indicate the depth of the excavation at the location of the test (i.e., cut to flow line [if applicable], depth to bottom or top of pipe, etc.). Density tests must be numbered sequentially. If the minimum number of tests has not been performed per the written QCTP, this must be stated in the weekly summary report with an explanation of the circumstances.
- 4.7.1.10 The City will maintain a copy of the Project test results and weekly reports in the Project file. In cases where quality control activities do not comply with the Agreement provisions, the City may:
- a. Order the Contractor to replace ineffective or unqualified quality control personnel.

- b. Order the Contractor to stop operations until appropriate corrective action is taken.

4.7.1.11 Although minimum testing requirements are specified herein, the Contractor bears full responsibility for the quality of the materials and their installation and may elect to perform additional testing beyond the requirements set forth herein to ensure compliance.

4.7.1.12 The Quality Control requirements contained in this Section are in addition to and separate from Quality Assurance Testing, which will be performed by the City of Chandler or its representative. If the Quality Assurance test results are not in agreement with the Quality Control test results, the Contractor will have the option to retain a third party consultant for referee tests. The third party consultant must meet the same requirements as the consultant performing the Quality Control Testing. The results of the third party will be binding. All cost incurred by the referee testing will be the Contractor's expense. If the Contractor elects not to retain a third party for referee testing, the City of Chandler test results will prevail.

4.7.1.13 Except as otherwise noted within this Section, Work or materials required by this Section are non-pay items. Per MAG Section 101, a non-pay item is an item of Work for which no separate payment will be made, the cost of which is to be included as an incidental cost for associated item(s) included on the Bid Schedule or Schedule of Values.

4.7.2 Trade Names and Substitutions.

4.7.2.1 Substitutions prior to bid will only be considered if in compliance with Arizona Revised Statute § 34-104.

4.7.2.2 Contractor, if requested by City, must submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution.

4.7.2.3 City will make the final decision and will notify Contractor in writing as to whether the substitution has been accepted or rejected.

4.7.2.4 If City does not respond within 15 working days, Contractor must continue to perform the Work in accordance with the Agreement Documents and the substitution will be considered rejected.

4.7.3 Shop Drawings.

4.7.3.1 Contractor must prepare and submit Shop Drawings which show details of all Work to insure proper installation of the Work using those materials and equipment specified under the approved Plans and Specifications.

4.7.3.2 Contractor must submit a schedule of Shop Drawing submissions, which avoids bulk submissions to the extent reasonably possible, with the Project Schedule for City approval. The schedule of Shop Drawing submissions must include all of the items for which Shop Drawings are required by the Agreement Documents, including the Specifications. Unless otherwise noted, Shop Drawings will not be required for items specified or detailed in the Uniform Standard Specifications and Details or the Technical Specifications.

4.7.3.3 Shop Drawings must be numbered consecutively for each Specification section and must accurately and distinctly present the following:



- a. All working and erection dimensions.
- b. Arrangements and sectional views.
- c. Necessary details, including complete information for making connections between work under this Agreement and work under other Agreements.
- d. Kinds of materials and finishes.
- e. Parts list and description thereof.

4.7.3.4 Each Drawing or page must include:

- a. Project Name, City of Chandler Project Number and descriptions.
- b. Submittal date and space for revision dates.
- c. Identification of equipment, product or material.
- d. Name of Contractor and Subcontractor.
- e. Name of Supplier and Manufacturer.
- f. Relation to adjacent structure of material.
- g. Physical dimensions clearly identified.
- h. ASTM and Federal Specifications references.
- i. Identification of and justification for deviations from the Agreement Documents.
- j. Contractor's stamp, initialed or signed, dated and certifying the review of submittal, certification of field measurements and compliance with Agreement.
- k. Location at which the equipment or materials are to be installed.

4.7.3.5 Location will mean both physical location and location relative to other connected or attached material. City will return unchecked any submittal, which does not contain complete data on the Work and full information on related matters.

4.7.3.6 Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.

4.7.3.7 Contractor must schedule, prepare and submit all Shop Drawings in accordance with a timetable that will allow its suppliers and manufacturers sufficient time to fabricate, manufacture, inspect, test and deliver their respective products to the project Site in a timely manner so as to not delay the complete performance of the Work.

4.7.3.8 If the Shop Drawings show departures from the Agreement requirements, Contractor must make specific mention thereof in the Letter of Transmittal; otherwise review of such submittals by City will not constitute review of the departure. Review of the Drawings will constitute review of the specific subject matter for which the Drawings were submitted and not of any other structure, material, equipment, or apparatus shown on the Drawings.

4.7.3.9 The review of Shop Drawings will be general and will not relieve Contractor of responsibility for the accuracy of such Drawings, nor for the proper fitting and construction of the Work, nor for the furnishing of materials or Work required by the Agreement. No construction called for by Shop Drawings will be initiated until such Drawings have been reviewed and

approved by City.

4.7.3.10 The procedure in seeking review of the Shop Drawings will be as follows:

- a. Contractor must submit complete sets of Shop Drawings and other descriptive data as specified in this Section.
- b. After Contractor's submittal or resubmittal of Shop Drawings, if Contractor has submitted Shop Drawings in accordance with the City-approved submittal schedule, or upon resubmission, City will be provided with three (3) calendar weeks for review. Should City require additional review time above and beyond the three (3) calendar weeks, Contractor may ask for a time extension or monetary compensation, if they can present valid, factual evidence that actual damages were incurred by Contractor. City will determine the amount of the time extension or the monetary compensation to be awarded Contractor, if any, in accordance with City's Policy Statement for Calculating Delays and Damages, Appendix 1.

4.7.3.11 Contractor will be responsible for all extra costs incurred by City caused by Contractor's failure to comply with the procedure outline above.

4.7.4 Long Lead Time Items. Contractor must submit Shop Drawings, as required by the Engineer, on all long lead items to be furnished and installed as part of the project within 10 Days after the date of the executed Agreement letter issued by City. In addition, Contractor must order all long lead items to be furnished and installed as part of this Project within 3 Days after receiving approved Shop Drawings. For all long lead times for which Shop Drawings are not required, Contractor must order said long lead items within 15 Days after the date of the executed Agreement letter issued by City. Within 2 Days after ordering long lead items, Contractor must supply copies of all purchase orders, along with an accurate delivery schedule from the supplier.

4.7.5 Construction Water. If Contractor uses water from City's water system for construction water, Contractor must obtain a fire hydrant meter from City of Chandler Utility Services (480-782-2280) and all construction water must be obtained through the hydrant meter. Contractor must pay all fees related to the hydrant meter and all water bills for construction water. All cost for meters and construction water will be included in the Agreement Price.

#### 4.8 **PROJECT RECORD DOCUMENTS**

4.8.1 During the construction period, Contractor must maintain at the jobsite a full-size set of prints of the Construction Document Drawings and Shop Drawings for Project Record Document purposes.

4.8.2 Contractor must mark these Drawings to indicate the actual installation where the installation varies from the original Construction Documents. Contractor must give particular attention to information on elements that will be concealed, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- a. Dimensional changes to the Drawings.
- b. Revisions to details shown on Drawings.
- c. Locations and depths of underground utilities.
- d. Revisions to routing of piping and conduits.

- e. Actual equipment locations.
- f. Changes made by Change Order or Addendum.
- g. Details not on original Agreement Drawings.

- 4.8.3 Contractor must mark completely and accurately Project Record Drawing sets of Construction Documents.
- 4.8.4 Contractor must mark Project Record Drawings sets with red erasable colored pencil.
- 4.8.5 Contractor must note Request for Information (RFI) Numbers and Change Order numbers, etc., as required to identify the source of the change to the Construction Documents.
- 4.8.6 Contractor must submit Project Record Drawing sets and Shop Drawings to City or its representative for review and comment.
- 4.8.7 Upon receipt of the reviewed Project Record Drawings from City, Contractor must correct any deficiencies and omissions to the Drawings and submit the final original of the Project Record Drawings to City prior to Final Payment.
- 4.8.8 Project Manager will review the Project Record Drawings monthly prior to the date established for the Payment Request and will be the sole judge of acceptance of these Drawings.

4.9 **WARRANTY AND CORRECTION OF DEFECTIVE WORK**

- 4.9.1 Contractor warrants to City that the construction, including all materials and equipment furnished as part of the Work, will be new unless otherwise specified in the Agreement Documents, of good quality, and free of defects in materials and workmanship. Contractor's warranty obligation excludes defects caused by abuse, alterations, or unreasonable failure to maintain the construction by persons other than Contractor, subcontractors, or others under Contractor's control. Nothing in this warranty will limit any manufacturer's warranty which provides City with greater warranty rights than set forth herein or in the Agreement. Contractor will provide City with all manufacturers' warranties and operation and maintenance manuals upon substantial completion of the Work. Contractor's warranty must be for one (1) year, in accordance with MAG Specification § 108.8, and will commence for all portions of the Work upon Final Acceptance of the entire Work as determined by City under the Agreement. All statutory or other warranties, express or implied, related to latent defects will remain in force and are not limited by this provision.
- 4.9.2 City May Stop the Work. If the Work is defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, City may order Contractor to stop the Work without cost to City, or any portion thereof, until the cause for such order has been eliminated; however, this right of City to stop the Work will not give rise to any duty on the part of City to exercise this right for the benefit of Contractor or any other party.
- 4.9.3 Correction or Removal of Defective Work.
- 4.9.3.1 If required by City, Contractor must promptly, without cost to City and as specified by City, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by City, remove it from the Site and replace it with non-defective Work. Contractor must correct any Work which may be displaced in correcting, removing or replacing defective Work. No compensation will be allowed Contractor for such removal,

- replacement or remedial Work. Contractor must reimburse City for costs incurred by City due to such correction or removal including but not limited to additional expenses for inspection, testing or observation and for repeated reviews by the City or Design Professional.
- 4.9.3.2 Upon failure on the part of the Contractor to comply within a reasonably prompt time with any written order of City to correct or remove defective Work, City has authority to cause nonconforming materials or rejected Work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs from any moneys due or to become due the Contractor.
- 4.9.4 City May Correct Defective Work. If Contractor fails within a reasonable time after written notice of City to proceed to correct defective Work or to remove and replace rejected Work as required by City or if Contractor fails to perform the Work in accordance with the Agreement Documents (including any requirements of the progress schedule), City may, after 7 Days' written notice to Contractor, correct and remedy any such deficiency. To the extent necessary to complete corrective and remedial action, City may exclude Contractor from all or part of the Work, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site and incorporate in the Work all materials and equipment stored at the Site or for which City has paid Contractor, but which are stored elsewhere. Contractor must allow City, city representatives, agents and employees such access to the Site as may be necessary to enable City to exercise City's rights under this Section. All direct and indirect costs of City in exercising such rights will be charged against Contractor in an amount verified by City representative, and a Change Order will be issued incorporating the necessary revisions in the Agreement Documents and a reduction in the Agreement Price. Such direct and indirect costs will include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of Work or others destroyed or damaged by correction, removal or replacement of Contractor's defective Work. Contractor will not be allowed an extension of the Agreement Time because of any delay in Contractor's performance of the Work attributable to the exercise by City or City's rights hereunder.
- 4.9.5 Correction or Removal of Unauthorized Work.
- 4.9.5.1 Any Work done beyond the lines and grades shown on the Drawings or established by the Design Professional or any changes in, additions to, or deductions from the Work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered remedied, removed, or replaced at the Contractor's expense.
- 4.9.5.2 Upon failure on the part of the Contractor to comply promptly with any order of the City, City will have authority to cause unauthorized Work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs from any moneys due or to become due the Contractor.
- 4.9.6 Correction Period - One Year Guarantee.
- 4.9.6.1 If, within one year after the date of Final Acceptance, or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Agreement Documents, or by any specific provision of the Agreement Documents, any Work is found to be defective, Contractor must promptly, without cost to City and in accordance with City's written instructions, either correct such defective Work, or, if it has been rejected

- by City, remove it from the Site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, must be paid by Contractor. Such action by the City will not relieve the Contractor of the guarantees required by this Section or elsewhere in the Agreement Documents.
- 4.9.6.2 If, in the opinion of the City, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the City or to prevent interruption of operation of the City, the City will attempt to give the notice required by this Section. If the Contractor cannot be contacted or does not comply with the City's request for correction within a reasonable time as determined by the City, the City may, notwithstanding the provisions of this Section, proceed to make such correction or provide such attention; and the costs of such correction or attention will be charged against the Contractor. Such action by the City will not relieve the Contractor of the guarantees required by this Section or elsewhere in the Agreement Documents.
- 4.9.6.3 This Section does not in any way limit the guarantee on any items for which a longer guarantee is specified or on any items for which a manufacturer or supplier gives a guarantee for a longer period. The Contractor agrees to act as co-guarantor with such manufacturer or supplier and must furnish the City all appropriate guarantee or warranty certificates upon completion of the Project. No guarantee period, whether provided for in this Section or elsewhere, will in any way limit the liability of Contractor or their sureties or insurers under the indemnity or insurance provisions of these General Conditions and the Project Specific Special Conditions.
- 4.9.7 Acceptance of Defective Work.
- 4.9.7.1 If, instead of requiring correction or removal and replacement of defective Work, City may accept Work when in the best interest of the City to do so with appropriate monetary credit from Contractor. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Agreement Documents, including appropriate reduction in the Agreement Price; or, if the acceptance occurs after final payment, an appropriate amount must be paid by Contractor to City.
- 4.9.7.2 Alternatively, City may require Contractor to furnish at Contractor's expense, a special performance guarantee or other surety prior to acceptance of defective work.
- 4.9.8 The Warranty period begins on the Final Acceptance date noted in the Certificate of Completion, irrespective of early completion by some Subcontractors of their work.
- 4.9.9 Contractor's warranty obligation must be in accordance with MAG Specifications.
- 4.9.10 Nothing in the warranties contained in the Agreement Documents are intended to limit any manufacturer's warranty which provides City with greater warranty rights than set forth in this Section or the Agreement Documents. Contractor must provide City with all manufacturers' warranties prior to Substantial Completion, if applicable, or Final Acceptance.
- 4.9.11 Contractor agrees that it will be responsible to manage and administer the correction of any Work that is not in conformance with the Agreement Documents during the warranty

periods set forth in this Section, or during any longer periods to the extent required by the Agreement Documents. A progress payment, or partial or entire use or occupancy of the Project by City, will not constitute acceptance of Work not in accordance with the Agreement Documents.

- 4.9.12 When notified of a warranty issue, Contractor must respond in writing within 48-hours and must perform warranty Work as soon as material for said repairs are available (as judged solely by City), and in any event Contractor must, take immediate steps to commence and complete correction of nonconforming Work no later than the time period set forth in City's written notification in accordance with the Agreement Documents. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If defects develop which are determined by City to be an emergency, City will notify Contractor, via the most expeditious means regarding the nature and condition of the defects. In turn, Contractor must immediately dispatch necessary forces to correct the defect or the emergency condition in accordance with Agreement Documents.
- 4.9.13 The time periods referenced in this Section apply only to Contractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies that City may have regarding Contractor's other obligations under the Agreement Documents.
- 4.9.14 Without limiting the foregoing or anything in these General Conditions or the Agreement to the contrary, Contractor must obtain and provide to City all warranties for any portion of the Project offered by the manufacturer, installer or provider thereof. City and the user of the facility will have the right to the full value and benefit of all such warranties. Contractor must ensure all such warranties are fully transferrable to facilitate the full value of this Section.
- 4.9.15 Contractor's warranty excludes damages or defects caused by abuse, alterations to the Work not executed by or through Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.
- 4.9.16 In the event of any noncompliance with this entire Section 4, City may require Contractor to stop or suspend the Work in whole or in part.

## **SECTION 5 - CITY RESPONSIBILITIES**

### **5.1 CITY PROJECT MANAGER AND INSPECTORS**

- 5.1.1 Project Manager is responsible for providing City-supplied information and approvals in a timely manner to assist Contractor to fulfill its obligations under the Agreement Documents.
- 5.1.2 Project Manager will also provide Contractor with prompt notice when it observes any failure on the part of Contractor to fulfill its contractual obligations, including any default or defect in the Project or non-conformance with the Drawings and Specifications.
- 5.1.3 City may utilize Field Inspectors to assist Project Manager during construction in observing performance of Contractor. City's use of Inspectors is for the purpose of assisting Project Manager.
- 5.1.4 The Inspectors are authorized to inspect all Work and materials furnished. Such inspections

may extend to all or part of the Work and to preparation, fabrication or manufacture of the materials to be used. The Inspectors have the authority to issue instructions contrary to the Construction Documents if approved and coordinated with the directions of Project Manager.

5.1.5 The Inspectors have the authority to reject work or materials until any questions at issue can be decided by Project Manager.

5.1.6 The use of Inspectors by City will not make City responsible for or give City control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs or responsibility for Contractor's failure to perform the Work in accordance with Agreement Documents. The Inspectors are not authorized to direct any of Contractor's activities, employees or Subcontractors.

5.2 **DESIGN PROFESSIONAL SERVICES**

City may contract separately with one or more Design Professionals to provide construction administration of the Project. The Design Professional's Agreement, as well as other firms hired by City may be furnished to Contractor. Contractor does not have the right to limit or restrict or reject any Agreement modifications that are mutually acceptable to City and Design Professional.

5.3 **CITY'S SEPARATE CONTRACTORS**

City is responsible for all work performed on the Project or at the Site by separate contractors retained by City. City will contractually require its separate contractors to reasonably cooperate with, and reasonably coordinate their activities so as not to interfere with Contractor in order to enable Contractor to timely complete the Work consistent with the Agreement Documents. Contractor must immediately notify the Project manager, and address the matter in the next monthly status report, if any activities of such separate contractors are expected to interfere, or are interfering, with Contractor and such interference will or could result in any delay in Contractor's performance of the Work.

5.4 **PERMIT REVIEW AND INSPECTIONS**

5.4.1 If requested by Contractor, Project Manager will provide assistance and guidance in obtaining necessary reviews, permits and inspections.

5.4.2 The regulating agencies of City, such as Development and Sustainability, Fire and Planning Departments, enforce legal requirements. The enforcement activities of City are independent and separate from this Agreement.

5.5 **PLANS AND SPECIFICATIONS TO THE CONTRACTOR.**

Contractor will be provided up to five copies of the Agreement Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

**SECTION 6 - AGREEMENT TIME**

6.1 **AGREEMENT TIME**

6.1.1 The Agreement Time will start with the Notice to Proceed ("NTP") and end with Final Acceptance.

- 6.1.2 Beginning on the date of the NTP, Contractor must begin to fulfill Contractor's obligations under the Agreement. Contractor's obligations include providing City and other agencies with any submittals required by the Project Specific Special Provisions, including but not limited to, an approved Project Schedule, Traffic Control Plans, and a Stormwater Pollution Prevention Plan. Contractor must submit all such required submittals before any physical construction work commences on the Site. NTP does not authorize construction work until all agreement insurance, bonds, and schedules are submitted to and accepted by the City.
- 6.1.3 The Agreement Time will be as set forth in the Project Schedule. Contractor agrees that it will commence performance of the Work and complete the Project through both Substantial Completion and Final Acceptance within the Agreement Time.
- 6.1.4 Time is of the essence of this Agreement, for the Project, for the Work, and for each phase and designated Milestone thereof.
- 6.1.5 Failure of Contractor to perform any covenant or condition contained in the Agreement Documents within the time periods specified herein, will constitute a material breach of this Agreement entitling City to terminate the Agreement unless Contractor applies for and receives an extension of time, in accordance with the procedures set forth in the Agreement Documents.
- 6.1.6 Failure of City to insist upon the performance of any covenant or condition within the time periods specified herein, will not constitute a waiver of Contractor's duty to perform every other covenant or condition within the designated periods, unless a specific waiver is granted in writing for each such covenant or condition.
- 6.1.7 City's agreement to waive a specific time provision or to extend the time for performance will not constitute a waiver of any other time provisions contained in the Agreement Documents. Failure of Contractor to complete performance promptly within the additional time authorized in the waiver or extension of time agreement constitutes a material breach of this Agreement entitling City to all the remedies set forth herein or provided by law.

6.2 **PROJECT SCHEDULE**

- 6.2.1 The Project Schedule must be in Microsoft Project standard file format, must be updated and maintained throughout the Agreement Time, and must contain the following:
  - 6.2.1.1 Detailed representation of all activities for the project, both on-site construction and major procurement. All significant activities together with the resource loading requirements for each and all items appearing on the schedule of values or bid schedule for progress payments must be shown on the Project Schedule or in attached transmittal letter as described in Section 6.2.8.
  - 6.2.1.2 Dependencies between activities must be indicated so that it may establish as to the effect the progress of any one activity would have on other activities and on the Schedule.
  - 6.2.1.3 Activities for submission, review, and approval of all required submittals.
  - 6.2.1.4 An amount of time will be established prior to the final completion date for "punch list and cleanup". No other activities will be scheduled during this period. Punch list and cleanup must be shown on the Project Schedule and must be entirely completed prior to the expiration of the Agreement Time.



- 6.2.2 Within 10 Days of receipt of City's comments, Contractor must make all required corrections, adjustments, and additions to complete the Project Schedule and resubmit to City for review. City's review of and response to the Project Schedule is for the purpose of: (1) City planning and staffing for the Project as may be required from time to time; (2) ensuring Contractor's general conformance with the scheduling requirements of the Agreement Documents and completion of the Project within the Agreement Time; and (3) monitoring and evaluating the construction status for purposes of approving monthly progress payments. Acceptance of a submitted schedule by City should in no way be construed as an affirmation or admission that the schedule is reasonable or workable by Contractor. The responsibility for completing the Work on the Project within the Agreement Time remains the obligation of Contractor. City's review does not relieve Contractor from compliance with the requirements of the Agreement Documents or be construed as relieving Contractor of its complete and exclusive control over the means, methods, sequences and techniques for executing the work.
- 6.2.3 The Project Schedule must show milestones, including milestones for City-furnished information, and must include activities for City-furnished material and construction by other contractors when those activities are interrelated with Contractor activities.
- 6.2.4 The Project Schedule must be revised as required by conditions and progress of the Work, but such revisions do not relieve Contractor of its obligations to complete the Work within the Agreement Time, as adjusted in accordance with the Agreement Documents. No modification to the Agreement Documents or the Agreement Time will be effective unless approved in advance by City.
- 6.2.5 For all items of materials and equipment that are critical or may require long lead times to acquire, the Project Schedule must show dates for submission, review and approval of submittals, ordering, and delivery.
- 6.2.6 An updated Project Schedule must be submitted monthly to City as part of the Payment Request. The monthly submittal must include one full size plot of the entire schedule and one electronic copy containing the schedule in Microsoft Project standard file format. In addition, Contractor must, upon request by City, provide a copy of all submitted schedule data in electronic format which must be clearly labeled with the Project description, scheduling program name and version number, and schedule print/data date.
- 6.2.7 Contractor must provide City with a monthly status report with each Project Schedule detailing the progress of the Work, including: (i) if the Work is proceeding according to schedule, (ii) any discrepancies, conflicts, or ambiguities found to exist in the Agreement Documents that require resolution, and (iii) other information detailing items that require resolution so as not to jeopardize the ability to complete the Work in the Agreement Time.
- 6.2.8 With each Project Schedule submittal, Contractor must include a transmittal letter including the following:
  - a. Description of problem tasks, referenced to field instructions or requests for information (RFI's), as appropriate.
  - b. Current and anticipated delays including:
    - (i) Cause of the delay.
    - (ii) Corrective action and schedule adjustments to correct the delay.

- (iii) Known or potential impacts and their delay on other activities, milestones, and their impact on the Substantial Completion and Final Acceptance dates.
    - (iv) Changes in construction sequence.
  - c. Pending items and status thereof including but not limited to:
    - (i) Time Extension requests;
    - (ii) Substantial Completion date status;
    - (iii) Final Acceptance date status.
  - d. If ahead of schedule, the number of calendar Days ahead.
  - e. If behind schedule, the number of calendar Days behind.
  - f. Other Project or scheduling concerns.

6.2.9 Critical Path Method (CPM).

6.2.9.1 Unless otherwise specified in the Agreement, the Project Schedule must include a Critical Path Method (CPM) diagram schedule showing the sequence of activities, the interdependence of each activity and identifies the Critical Path.

6.2.9.2 The CPM diagram schedule must be in calendar Days and indicate duration, earliest and latest start and finish dates for all activities, and total Float Times for all activities except critical activities. The CPM diagram must be presented in a time scaled graphical format for the Project as a whole.

6.2.9.3 The CPM diagram schedule must indicate all relationships between activities.

6.2.9.4 The activities making the Project Schedule must contain sufficient detail to assure that adequate planning has been done for proper execution of the Work and such that it provides an appropriate basis for monitoring and evaluation the progress of the Work. Individual activities must not exceed 30 Days in length, in most cases.

6.2.9.5 The CPM diagram schedule must be based upon activities, which coincide with the Schedule of Values.

6.2.9.6 The CPM diagram schedule must show all submittals associated with each work activity and the review time for each submittal.

6.2.10 Float Time.

6.2.10.1 The total Float Time within the overall schedule is for the exclusive use of City, but City may approve Contractor's use of Float as needed to meet Agreement Milestones and the Project completion date.

6.2.10.2 Contractor will not be allowed to sequence, hide, or reallocate Float Time through such strategies, as extending activity duration estimates to consume available Float, using preferential logic, or using extensive crew/resource sequencing, tec. No time extensions will be granted nor delay damages paid until a delay occurs which extends the Work beyond the Agreement Time.

6.2.11 City-Caused Delays. City-caused delays on the Project, if any, may be offset by City-caused time savings (i.e., Critical Path submittals returned in less time than allowed by the

Agreement, approval of substitution requests and credit changes which result in savings of time to Contractor, etc.) In such an event, Contractor will not be entitled to receive a time extension or delay damages until all City-caused time savings are exceeded and the Agreement Time is also exceeded.

6.2.12 Rain-Related Delays. Contractor is required, in preparing the Project Schedule to take into account all relevant weather conditions, including normal rainfall and distribution. No additional compensation will be given for any rain-related delays or impacts on the Work or the Project Schedule. No time extension will be granted in the Project Schedule unless the rainfall during the construction of Work is unusually severe, was not reasonably anticipated, and the total rainfall was significantly in excess of the normal rainfall for the Project Site location. Normal rainfall for the Project will be determined from the 10-year average rainfall for the Site as measured by the National Oceanic and Atmospheric Administration or comparable source of reliable information for rainfall in Chandler, Arizona. In addition, the excessive rainfall must have actually impacted Work activities on the Critical Path and caused delay beyond any remaining Float at the time of the rain-caused delay. The burden of documenting normal rainfall, the excessive rainfall and the impact on Critical Path activities is on Contractor. All other provisions in the Agreement Documents relating to claims, including without limitation notice requirements, apply to any claim by Contractor for a rain delay.

6.2.13 City's "Policy Statement for Calculating Delays and Damages," Appendix 1 to these General Conditions, will apply to all claims of delay and delay damages.

6.2.14 Force Majeure. If Contractor is delayed or prevented from the performance of any Work required under this Agreement by reason of acts of God or other causes beyond the control and without fault of Contractor (financial inability excepted), performance of that Work will be excused, but only for the period of the delay. The time for performance of the Work will be extended for a period equivalent to the period of delay. In addition, the parties agree if Contractor's delayed or suspended performance directly arises out of or directly results from the COVID-19 pandemic, Contractor's delayed or suspended performance may be excused as set forth in this clause. Provided, however; Contractor must give the City written notice within 30 days of the occurrence of the event giving rise to COVID-19 pandemic related delayed or suspended performance. For COVID-19 pandemic related delay or suspended performance, the parties must agree in writing to the length of the excused delay or suspended performance. Further, Contractor must obtain the City's written approval to use any allowance established as part of the project for delays and costs related to the COVID-19 pandemic.

6.3 **SUBSTANTIAL COMPLETION**

6.3.1 When Contractor considers that the Work, phase or a portion thereof, which City agrees in writing to accept separately, is substantially complete, City will prepare and submit to Contractor a comprehensive Punch List of items to be completed or corrected prior to Final Acceptance and Final Payment. Failure to include an item on such Punch List does not alter the responsibility of Contractor to complete all Work in accordance with the Agreement Documents.

6.3.2 Upon receipt of Contractor's Punch List, Project Manager will make an inspection to determine whether the Work or designated portion thereof is substantially complete. Project Manager may, at Project Manager's sole option, be assisted in such inspection by

the Design Professional for the Project. If the inspection by the Project Manager discloses any item, whether or not included on Contractor's Punch List, which is not sufficiently completed in accordance with the Agreement Documents so that City can occupy or utilize the Work, phase or designated portion thereof for its intended use, Contractor must, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by Project Manager. In such case, Contractor must then submit a request for another inspection by Project Manager to determine Substantial Completion.

6.3.3 Certificate of Substantial Completion.

6.3.3.1 The Project Manager will not issue a Certificate of Substantial Completion unless and until the Work (or separable units or Phases as provided in the Agreement Documents) is essentially and satisfactorily complete in accordance with the Agreement Documents, such that the Project is ready for use by City for its intended purpose, opening to the general public, full occupancy or use by City (including, without limitation, all separate units, or rooms, facilities, access, income-generating areas, and all areas serving the general public, as applicable, must be ready for full-operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories and similar elements are installed in the proper manner and in operating condition, inspected and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air condition, vertical transportation and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and other Work as applicable, has been performed to a similar state of essential and satisfactory completion. A minor amount of Work, as determined by and at the discretion of the Project Manager, such as installation of minor accessories or items, a minor amount of painting, minor replacement of defective work, minor adjustment of controls or sound systems, or completion or correction of minor exterior work that cannot be completed as a result of weather conditions, will not delay determination of Substantial Completion. If prior written approval is obtained from City for purposes of Substantial Completion, specified areas of the entire Work or Project may be individually certified as Substantially Complete. In no event will Substantial Completion be deemed to have occurred unless and until: (i) a temporary certificate of occupancy has been issued by the appropriate Governmental Authorities (as applicable) and (ii) all terms and Work required under this Agreement have been fulfilled by Contractor and same will have also been approved and accepted by City, subject only to the Punch List items.

6.3.3.2 If requested by City, Contractor must complete and turn-over to City the Project on a phased basis. Each phase will have a separate inspection by the Project Manager, a Punch List generated, and then an inspection by City with final approval and acceptance only after the Project Manager's Punch List.

6.4 **PARTIAL UTILIZATION**

6.4.1 City at City's option may use and occupy any substantially completed parts of the Work which has specifically been identified in the Agreement Documents, or which City, the Design Professional and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by City for its intended purpose, without significant interference with Contractor's performance of the remainder of the Work, provided,

however, if the portion of the Work to be used or occupied has not been found to be substantially complete, City must do so in accordance with Section 6.3 prior to such occupancy.

6.4.2 In lieu of the issuance of a Certificate of Substantial Completion as to part of the Work, City may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately usable; provided that prior to any such takeover, City and Contractor agree in writing as to the division of responsibilities between City and Contractor for security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

6.4.3 Substantial Completion of or City's beneficial occupancy of a part of the Project will not alter the fact that the one-year warranty for the whole Project starts at the date of Final Completion of the whole Project.

6.5 **FINAL ACCEPTANCE**

6.5.1 Unless otherwise expressly agreed to in writing by City, Final Acceptance must be obtained by no later than 30 Days (60 Days for federally funded agreements) after the date of Substantial Completion. Failure to timely obtain Final Acceptance will be a material breach of the Agreement.

6.5.2 Upon receipt of written notice that the Work is ready for final inspection and acceptance, City and Contractor will jointly inspect to verify that the remaining items of Work have been completed. There will be no partial acceptance. Final Acceptance will not occur until all items of Work, including Punch List Items, have been completed to City's satisfaction as reflected in the written Final Acceptance.

6.5.3 Final Payment will not be due, owing, or paid by City until Final Acceptance is issued.

6.5.4 Landscape Establishment Period. Unless otherwise expressly agreed to in writing by City, the Landscape Establishment Period will begin on the date of Final Acceptance of the Project and will run 90 Calendar Days thereafter. Landscape Establishment Period requirements are detailed in General Conditions Appendices, attached herein.

6.6 **CONTINUATION OF WORK**

6.6.1 Permitting Contractor to continue and finish the Work or any part of it after the time fixed for its completion (whether milestone, phase, Substantial Completion or Final Acceptance) or after the date to which the time fixed for any completion may have been extended, does not operate as a waiver by City of any rights under the Agreement Documents, law or equity.

6.6.2 Furthermore, the timely completion of the Work being of the utmost importance under this Agreement, notwithstanding the existence of one or more disputes between the parties concerning the scope of the Work, the Project Schedule, Agreement Time, payments or any other matter, and further notwithstanding a party's invocation of the Dispute Resolution provisions specified in Appendix 6 of these General Conditions, unless City suspends the Agreement or Contractor's performance pursuant to Section 10 of these General Conditions, Contractor will continue to prosecute the Work, including any Change Order work or Extra Work Orders, in a diligent and timely manner and not stop, slow down or impede by action or inaction the progress of the Work, including commencing performance of and thereafter completing any additional work called out in any Change Order or Extra

Work Order issued by Project Manager with the approval of City, so long as City makes payment to Contractor in accordance with Section 8 of these General Conditions.

## **SECTION 7 - AGREEMENT PRICE**

### **7.1 UNIT PRICE AGREEMENTS**

7.1.1 The Agreement Price for all Unit Price Agreements will be the amount set forth in the Agreement or Change Order multiplied by the verified quantity provided.

7.1.2 Measurements of quantities to determine the total Agreement Price must be in accordance with MAG Specification §§ 109.1 and 109.2.

7.1.3 The Unit Price may only be changed as set forth in Section 9 below.

### **7.2 CHANGE ORDERS**

7.2.1 Unit Price Change Orders. The Change Order Price for all Unit Price Change Orders will be the amount set forth in the Change Order multiplied by the verified quantity provided.

7.2.2 Measurements of quantities to determine the total Change Order Price must be in accordance with MAG Specifications §§ 109.1 and 109.2.

7.2.3 The Unit Price may only be changed as set forth in Section 9 below.

7.2.4 MAG Specification § 109.4.1 is modified as follows: Before § 109.4.1, the following is added: Any deduction or increase in the Agreement Price must be supported by a signed, written Change Order fully executed by City, and supported by such backup as the Project Manager may require.

### **7.3 SALES TAX**

Contractor is required to pay all applicable sales tax in accordance with the law of the state of Arizona and this cost must be included in all Agreement Prices. When equipment, materials or supplies generally taxable to Contractor are eligible for a tax exemption due to the nature of the Project, Contractor must assist City in applying for and obtaining such tax credits and exemptions which will be paid or credited to City.

## **SECTION 8 - PAYMENT**

### **8.1 PAYMENT FOR CONSTRUCTION SERVICES**

8.1.1 Payment for the Work will be made in accordance with MAG Standard Specification § 109 as amended below.

8.1.2 Contractor must submit to City for review a completed Contractor Payment Request signed by Contractor, covering the Work completed as of the date of the Request and accompanied by such supporting documentation as is required by the Agreement Documents and also as City may reasonably require. A Contractor Payment Request will not be considered complete unless it is accompanied by an updated Project Schedule and a certification that the on-site, red lined, as built Drawings are up to date. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably, securely stored at the Site or at another location (such as a bonded warehouse) agreed to in writing, the Contractor Payment Request must also be accompanied by such data,

satisfactory to City, as will establish City's title to the material and equipment and protect City's interest therein, including applicable insurance. Each subsequent Contractor Payment Request must include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Contractor Payment Requests.

8.1.3 Except for Work performed under a JOC Agreement, the Contracting Agency will retain 10 percent of all estimates as a guarantee for complete performance of the Agreement in accordance with Arizona Revised Statutes Section 34-221 or 34-607. The Contractor may elect to deposit securities in lieu of retention in accordance with Arizona Revised Statutes Section 34-221, Paragraph C.5. or 34-607, Paragraph B.5.

8.1.4 The payment process functions as follows: Prior to the payment cycle date, Contractor must send a draft Contractor Payment Request to Project Manager. The Project Team will review the Request and agree upon any necessary adjustments. Contractor must certify the final Request by signing and returning to Project Manager.

8.1.5 When construction of the Project is fifty percent (50%) completed, Contractor may request payment of one-half of the retention pursuant to A.R.S. § 34-609(B)(3), subject to all of City's rights to withhold or offset payments, and other rights of City, under the Agreement.

8.1.6 City reserves the right under A.R.S. § 34-609(B)(3) to reinstate the ten percent (10%) retention if City determines that satisfactory progress is not being made.

8.1.7 Contractor's Warranty of Title.

8.1.7.1 Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Contractor Payment Request, whether incorporated in the Project or not, will pass to City at the time of payment, free and clear of all liens, claims, security interests, and encumbrances, provided that this will not preclude the Contractor from installing metering devices or other equipment of utility companies or municipalities, the title of which is commonly retained by the utility company or municipality.

8.1.7.2 No materials, supplies, or equipment for the Work under this Agreement will be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein, or any part thereof, is retained by the seller or supplier.

8.1.7.3 Nothing contained in this Section will defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection, or any right under any law permitting such persons to look to funds due the Contractor in the hands of the City. The provisions of this Section must be inserted in all subcontracts and material agreements, and notices of its provision must be given to all persons furnishing materials for the Work when no formal agreement is entered into for such materials.

8.2 **PAYMENT UPON SUBSTANTIAL COMPLETION**

8.2.1 No payment will be made upon Substantial Completion, except for a regularly-scheduled monthly progress payment, as allowed by Section 8.2.2.

8.2.2 No further payments will be made to Contractor until Final Acceptance.

8.3 **FINAL PAYMENT**

- 8.3.1 Subject to all of City's rights to withhold or offset payment, and other rights under the Agreement, Final Payment including remaining retainage will be paid only after:
- a. Work has been fully completed (including completion of all incorrect or incomplete work items) and the written Final Acceptance has been issued by City;
  - b. Necessary operating manuals, any excess materials and supplies necessary for matching materials and supplies incorporated into the Work, acceptable sewer video results (if applicable), and complete "as-built" Drawings (including the Building Information Model, if required by the Agreement Documents) have been delivered to City, as specified in this Section 8.3;
  - c. Full and unconditional lien waivers and releases by Contractor and any person performing labor or supplying material, machinery, fixtures, or tools for the Work have been delivered to Contractor;
  - d. All conditions and requirements imposed by City or any financing entity for the corresponding disbursement have been met; and
  - e. Contractor delivers to City a Contractor Payment Request requesting Final Payment.
- 8.3.2 Contractor must also submit a signed copy of Contractor's Affidavit Regarding Settlement of Claims, Appendix 3 to these General Conditions, and Certificate of Completion, Appendix 7 to these General Conditions, prior to Final Payment.
- 8.3.3 In addition, if required under the Project Specific Special Provisions, Contractor must compile a complete equipment list and maintenance manual to be submitted to City as a precondition to Final Payment. The list must include the following items for all equipment supplied under the Plumbing, Electrical, Air Conditioning, Elevator, and other Special Equipment Specifications:
- a. Name, Model and Manufacturer.
  - b. Complete parts lists and Drawings.
  - c. Local source of supply for replacement parts along with suppliers' telephone numbers.
  - d. Local service organizations serving the equipment and their telephone numbers.
  - e. All tags, inspection slips, instruction packages, etc., removed from equipment must be properly identified as to pieces of equipment from which they were taken.
- 8.3.4 Contractor must also deliver to City, prior to Final Payment, one (1) digital (in the format specified by City), and if requested by City, one (1) hard copy, of any applicable Maintenance manuals. Each manual must include all manufacturer's operation and maintenance instructions and "as-built" Drawings with the list herein specified. It must also include all other diagrams and instructions necessary to properly operate and maintain the equipment, the name, address and telephone number of Contractor and all Subcontractors involved.



8.4 **CITY'S RIGHT TO WITHHOLD PAYMENT**

City may withhold payment to such extent as may be necessary in City's opinion to protect City from loss for which Contractor is responsible, including, without limitation, if any of the following conditions exist:

- a. Defective Work not remedied;
- b. Third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to City is provided by Contractor;
- c. Failure of Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- d. Reasonable evidence that the Work cannot be completed for the unpaid balance of the Agreement Price;
- e. Damage to City or another Contractor;
- f. Reasonable evidence that the Work will not be completed within the Agreement Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- g. Failure to carry out the Work in accordance with the Agreement Documents;  
or
- h. Contractor is in default of any of its other obligations under the Agreement Documents.

8.5 **JOINT/DIRECT CHECKS**

To promote the timely completion and progress of the Work or when appropriate and necessary, payments to Contractor may be made jointly to Contractor and its employees, agents, Subcontractors and suppliers, or any of them. For federally funded agreements, see federal provisions for additional requirements for the joint check process.

8.6 **PAYMENT NOT A WAIVER**

No payment (nor use or occupancy of the Project by City) will be deemed acceptance or approval of the Work or as a waiver of any claims, rights, or remedies of City.

8.7 **LIENS AND BOND CLAIMS**

Contractor must make all payments, in the time required, of all labor and materials furnished to Contractor in the course of the Work and must promptly furnish evidence of such payments as City may require. Contractor must pay when due all claims arising out of performance of the Work covered by this Agreement for which a lien may be filed either against the real estate or leasehold interest of City, or against payments due from City to Contractor, or for which a claim may be made against any payment or performance bond or both. To the fullest extent permitted by law, Contractor agrees that no liens or other claims in the nature of a lien against the real estate, leasehold, or other interest of City, against payment due from City to Contractor, or against any payment or performance bond, must be filed or made in connection with the Work by any party who has supplied professional services, labor, materials, machinery, fixtures, tools, or equipment used in or in connection with the performance of this Agreement, and Contractor agrees to remove or to cause to be removed any such liens or claims in the nature of a lien or bond claim within 10 Days upon receiving notice or obtaining actual knowledge of the existence of such liens or claim. In addition, Contractor agrees to defend, indemnify, and hold harmless City from and against any and all such liens and claims. This paragraph does not apply to claims

and liens of Contractor due to non-payment for work performed.

8.8 **FINANCIAL RECORDKEEPING AND CITY'S AUDIT RIGHT**

8.8.1 Records for all Agreements between City and Contractor must, upon reasonable notice, be open to inspection and subject to audit, scanning, and reproduction during normal business working hours. Such audits may be performed by any City's representative or any outside representative engaged by City for the purpose of examining such records. City or its designee may conduct such audits or inspections throughout the term of this Agreement and for a period of five years after Final Payment or longer if required by law. City's representatives may (without limitation) conduct verifications such as counting employees at the Site, witnessing the distribution of payroll, verifying information and amounts through interviews and written confirmations with Contractor employees, field and agency labor, Subcontractors, and vendors.

8.8.2 Contractor's "records" must include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in City's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Agreement Document. Such records must include (hard copy, as well as computer readable data if it can be made available), written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, negotiation notes, etc.); original bid estimates; estimating work sheets; correspondence; Change Order files (including documentation covering negotiated settlements); back-charge logs and supporting documentation; invoices and related payment documentation; general ledger, information detailing cash and trade discounts earned, insurance rebates and dividends; and any other Contractor records which may have a bearing on matters of interest to City or the Project in connection with Contractor's dealings with City or the Project (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:

- a. Compliance with Agreement requirements for deliverables;
- b. Compliance with approved Plans and Specifications;
- c. Compliance with § 14.9 below;
- d. Compliance with Agreement provisions regarding the pricing of Change Orders;
- e. Accuracy of Contractor representations regarding the pricing of invoices; or
- f. Accuracy of Contractor representations related to claims submitted by Contractor or any of their employees.

8.8.3 Contractor must require all payees (examples of payees include Subcontractors, Suppliers, Insurance Carriers, etc.) to comply with the provisions of this Section by including the requirements hereof in a written agreement between Contractor and payee. Contractor will ensure that all payees (including those entering into lump sum agreements) have the same right to audit provisions contained in this Agreement included in their agreements with Contractor.

- 8.8.4 City's authorized representative(s) (including, without limitation, Project Manager) must have reasonable access to Contractor's facilities, must be allowed to interview all current or former employees to discuss matters pertinent to the performance of this Agreement and must be provided adequate and appropriate work space, in order to conduct audits in compliance with this Section.
- 8.8.5 If an audit inspection or examination in accordance with this Section, discloses overpricing or overcharges to City (of any nature) by Contractor or Contractor's Subcontractors in excess of \$100,000 in addition to making adjustments for the overcharges, the reasonable actual cost of City's audit must be reimbursed to City by Contractor. Any adjustments or payments which must be made as a result of any such audit or inspection of Contractor's invoices or records must be made within a reasonable amount of time (not to exceed 90 Days) from presentation of City's findings to Contractor.
- 8.8.6 In addition to the normal paperwork documentation Contractor typically furnishes to City, Contractor agrees to furnish, upon written request from City, any of the documentation necessary for City to exercise its audit rights under this Section 8.8 in computer readable file formats (Word, Excel, or .pdf), as City may designate.
- 8.8.7 City, its authorized representative, and the appropriate agency, reserve the right to audit Contractor's records in compliance with local, state or federal policies, statutes or at City's discretion, within three (3) years of Final Acceptance of the Work.

## **SECTION 9 - CHANGES TO THE AGREEMENT**

### **9.1 FIELD ORDERS**

City may authorize minor changes in the Work not involving an adjustment in the Agreement Price or the Agreement Times, which are consistent with the overall intent of the Agreement Documents. These may be accomplished by a written Field Order on the standard form approved and executed by City. Such Field Orders must be binding and Contractor must perform the change promptly. If Contractor believes that a Field Order justifies an increase in the Agreement Price or Agreement Time, Contractor may make a claim therefor as provided in Section 7.2.

### **9.2 EXTRA WORK/CHANGES IN THE WORK**

- 9.2.1 City reserves the right to make such changes in the Plans and Specifications for the Work, as it may deem appropriate and any such change as set forth in a written Change Order must be deemed a part of this Agreement as if originally incorporated herein.
- 9.2.2 In the event City and Contractor cannot agree on the terms of a Change Order, or when circumstances otherwise require, the Project Manager has the authority to direct the Contractor to perform extra work, if the work in question is an item not provided for in the Agreement as awarded. The Project Manager will have the authority to determine, based upon factual evidence presented by the Contractor, whether the work in question is an item not provided for in the Agreement as awarded. If the Project Manager directs the Contractor to perform extra work, the Project Manager's instructions will include a price that the Contractor cannot exceed in charging the City for the extra work. Upon receipt of the Project Manager's directions to perform extra work, the Contractor must promptly proceed with the extra work and document the actual cost thereof. Contractor's right to payment for extra work will be determined under Subsection 9.2.4 below. The Contractor is

responsible to manage the extra work to ensure that the price limits set by the Project Manager are not exceeded. Contractor must perform the extra work and submit documentation for the actual cost of the extra work to the City. A Change Order will be issued to cover this work.

9.2.3 Contractor will not be entitled to payment for extra work unless a written Change Order, in form and content prescribed by City, has been executed by City. On all requests for Change Orders, Contractor must specify the increased or decreased costs and whether it believes any extensions of time will be necessary to complete its Work as modified by the Change Order. If extra work is performed under Subsection 9.2.2 above, a corresponding Change Order will be prepared, approved and processed by City before payment can be made to Contractor.

9.2.4 In general, pricing for Change Orders will include the same mark-up percentages that were in effect when the Agreement was awarded. The cost or credit to the City resulting from a change in the Work is subject to Appendix 1 (Policy Statement for Calculating Delays and Damages) and will be determined, based on the type of pricing for the Agreement involved, as follows:

- a. By mutual acceptance of a lump sum properly itemized in a form acceptable to City;
- b. By unit prices stated in the Agreement Documents;
- c. When the City determines that a Unit Price Book Job Order associated with a Job Order Agreement requires a Change Order, by using the same Total Cost Data and CCI that are in effect when the Change Order is anticipated to be issued; or
- d. By actual cost and a percentage fee covering overhead and profit, as follows:
  - (i) Contractor will perform the extra work and be compensated for actual cost of labor, materials and equipment.
  - (ii) Contractor will have the right to add the fee percentage applicable to the Work under the Agreement, or if no such fee has been agreed to by the parties, not more than five percent (5%) to the Subcontractor's prices for authorized extra work performed solely by Subcontractors. Such percentage will include all of Contractor's charges for overhead, profit, administration and supervision.
  - (iii) Contractor or Subcontractor will have the right to add the fee percentage applicable to Work under the Agreement for self-performed extra work, or if no such fee has been agreed to by the parties, Contractor's or Subcontractor's maximum total allowable additions for overhead, profit, administration and supervision will not exceed ten percent (10%) of actual verifiable labor, materials and equipment for such self-performed extra work.

9.2.5 Any agreement which modifies the terms of the Agreement (including Change Orders) will be approved in writing by the Project Manager. Once properly executed by both parties, these modifications to the Agreement will have the same effect as if they had been included in the original Agreement.

9.3 **ACCURACY OF CHANGE ORDER PRICING INFORMATION**

- 9.3.1 Subject to Sections 9.3.2 through 9.3.4, signature by the contracting parties constitutes full accord and satisfaction between City and Contractor for all costs, damages, and expenses of whatever kind of nature, including delay, impact or acceleration damages, which may be occasioned by a Change Order or other modification of the Agreement agreed to in writing.
- 9.3.2 Accurate Change Order Pricing Information: Contractor agrees that it is responsible for submitting accurate cost and pricing data to City to support its Fixed Price, Unit Price, or Cost Plus Change Order Proposals or other Agreement Price adjustments under the Agreement. Contractor further agrees to submit Change Order proposals with cost and pricing data which is accurate, complete, current, and in accordance with the terms of the Agreement with respect to pricing of change orders. Contractor agrees that any “buy-out savings” on Change Orders will accrue 100% to Owner. “Buy-out savings” are defined as any savings negotiated by the Contractor with a Subcontractor or a Material Supplier after receiving approval of a Change Order amount that was designated to be paid to a specific Subcontractor or Supplier for the Approved Change Order work.
- 9.3.3 Right to Verify Change Order Pricing Information: Contractor agrees that City, through its designated representative, will have the right to examine, copy, and scan the records of the Contractor, Subcontractor or Sub-Subcontractor’s records (during the Agreement period and up to three years after final payment is made on the Agreement) to verify the accuracy and appropriateness of the pricing data used to price all Change Order proposals or claims. Contractor agrees that if City determines the cost and pricing data submitted (whether approved or not) was inaccurate, incomplete, not current, or not in compliance with the terms of the Agreement regarding pricing of Change Orders, an appropriate Agreement Price adjustment will be made. Such post-approval Contact Price adjustments will apply to all levels of contractors and Subcontractors and to all types of Change Order proposals, specifically including Fixed Price, Unit Price, and Cost Plus Change Orders.
- 9.3.4 Requirements for Detailed Change Order Pricing Information: Contractor agrees to provide a detailed breakdown of allowable labor and labor burden cost (i.e., base wage rate of applicable classifications of workers, payroll taxes, and insurance and benefits costs). This information will be used to evaluate the potential cost of labor and labor burden related to Change Order work. It is intended that this information represent an accurate estimate of the Contractor’s actual labor and labor burden cost components. Information is not intended to establish fixed billing or Change Order pricing labor rates. However, at the time Change Orders are priced, the submitted cost data for labor rates may be used to price Change Order work. The accuracy of any such agreed upon labor rate cost components used to price Change Orders will be subject to later audit. Approved Change Order amounts may be adjusted later to correct the impact of inaccurate labor cost components if the agreed upon labor cost components are determined to be inaccurate.
- 9.4 **EMERGENCIES**  
In any emergency affecting the safety of persons or property, Contractor will act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Agreement Price or Agreement Time resulting from emergency work will be determined as provided in this Section.
- 9.5 **DIFFERING SITE CONDITIONS**
- 9.5.1 If Differing Site Conditions are encountered at the Project Site, then notice by the observing

party must be given to the other party promptly before conditions are disturbed (to the extent practicable) and in no event later than 14 Days after first observance of the conditions. City will promptly investigate such conditions and, if City determines that Differing Site Conditions exist and they materially cause an increase in the cost of, or time required for, performance of any part of the Work, Contractor will be entitled to equitable adjustment in the Agreement Price or Construction Schedule (and other time requirements), or both. If it is determined by City that the conditions at the Project Site are not Differing Site Conditions and no change is justified, then City will so notify Contractor in writing, stating the reasons. Claims in opposition to such determination must be made within 14 Days after City has given notice of its decision. If City and Contractor cannot agree on an adjustment in the Agreement Price or Construction Schedule (and other time requirements), the adjustment may be submitted to dispute resolution as provided these General Conditions.

9.6 **CHANGES IN LAWS, REGULATIONS, OR LEGAL REQUIREMENTS OR TAXES**

In the event of a material change in applicable Laws, Regulations, or Legal Requirements, or taxes subsequent to the date of the Agreement by the parties, Contractor may be entitled to a Change Order, in City's discretion, to the extent Contractor can document to the satisfaction of City that such change significantly increases Contractor's actual cost of performance of the Work.

**SECTION 10 -SUSPENSION AND TERMINATION**

10.1 **SUSPENSION**

City may suspend the Agreement and Contractor's performance in accordance with MAG Specifications § 105.1 and 108.7.

10.2 **TERMINATION BY THE CITY FOR CAUSE**

10.2.1 MAG Specifications § 108.11 applies to the Agreement.

10.2.2 City may also terminate the Agreement if City determines, in its sole discretion that Contractor has:

- a. After prior written notice, refused or failed to supply enough properly skilled workers or proper materials;
- b. After prior written notice, failed to make payment to Subcontractors for materials or labor in accordance with the respective agreements between Contractor and the Subcontractors;
- c. After prior written notice, disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;
- d. After prior written notice, repeatedly failed to comply with written directives from City;
- e. Is adjudged as bankrupt or insolvent;
- f. Made a general assignment for the benefit of creditors;
- g. Appointed a trustee or receiver for itself or any of its property;
- h. Filed a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws; or
- i. Otherwise breached a provision of the Agreement Documents or any other

Agreement between City and Contractor.

10.2.3 When any of the above reasons exist, City may terminate the Agreement, without prejudice to any other rights or remedies of City, after giving Contractor and Contractors' surety, if any, 7 Days written notice of City's intent to terminate the Agreement and Contractor's failure to cure any such reasons. Upon such termination, City may: (1) take possession of the Site and of all materials thereon owned by Contractor; or (2) finish the Work by whatever reasonable method City may deem expedient. When City terminates the Agreement for one of the reasons state above, Contractor will not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Agreement Price existing at the time of such termination exceeds the costs and expenses of finishing the Work and any other damages incurred by City, such excess will be paid to Contractor. If such costs, expenses and damages exceed such unpaid balance, Contractor must pay the difference to City. This obligation for payment will survive termination of the Agreement.

10.3 **TERMINATION BY CITY FOR CONVENIENCE**

City may also terminate the Agreement at any time for its convenience upon 7 Days written notice to Contractor specifying the termination date. In the event of termination which is not the fault, in whole or in part, of Contractor, City will pay to Contractor only such compensation, including reimbursable expenses, due for Work properly performed on the Project prior to the termination date. Upon any termination of the Agreement, no further payments will be due from City to Contractor.

10.4 **A.R.S. § 38-511**

The Agreement is subject to, and may be terminated by City in accordance with, the provisions of A.R.S. § 38-511.

**SECTION 11 -INSURANCE AND BONDS**

11.1 **INSURANCE REQUIREMENTS**

11.1.1 After Agreement award, the Contractor must furnish the City a certificate of insurance on a standard insurance industry ACORD form. The ACORD form must be issued by an insurance company authorized to transact business in the State of Arizona possessing a current A.M. Best, Inc. rating of A-7, or better and legally authorized to do business in the State of Arizona with policies and forms satisfactory to City. Provided, however, the A.M. Best rating requirement may not be deemed to apply to required Worker's Compensation coverage.

11.1.2 The Contractor and any of its Subcontractors must procure and maintain, until all of their obligations have been discharged, including any warranty periods under this Agreement are satisfied, the insurances set forth below.

11.1.3 The insurance requirements set forth below are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement.

11.1.4 The City in no way warrants that the minimum insurance limits contained in this Agreement are sufficient to protect Contractor from liabilities that might arise out of the performance of the Agreement services under this Agreement by Contractor, its agents, representatives, employees, or Subcontractors and the Contractor is free to purchase any additional insurance as may be determined necessary.

11.1.5 Failure to demand evidence of full compliance with the insurance requirements in this

Agreement or failure to identify any insurance deficiency will not relieve the Contractor from, nor will it be considered a waiver of its obligation to maintain the required insurance at all times during the performance of this Agreement.

11.1.6 Use of Subcontractors: If any Work is subcontracted in any way, the Contractor must execute a written agreement with Subcontractor containing the same Indemnification Clause and Insurance Requirements as the City requires of the Contractor in this Agreement. The Contractor is responsible for executing the Agreement with the Subcontractor and obtaining Certificates of Insurance and verifying the insurance requirements.

11.2 **MINIMUM SCOPE AND LIMITS OF INSURANCE**

11.2.1 The Contractor must provide coverage with limits of liability not less than those stated below.

11.2.1.1 Commercial General Liability-Occurrence Form. Contractor must maintain "occurrence" form Commercial General Liability insurance with a limit of not less than \$2,000,000 for each occurrence, \$4,000,000 aggregate. Said insurance must also include coverage for products and completed operations, independent contractors, personal injury and advertising injury. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

11.2.1.2 Automobile Liability-Any Automobile or Owned, Hired and Non-Owned Vehicles. Contractor must maintain Business/Automobile Liability insurance with a limit of \$1,000,000 each accident on Contractor owned, hired, and non-owned vehicles assigned to or used in the performance under this Agreement. If any Excess or Umbrella insurance is utilized to fulfill the requirements of this paragraph, the Excess or Umbrella insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

11.2.1.3 Workers Compensation and Employers Liability Insurance. Contractor must maintain Workers Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor employees engaged in the performance of Work under this Agreement and must also maintain Employers' Liability insurance of not less than \$1,000,000 for each accident and \$1,000,000 disease for each employee.

11.2.1.4 Builders' Risk/Installation Floater Insurance. The Contractor bears all responsibility for loss to all equipment or Work under construction. Unless waived in writing by the City the Contractor will purchase and maintain in force Builders' Risk/Installation Floater insurance on the entire Work until completed and accepted by the City. This insurance will be Special Causes of Loss policy form, (minimally including perils of fire, flood, lightning, explosion, windstorm and hail, smoke, aircraft and vehicles, riot and civil commotion, theft, vandalism, malicious mischief, and collapse), completed value, replacement cost policy form equal to the Agreement Price and all subsequent modifications. The Contractor's Builders' Risk/Installation Floater insurance must be primary and not contributory.

- a. Builders' Risk/Installation Floater insurance must cover the entire Work including reasonable compensation for architects and engineers' services and expenses and other "soft costs" made necessary by an insured loss. Builders' Risk/Installation Floater insurance must provide coverage from the time any covered property comes under the Contractor's control and or



responsibility, and continue without interruption during course of construction, renovation and or installation, including any time during which any Project property or equipment is in transit, off Site, or while on Site for future use or installation. Insured property must include, but not be limited to, scaffolding, false work, and temporary buildings at the Site. This insurance must also cover the cost of removing debris, including demolition as may be legally required by operation of any law, ordinance, regulation or code.

- b. The Contractor must also purchase and maintain Boiler and Machinery insurance with the same requirements as Builders' Risk/Installation Floater insurance cited above if the Work to be performed involves any exposures or insurable property normally covered under a Boiler and Machinery insurance policy or made necessary as required by law or testing requirements in the performance of this Agreement. The Contractor will be responsible for any and all deductibles under these policies and the Contractor waives all rights of recovery and subrogation against the City under the Contractor- Builders' Risk/Installation Floater insurance described herein.
- c. Builders' Risk/Installation Floater Insurance must be maintained until whichever of the following first occurs: (i) final payment has been made; or, (ii) until no person or entity, other than the City, has an insurable interest in the property required to be covered.
- d. The Builders' Risk/Installation Floater insurance must be endorsed so that the insurance will not be canceled or lapse because of any partial use or occupancy by the City.
- e. The Builders Risk/Installation Floater insurance must include as named insureds, the City, the Contractor, and all tiers of Subcontractors and others with an insurable interest in the Work who will be named as additional insureds unless they are able to provide the same level of coverage with the City and Contractor named as additional insureds. Certificates must contain a provision that the insurance will not be canceled or materially altered without at least 30 Days advance notice to the City. The City must also be named as a Loss Payee under the Builders' Risk/Installation Floater coverage.
- f. The Builders Risk/Installation Floater insurance must be written using the Special Causes of Loss policy form, replacement cost basis.
- g. All rights of subrogation under the Builders Risk/Installation Floater insurance are, by this Agreement, waived against the City, its officers, officials, agents and employees.
- h. The Contractor is responsible for payment of all deductibles under the Builders' Risk/Installation Floater insurance policy.

11.2.1.5 Pollution Liability Insurance (Including Errors and Omissions). For Job Orders, Pollution Liability Insurance is only required if applicable and determined on a project specific basis. Contractor must maintain Pollution Liability Insurance with a limit of not less than \$5,000,000 per loss, \$5,000,000 aggregate for losses caused by pollution conditions including coverage for bodily injury, property damage, defense costs, clean-up costs, and completed operations that arise from the operations of Contractor as described in this

Agreement.

- a. The policy must provide for complete professional service coverage, including coverage for pollution liability that is a result of a breach of professional duties.
- b. The policy must provide for protection against claims for third-party bodily injury, property damage, or environmental damage caused for pollution conditions resulting from general contracting activities for which Contractor is legally liable.
- c. The policy must provide for cleanup costs when mandated by governmental entities, when required by law, or as a result of third-party claims.
- d. Completed Operations Coverage must be kept in place for up to the statute of repose.
- e. The policy must be endorsed to include the following additional insured language: "City, its elected officials, trustees, employees, agents, and volunteers must be named as additional insureds with respect to liability arising out of the activities performed by, or on behalf of Contractor".
- f. If Work under this Agreement requires the transportation of any hazardous material or regulated substances, Contractor must carry Auto Liability with a CA 9948 endorsement or equivalent.
- g. If Work under this Agreement requires the disposal of any hazardous materials from the job site, Contractor must obtain a certificate of insurance for Pollution Legal Liability from the disposal site operator with a limit of not less than \$5,000,000 per loss, \$5,000,000 aggregate.

11.2.1.6 Cyber Technology Errors and Omissions, Network Security, and Privacy Liability Insurance.

The policy must cover professional misconduct or lack of ordinary skill for those positions defined in the Scope of Services of this Agreement with a limit of not less than **\$3,000,000** for each occurrence, **\$3,000,000** aggregate. In the event that the professional liability insurance required by this Agreement is written on a claims-made basis, Contractor warrants that any retroactive date under the policy must precede the effective date of this Agreement; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this Agreement is completed. If such insurance is maintained on an occurrence form basis, Contractor must maintain such insurance for an additional period of one (1) year following termination of Agreement. If such insurance is maintained on a claims-made basis, Contractor must maintain such insurance for an additional period of three (3) years following termination of the Agreement. If Contractor contends that any of the insurance it maintains pursuant to other sections of this Exhibit C satisfies this requirement (or otherwise insures the risks described in this section), then Contractor must provide proof of same.

The insurance must provide coverage for the following risks:

- a. Liability arising from theft, dissemination, or use of confidential information (a defined term including but not limited to bank account, credit card account, personal information such as name, address, social security numbers, etc. information) stored or transmitted in electronic form.

- b. Network Security Liability arising from the unauthorized access to, use of, or tampering with computer systems including hacker attacks, inability of an authorized third party, to gain access to your services including denial of service, unless caused by a mechanical or electrical failure.
- c. Liability arising from the introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network, or similar computer related property and the data, software, and programs thereon.
- d. The policy must provide a waiver of subrogation.

11.3 **ADDITIONAL POLICY PROVISIONS REQUIRED**

- 11.3.1 Self-Insured Retentions or Deductibles. Any self-insured retentions and deductibles must be declared and approved by the City. If not approved, the City may require that the insurer reduce or eliminate any deductible or self-insured retentions with respect to the City, its officers, officials, agents, employees, and volunteers.
- 11.3.2 The Contractor's insurance must contain broad form contractual liability coverage.
- 11.3.3 The Contractor's insurance coverage must be primary insurance with respect to the City, its officers, officials, agents, and employees. Any insurance or self-insurance maintained by the City, its officers, officials, agents, and employees will be in excess of the coverage provided by the Contractor and must not contribute to it.
- 11.3.4 The Contractor's insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- 11.3.5 Coverage provided by the Contractor must not be limited to the liability assumed under the indemnification provisions of this Agreement.
- 11.3.6 The policies must contain a severability of interest clause and waiver of subrogation against the City, its officers, officials, agents, and employees, for losses arising from Work performed by the Contractor for the City.
- 11.3.7 The Contractor, its successors and or assigns, are required to maintain Commercial General Liability insurance as specified in this Agreement for a minimum period of 3 years following completion and acceptance of the Work. The Contractor must submit a Certificate of Insurance evidencing Commercial General Liability insurance during this 3 year period containing all the Agreement insurance requirements, including naming the required Additional Insureds set forth herein.
- 11.3.8 If a Certificate of Insurance is submitted as verification of coverage, the City will reasonably rely upon the Certificate of Insurance as evidence of coverage but this acceptance and reliance will not waive or alter in any way the insurance requirements or obligations of this Agreement.
- 11.3.9 Insurance Cancellation During Agreement Term.
- 11.3.9.1 If any of the required policies expire during the life of this Agreement, the Contractor must forward renewal or replacement Certificates to the City within 10 Days after the renewal date containing all the required insurance provisions.

11.3.9.2 Each insurance policy required by the insurance provisions of this Agreement must provide the required coverage and must not be suspended, voided or canceled except after 30 Days prior written notice has been given to the City, except when cancellation is for non-payment of premium, then 10 Days prior notice may be given. Such notice must be sent directly to Chandler Law-Risk Management Department, Post Office Box 4008, Mailstop 628, Chandler, Arizona 85225. If any insurance company refuses to provide the require notice, the Contractor or its insurance broker must notify the City of any cancellation, suspension, non-renewal of any insurance within 7 Days of receipt of insurers' notification to that effect.

11.3.10 City as Additional Insured. The above-referenced policies are to contain, or be endorsed to contain, the following provisions:

11.3.10.1 The Commercial General Liability and Automobile Liability policies are to contain, or be endorsed to contain, the following provisions: The City, its officers, officials, agents, and employees are additional insureds with respect to liability arising out of activities performed by, or on behalf of, the Contractor including the City's general supervision of the Contractor; Products and Completed Operations of the Contractor; and automobiles owned, leased, hired, or borrowed by the Contractor.

11.3.10.2 The City, its officers, officials, agents, and employees must be additional insureds to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Agreement.

11.4 **BONDS AND OTHER PERFORMANCE SECURITY**

11.4.1 After Agreement award, Contractor must provide a Performance Bond and a Payment Bond, each in an amount equal to the full amount of the Agreement Price.

11.4.2 Each such bond must be executed by a surety company or companies holding a Certificate of Authority to transact surety business in the State of Arizona, issued by the Director of the Arizona Department of Insurance and must be named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. A copy of the Certificate of Authority must accompany the bonds. The Certificate must have been issued or updated within two (2) years prior to the execution of this Agreement. The bonds must be written or countersigned by an authorized representative of the surety who is either a resident of the state of Arizona or whose principal office is maintained in this state, as by law required.

11.4.3 The bonds must be made payable and be acceptable to City. The bond forms for the performance and payment bonds must be in the forms required under A.R.S. § 34-221, *et. Seq.*, as in Appendices 4 and 5 of these General Conditions.

11.4.4 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Agreement Documents, Contractor must promptly furnish a copy of the bonds or must permit a copy to be made.

11.4.5 All bonds submitted for this Project must be provided by a company which has been rated AM Best rating of A- or better for the prior four quarters by the latest edition of the 'Results Best's Key Rating Guide (Property/Casualty)' published by the A.M. Best Company.

11.4.6 Personal or individual bonds are not acceptable.

- 11.4.7 If the surety on any Bond furnished by Contractor is declared a bankrupt or becomes insolvent, or Contractor's right to do business is terminated in any state where any part of the Project is located, or it ceases to meet the requirements of this Section 11.4, Contractor must within 5 Days thereafter substitute another Bond and surety, both of which must be acceptable to City.

## **SECTION 12 - INDEMNIFICATION**

- 12.1 To the extent permitted by law, the Contractor and its owners, officers, directors, agents, employees, and subconsultants (collectively "Indemnitor") must indemnify, save, and hold harmless the City and its officers, officials, agents, and employees (collectively "Indemnitee") from any and all claims, actions, liabilities, damages, losses, or expenses (including court costs, attorneys' fees, and costs of claim processing, investigation, and litigation) (collectively "Claims") caused or alleged to be caused, in whole or in part, by the negligent, reckless, wrongful, or willful acts, errors, or omissions of Indemnitor in connection with this Agreement. This indemnity includes any Claim or amount arising out of or recovered under workers' compensation laws or on account of Indemnitor's failure to conform to any federal, state, or local law, statute, ordinance, rule, regulation, or court decree. Indemnitor must indemnify Indemnitee from and against any and all Claims, except those arising solely from Indemnitee's own negligent, reckless, wrongful, or willful acts, errors, or omissions. Indemnitor is responsible for primary loss investigation, defense, and judgment costs where this indemnification applies. In consideration of the award of this Agreement, Indemnitor agrees to waive all rights of subrogation against Indemnitee for losses arising from or related to this Agreement. Indemnitor's obligations under this provision survive the termination or expiration of this Agreement.

## **SECTION 13 -DISPUTE RESOLUTION**

- 13.1 All disputes arising out of or relating to the Agreement, the Work or the Project, other than termination under Section 10, will be resolved pursuant to the Dispute Resolution process set forth in Appendix 6 of these General Conditions, and not pursuant to MAG Specifications § 110.
- 13.2 Contractor agrees that during any dispute between the parties, Contractor will continue to perform its obligations under the Agreement until such dispute is resolved.
- 13.3 Notwithstanding any other provision in this Agreement, City has the right to immediately file in court and pursue an action for a temporary restraining order and injunctive relief against Contractor if City determines that such action is necessary to protect its interests under the Agreement, to obtain specific performance of any provision of the Agreement, to advance the completion of the Project, or to protect health, welfare and safety.

## **SECTION 14 - MISCELLANEOUS PROVISIONS**

### **14.1 AGREEMENT DOCUMENTS**

- 14.1.1 The Agreement Documents are intended to permit the parties to complete the Work and all obligations required by the Agreement Documents within the Agreement Times for the Agreement Price. The Agreement Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards.

- 14.1.2 It is the intent of the Agreement Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Agreement Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Agreement Documents or from prevailing custom or trade usage as being required to produce the intended result must be provided by Contractor whether or not specifically called for at no additional cost to City.
- 14.1.3 The Agreement Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Agreement Documents), Contractor's Bid or Proposal (including documentation accompanying the Bid and any post-Bid documentation submitted prior to Agreement award) when attached as an exhibit to the Agreement, the accepted Project Schedule, the Notice to Proceed, the Performance Bond, the Payment Bond, Project Design, Engineering and Specifications, these General Conditions, the Project Specific Special Provisions, Technical Specifications, Agreement Drawings, as the same may be more specifically identified in the Agreement, Change Orders, Work Change Directives, Field Orders and the written interpretations and clarifications of the Design Professional or City representative and Modifications issued after execution of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Agreement Documents.
- 14.1.4 In the event of any inconsistency, conflict, or ambiguity between or among the Agreement Documents, the Agreement Documents will take precedence as follows from highest to lowest: Change Orders, Addenda, Agreement, Project Specific Special Provisions, General Conditions, Technical Specifications, Drawings/Plans, Chandler Amendments to MAG Standard Specifications and Chandler Standard Details, and MAG Uniform Standard Specifications and Details for Public Works Construction. If applicable to this Agreement, Federal Provisions prevail.
- 14.1.5 On the Drawings, given dimensions will take precedence over scaled measurements and large scale drawings over small-scale drawings.
- 14.1.6 Clarifications and interpretations of the Agreement Documents will be issued by the Design Professional through the City.
- 14.1.7 The headings used in this Agreement or any other Agreement Documents, are for ease of reference only and must not in any way be construed to limit or alter the meaning of any provision.
- 14.1.8 The Agreement Documents form the entire agreement between City and Contractor. No oral representations or other agreements have been made by the parties except as specifically stated in the Agreement Documents.
- 14.1.9 The Agreement Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party in the form of a Change Order.
- 14.1.10 Re-Use of Documents. Neither Contractor nor any Subcontractor, manufacturer, fabricator, supplier or distributor will have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of the Design Professional; and they must not re-use any of them on extensions of the Project or any other project without written consent of City and the Design Professional and specific written verification or adaptation by the Design Professional.

14.2 **REFERENCE STANDARDS**

14.2.1 Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, will mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Agreement Documents.

14.2.2 The provisions of any such standard, specification, manual or code, or any instruction of a Supplier will not change the duties or responsibilities of City, Contractor, Design Professional or Project Manager, or any of their Subcontractors, consultants, agents, or employees from those set forth in the Agreement Documents, nor will any such provision or instruction assign to City, Contractor, Design Professional, or any of their agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Agreement Documents.

14.3 **COMPLIANCE WITH ARIZONA LAW AND FEDERAL LAW**

14.3.1 Compliance with A.R.S. § 41-4401. Pursuant to the provisions of A.R.S. § 41-4401, the Contractor hereby warrants to the City that the Contractor and each of its subcontractors ("Subcontractors") must comply with all Federal Immigration laws and regulations that relate to the immigration status of their employees and the requirement to use E-Verify set forth in A.R.S. §23-214(A).

14.3.2 A breach of the Contractor Immigration Warranty constitutes a material breach of this Agreement and subject to penalties up to and including termination of this Agreement.

14.3.3 The City retains the legal right to inspect the papers of any Contractor or Subcontractor employee who works on this Agreement to ensure that the Contractor or Subcontractor is complying with the Contractor Immigration Warranty. The Contractor agrees to assist the City in the conduct of any such inspections.

14.3.4 The City may, at its sole discretion, conduct random verifications of the employment records of the Contractor and any Subcontractors to ensure compliance with Contractors Immigration Warranty. The Contractor agrees to assist the City in performing any such random verifications.

14.3.5 The provisions of this Article must be included in any agreement the Contractor enters into with any and all of its subcontractors who provide services under this Agreement or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

14.4 **HAZARDOUS ENVIRONMENTAL CONDITIONS**

14.4.1 Contractor will not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Agreement Document to be within the scope of the Work. Contractor will be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom

- Contractor is responsible.
- 14.4.2 If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition. Contractor must immediately:
- a. Secure or otherwise isolate such condition;
  - b. Stop all Work in connection with such condition and in any area affected thereby; and
  - c. Notify City and promptly thereafter confirm such notice in writing.
- 14.4.3 City will promptly retain a qualified expert to evaluate such condition or take corrective action, if any.
- 14.4.4 Contractor will be responsible for any and all civil or criminal penalties, fines, damages, or other charges imposed by any regulatory agency or court for sewage discharges that are in violation of applicable statutes and laws and that are a result, direct or indirect, of work performed under this Agreement. Contractor will also be responsible for reimbursement to City for administration, reporting, and tracking expenses required as a result of any spill event. In the event the regulatory agency or court imposes a probationary period, Contractor must post bond for the probationary period to ensure that all such costs are reimbursed to City. This responsibility will apply whether penalties are imposed directly on Contractor or any of its Subcontractors, or the City of Chandler. Contractor must defend and indemnify City against such penalties. Regulatory agencies may include, but are not limited to, the Arizona Department of Environmental Quality (ADEQ) and the United States Environmental Protection Agency (USEPA).
- 14.5 **COOPERATION AND FURTHER DOCUMENTATION**  
Contractor agrees to provide City such other duly executed documents as may be reasonably requested by City to implement the intent of the Agreement Documents.
- 14.6 **ASSIGNMENT**  
Neither Contractor nor City will, without the written consent of the other assign, transfer or sublet any portion of this Agreement or part of the Work or the obligations required by the Agreement Documents, any such assignment will be void, will transfer no rights to the purported assignee, and would be a material breach of the Agreement.
- 14.7 **SUCCESSORS**  
Contractor and City intend that the provisions of the Agreement Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.
- 14.8 **LAWFUL PRESENCE**  
Pursuant to A.R.S. §§ 1-501 and 1-502, City is prohibited from awarding an agreement to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming the identification provided is genuine. This requirement will be imposed at the time of agreement award. This requirement does not apply to business organizations such as corporations, partnerships, or limited liability companies.
- 14.9 **NO BOYCOTT OF ISRAEL CERTIFICATION**



By Contractor's signature on this Agreement, Contractor certifies under A.R.S. § 35-393.01 that Contractor is not currently engaged in and for the duration of this Agreement will not engage in a boycott of Israel.

14.10 **NO THIRD PARTY BENEFICIARY**

Nothing under the Agreement Documents will be construed to give any rights or benefits in the Agreement Documents to anyone other than City and Contractor, and all duties and responsibilities undertaken pursuant to the Agreement Documents will be for the sole and exclusive benefit of City and Contractor and not for the benefit of any other party, unless otherwise expressly set forth in the Agreement Documents.

14.11 **GOVERNING LAW AND VENUE**

The Agreement and all Agreement Documents will be deemed to be made under, and will be construed in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions thereof. Any court action to enforce any provision of the Agreement or to obtain any remedy with respect hereto must be brought in the Superior Court, Maricopa County, Arizona, and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such Court.

14.12 **SEVERABILITY**

If any provision of the Agreement Documents or the application thereof to any person or circumstance will be invalid, illegal or unenforceable to any extent, the remainder of the affected provision, the remainder of the Agreement Documents, and the application thereof will not be affected and will be enforceable to the fullest extent permitted by law.

14.13 **LEGAL REQUIREMENTS**

At all times relevant to its entry into this Agreement and performance of the Services and the Work, Contractor must fully comply with all Laws, Regulations, or Legal Requirements applicable to City, the Project, and the Agreement, including, without limitation, those set forth on Exhibit C of the Agreement.

14.14 **PARTIAL INVALIDITY**

If any provision of the Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

14.15 **ATTORNEYS' FEES**

Should either party to the Agreement bring an action to enforce any provision of the Agreement, the prevailing party will be entitled to recover reasonable attorneys' fees and costs in connection therewith.

14.16 **CONFLICT OF INTEREST**

14.16.1 Contractor agrees to disclose any financial or economic interest with the Project property, or any property affected by the Project, existing prior to the execution of the Agreement. Further, Contractor agrees to disclose any financial or economic interest with the Project property, or any property affected by the Project, if Contractor gains such interest during the course of this Agreement. If Contractor gains financial or economic interest in the Project during the course of this Agreement, this may be grounds for terminating this Agreement. Any decision to terminate the Agreement must be at the sole discretion of City.

14.16.2 Contractor will not engage the services on this Agreement of any present City employee who

was involved as a decision maker in the selection or approval processes, or who negotiated or approved billings or Agreement Modifications for this Agreement.

14.16.3 Contractor agrees that it will not perform services on this Project for a contractor, subcontractor, or any supplier, not covered under this Agreement.

14.17 **INDEPENDENT CONTRACTOR**

Contractor is and must be an independent contractor. Any provisions in the Agreement Documents that may appear to give City the right to direct Contractor as to the details of accomplishing the Work or to exercise a measure of control over the Work means that Contractor must follow the wishes of City as the results of the Work only. These results must comply with all applicable laws and ordinances.

14.18 **NOTICE OF INJURY**

Should City or Contractor suffer injury or damage to their person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim must be made in writing to the other party within 7 Days of the first observance of such injury or damage.

14.19 **CONFIDENTIALITY**

Contractor, for the benefit of City, hereby agrees it will not release or cause or permit to be released to the public any press notices, publicity (oral or written) or advertising promotion relating to, any statement regarding, or any other public announcement or disclosure or cause or permit to be publicly announced or disclosed, in any manner whatsoever, the specific terms and conditions of this Agreement or any comment relating to the Project or the Site. Notwithstanding the foregoing, Contractor will be entitled to disclose the terms of the Agreement to the extent required by law or in the course of enforcing or defending a claim or action hereunder. Contractor must give City reasonably prompt notice of any disclosure or statement made pursuant to this provision.

14.20 **DATA CONFIDENTIALITY**

14.20.1 As used in the Agreement, "data" means all information, whether written or verbal, including plans, specifications, renderings, photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by, obtained by, or transmitted to the City in the performance of this Agreement.

14.20.2 Contractor agrees that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to City in connection with the Contractor's performance of this Agreement is confidential and proprietary information belonging to City.

14.20.3 Except as specifically provided in this Agreement, Contractor or its Subcontractors must not divulge data to any third party without prior written consent of City. Contractor or its Subcontractors must not use data for any purposes except to perform Work required under this Agreement. These prohibitions will not apply to the following data provided Contractor has first given the required notice to City:

- a. Data which was known to Contractor or its Subcontractors prior to its performance under this Agreement unless such data was acquired in connection with Work performed for City;

- b. Data which was acquired by Contractor or its Subcontractors in its performance under this Agreement and which was disclosed to Contractor or its Subcontractors by a third party, who to the best of Contractor's or its Subcontractor's knowledge and belief, had the legal right to make such disclosure and Contractor or its Subcontractors are not otherwise required to hold such data in confidence; or
- c. Data which is required to be disclosed by virtue of law, regulation, or court order, to which the Contractor or its Subcontractors are subject.

14.20.4 In the event the Contractor or its Subcontractors are required or requested to disclose data to a third party, or any other information to which the Contractor or its Subcontractors became privy as a result of any other agreement with City, the Contractor must first notify City as set forth in this Section of the request or demand for the data. The Contractor or its Subcontractors must give City sufficient facts so that City can be given an opportunity to first give its consent or take such action that City may deem appropriate to protect such data or other information from disclosure.

14.20.5 Unless prohibited by law, within 10 Days after completion of services for a third party on real or personal property owned or leased by City, the Contractor must promptly deliver, as set forth in this Section, a copy of all data to City. All data will continue to be subject to the confidentiality agreements of this Agreement.

14.20.6 Contractor or its Subcontractors assume all liability for maintaining the confidentiality of the data in its possession and agree to compensate City if any of the provisions of this Section are violated by Contractor, its employees, agents, or Subcontractors. Solely for the purposes of seeking injunctive relief, it is agreed that a breach of this Section will be deemed to cause irreparable harm that justified injunctive relief in court. Contractor agrees that the requirements of this Section will be incorporated into all subcontracts entered into by Contractor. A violation of this Section may result in immediate termination of this Agreement without notice.

14.21 **SURVIVAL**  
All warranties, representations and indemnifications by Contractor must survive the completion or termination of this Agreement.

14.22 **COVENANTS AGAINST CONTINGENT FEES**  
Contractor warrants that no person has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of City Council, or any employee of City has any interest, financially, or otherwise, in the firm. For breach or violation of this warrant, City will have the right to annul the Agreement without liability or at its discretion to deduct from the Agreement Price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

14.23 **NO WAIVER**  
The failure of either party to enforce any of the provisions of the Agreement Documents or to require performance of the other party of any of the provisions hereof must not be construed to be a waiver of such provisions, nor will it affect the validity of the Agreement Documents or any part thereof, or the right of either party to thereafter enforce each and every provision.

14.24 **NONEXCLUSIVE REMEDIES**

The remedies set forth in this Agreement are cumulative and not exclusive, and failure to exercise any remedy (including, without limitation, any right to terminate) will not preclude any party from exercising any other right in seeking any other remedy available to it at law or in equity.

14.25 **PROJECT COMMUNICATIONS**

14.25.1 All communications concerning the performance of the Work or the Project will be provided to the designated Project Manager and Contractor's Representative set forth in Article 1 of the Agreement. City may change the designated Project Manager and, subject to Section 4.4.20 of these General Conditions, Contractor may change Contractor Representative, by written notice to the other.

14.25.2 Project communications may be exchanged by e-mail, but email communications cannot change the terms of the Agreement or the Scope of Work, or effectuate any change that requires a written Change Order.

14.25.3 When any provisions of the Agreement Documents requires Contractor or the Design Professional to give written notice to City, it will be deemed to have been validly given if delivered in person or if delivered at or sent by registered or certified mail, postage prepaid, to the Parties indicated in Agreement Article 1, incorporated by reference.

14.25.4 When any provisions of the Agreement Documents requires City, Project Manager, or the Design Professional to give written notice to Contractor, it will be deemed to have been validly given if delivered in person to the person designated in the Agreement Documents as Contractor's Resident Superintendent, or if delivered at or sent by registered or certified mail, postage prepaid, to Contractor at the last address in the Agreement Documents or such substitute address which Contractor designates in writing, or to the business address known to the giver of notice.

14.26 **DRUG FREE WORKPLACE PROGRAM**

14.26.1 City has adopted a policy establishing a drug free workplace for itself and as a requirement for Contractors doing business with City, to ensure the safety and health of employees working on City projects.

14.26.2 Contractor must require a drug free workplace for all employees working under the Agreement. Specifically, all employees of Contractor who are working under an agreement with City must be notified, in writing, by Contractor that they are prohibited from the manufacture, distribution, dispensation, possession or unlawful use of a controlled substance in the workplace.

14.27 Failure to require a drug free workplace in accordance with the City's policy may result in termination of the Agreement and possible debarment from bidding on future City projects.

**SECTION 15 - PROVISIONS APPLICABLE SOLELY TO GMP AND COST-BASED AGREEMENTS, CHANGE ORDERS, AND JOB ORDERS**

15.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Section 2 apply to GMP and Cost-Based Agreements, Change

Orders, and Job Orders, together with the additional definitions set forth below.

Baseline Cost Model –

A breakdown and estimate of the scope of the Project developed by CM@Risk pursuant to Section 17.5 of these General Conditions.

CM@Risk or Construction Manager at Risk –

The person or firm selected by City to provide pre-construction and/or construction services as detailed in a Construction Manager at Risk Agreement with City. In these General Conditions, the term “Contractor” includes CM@Risk under both Pre-Construction and Construction Services Agreements.

CM@Risk Fee or Contractor’s Fee –

An agreed to percentage in an accepted GMP that represents the Contractor’s fee for performance of the Work.

Agreement Documents –

Where compensation under the Agreement is based upon a GMP accepted by City, the term “Agreement Documents” also includes the accepted GMP Proposal.

Agreement Price –

Where compensation under the Agreement based upon a GMP accepted by City, the term “Agreement Price” refers to the GMP.

Cost-Based Agreement, Change Order, or Job Order –

A Agreement, Change Order, or Job Order where the Agreement Price is based upon the actual cost of performing the Work, subject to the terms of the Agreement Documents, including this Section 15. These would include those generally referred to as “Cost of the Work plus a Fee with a GMP,” “Time and Materials,” or “Cost Plus a Fee.”

Cost of the Work –

The direct costs necessarily incurred by Contractor in the proper, timely, and complete performance on the Work. The Cost of the Work will include only those costs set forth in Section 15.2 of these General Conditions.

Deliverables –

The work products prepared by Contractor in performing the scope of work described in the Agreement. Some of the major deliverables to be prepared and provided by Contractor during pre-construction may include but are not limited to: the Baseline Cost Model and Schedule that validate City’s plan and budget, Construction Management Plan, Detailed Project Schedule, Schedule of Values, alternative system evaluations, procurement strategies and plans, Detailed Cost Estimates, construction market surveys, cash flow projections, GMP Proposals, Subcontractor procurement plan, Subcontractor agreements, Subcontractor bid packages, Supplier agreements, Constructability Review, Cost Control Log, Traffic control and phasing plans and others as indicated in this Agreement or required by the Project Team.

Pre-Construction Services Agreement –

The Agreement entered into between City and the CM@Risk for Pre-Construction Services to be provided by the CM@Risk, including, without limitation, the generation of a GMP Proposal. If the GMP Proposal is accepted by City and a Construction Agreement is entered into between City and CM@Risk, the duties, obligations and warranties of the CM@Risk under the Pre-Construction Services Agreement survive and are incorporated into the resulting Construction Agreement.

Pre-Construction Services –

The services to be provided under the Pre-Construction Services Agreement, including Section 17 of these General Conditions.

Detailed Project Schedule –

The Detailed Project Schedule developed by the CM@Risk for the review and approval of the Project Manager in accordance with Section 17.3 of these General Conditions, if applicable.

General Conditions Costs –

Those costs set forth in Section 4 of Appendix 9 to these General Conditions.

GMP Plans and Specifications –

The plan and specifications upon which the Guaranteed Maximum price Proposal is based.

GMP Proposal –

The proposal of Contractor submitted pursuant to Section 17.7 of these General Conditions for the entire Work and/or portion (phases) of the Work.

Guaranteed Maximum Price or GMP –

The Guaranteed Maximum Price set forth in the Agreement, Change Order, or Job Order if applicable.

15.2 **AGREEMENT PRICE**

15.2.1 The Agreement Price for all Agreements, Change Orders, and Job Orders based upon payment of the Cost of the Work plus a Fee with a GMP, time and materials, or cost-plus a fee will be the Cost of the Work incurred plus the Fee agreed to in writing by City, limited to the amount of the GMP, if agreed to. Unless otherwise expressly provided in the Agreement, Change Order, or Job Order, all Cost Based pricing will be subject to and limited to GMP.

15.2.2 The Agreement Price may only be changed as set forth in Section 9 above.

15.2.3 Only costs specifically designated as reimbursable costs are eligible for payment by City or may be charged against the Agreement Price. All other costs will not be paid by City and will not be chargeable against the Agreement Price.

15.2.4 Cost-Based Agreements. For Agreements, Change Orders, or Job Orders, reimbursable costs must be determined pursuant to Appendix 9 to these General Conditions, Cost of the Work, and not by MAG Specifications §109.5.

15.3 **ALLOWANCES**

15.3.1 Contractor must include in the Agreement Price all Allowances stated in the Agreement Documents and agreed to in writing by City. Items covered by these Allowances must be supplied for such amounts and by such persons as City may direct, provided Contractor will not be required to employ persons against whom Contractor makes a reasonable objection. Materials, labor, and equipment under an Allowance will be selected by City in accordance with a schedule to be mutually agreed upon by City, Design Professional and Contractor or otherwise in reasonably sufficient time to avoid delay in the Work.

15.3.2 Unless otherwise provided in the Agreement Documents:

- 15.3.2.1 These Allowances must cover the cost to Contractor, less any applicable trade discount, of the materials, labor, and equipment required by the Allowances, delivered at the Site, and all applicable taxes;
- 15.3.2.2 Contractor's costs for unloading and handling on the Site, labor, installation costs, overhead, profit and other expenses relating to materials, labor, and equipment required by the Allowance must be included in the Agreement Sum and not in the Allowance; and
- 15.3.2.3 Whenever the cost is more or less than the Allowance, the Agreement Sum must be adjusted accordingly by Change Order, the amount of which will recognize the difference between actual costs for an Allowance item and the amount of the Allowance item and changes, if any, in handling costs on the Site, labor, installation costs, overhead, profit and other expenses.

15.4 **CONTINGENCY**

An agreed to amount in the GMP that may only be used in accordance with the terms set forth in these General Conditions and with prior written approval by the City.

- 15.4.1 Construction Contingency. This GMP includes a dollar amount listed as a Construction Contingency which will be readily available for increased costs for subcontractors, material, and equipment subject to prior approval of City, which approval will not be withheld unreasonably. The Construction Contingency may also be used, at the discretion of City, to reimburse CM@Risk for unexpected costs due to (a) scope gaps between trade subcontractors; (b) agreement default by trade subcontractors; (c) unforeseen field conditions, but only as defined in Section 9.5 above; (d) work completed to meet the intent of the design, but which was not indicated on the plans; (e) costs overruns not covered by allowances; (f) costs of corrective work not provided for elsewhere; and (g) implementation of any Recovery Plan. Cost for which CM@Risk desires to be paid from the Construction Contingency must be documented by CM@Risk on a time and materials basis and are subject to verification by City. If agreed to by City, a "Use of Contingency" form will be executed by both parties authorizing the actual cost of the work to be paid and included in the Work Item Direct Costs. The Construction Contingency is not allocated to any particular item of the Project but may be used for any portion of the work as determined above. Any amount not used in the Construction Contingency will belong to City and will reduce the GMP.

- 15.4.2 Owner's Contingency. This GMP also includes a dollar amount listed as an Owner's Contingency which may be used only by the City (owner department) for upgrades and changes in scope or other changes not already included within the intent of the Project Program. City will provide CM@Risk with a Work Change Directive authorizing CM@Risk to perform the additional work and to transfer funds from the Owner's Contingency to the Work Item Direct Costs category to be paid with such direct costs. These additional costs will be in an amount mutually agreed upon by CM@Risk and City or will be documented by CM@Risk on a time and materials basis and are subject to verification by City. Any amount not used in the Owner's Contingency will belong to the City and will reduce the GMP.

15.5 **REDUCTION IN RETENTION**

If the Agreement Price is based upon a GMP, in order to receive payment of one-half of the retention as set forth in Section 8.1.5 above, Contractor must also submit to the Project Manager a complete accounting of the Actual Reimbursable Cost of the Work to date, including all such documentation (including, without limitation, invoices, subcontract,

subcontractor change orders, purchase orders, records of payment, etc.) as City may require, to establish whether the payments made to Contractor equal, exceed, or are less than the actual reimbursable Cost of the Work to date. Any excess payments by City, as determined by the Project Manager, will be deducted from the one-half retention payment to be made to Contractor, and any additional excess amounts paid to Contractor will be refunded by Contractor to City. The Project Manager's determinations as to Actual Reimbursable Cost of the Work will be the basis of payment until final Project Closeout and Final Payment under the Agreement.

15.6 **FINAL PAYMENT**

If the Agreement Price is based upon a GMP, as a further condition precedent to Final Payment by City, Contractor must submit to the Project Manager a complete final accounting of the Actual Reimbursable Cost of the Work, including all such documentation (including, without limitation, invoices, subcontracts, subcontractor change orders, purchase orders, records of payment, etc.) as City may require, to establish whether the payments made to Contractor equal, exceed, or are less than the Actual Reimbursable Cost of the Work to date. Any excess payments by City, as determined by the Project Manager, will be deducted from the one-half retention payment to be made to Contractor, and any additional excess amounts paid to Contractor will be refunded by Contractor to City. Disputes relating to the Final Cost of the Work will be subject to City's audit rights under Sections 8.8 above and 15.7 below, and the dispute resolution process under Section 13 above.

15.7 **OPEN BOOK**

On any GMP-based or Cost-Based Agreement, Job Order, or Change Order, City may attend any and all meetings or discussions pertaining to the Project, including bid openings, and must have access to all books, invoices, accounts, memoranda, correspondence, and written communications or records of any kind pertaining to the Project, including without limitation, those stored in electronic format.

15.8 **DIFFERING SITE CONDITIONS AND/OR CHANGE IN LAWS**

A Change Order for increased costs under Section 9.5 or 9.6 above will only be considered or granted by City to the extent such actual, documented costs are justified.

**SECTION 16 - PROVISIONS APPLICABLE SOLELY TO JOB ORDER AGREEMENTS (JOC)**

16.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Sections 2 and below will apply to all Job Order Agreements and Job Orders. In addition, the definitions set forth in Section 15.1 above will apply to all Cost-Based Job Orders.

Agreement –

Includes the Job Order Master Agreement and Job Order Project Agreements issued and agreed to by City and JOC Contractor.

JOC Contractor's Coefficient –

A numerical factor that represents JOC Contractor total costs (indirect and direct costs, sales tax, profit, etc.) and other adjustments for market conditions.

Job Order Request for Proposal (RFP) –

The Request for Proposals issued by City for each Job Order Project Agreement relating to a specific Project.



Job Order Cost Proposal –

The Proposal submitted by JOC Contractor in response to a Job Order Request for Proposal (RFP) issued by City to develop a Job Order Project Agreement for a specific Project.

Guaranteed Maximum Price (GMP) Job Order –

Job Order under which JOC Contractor is compensated for actual costs incurred.

Job Order Project Agreement (Job Order) –

The agreement for a specific project, as it may be modified by all Change Orders, executed by the Parties, which incorporates the terms and conditions of the Job Order Master Agreement.

16.2 **ORDERING AND PROCESSING PROCEDURES FOR JOB ORDERS**

16.2.1 The process for developing and issuing a Job Order for a particular Project consists of three (3) procedures: (1) issuance of a RFP by City; (2) JOC Contractor's response to the RFP in the form of JOC Contractor's Job Order Cost Proposal; and (3) Issuance of a Job Order by City, as set for below.

16.2.2 RFP's For Job Orders

16.2.2.1 City will provide to JOC Contractor RFP with a Scope of Work (SOW) describing the Work to be performed, which may include special instructions and conditions, material submittal requirements, and, if applicable, a complete set of sketches, construction drawings and specifications for the Job Order.

16.2.2.2 Some Job Order RFP's will be issued by City without detailed sketches, drawing and specifications and will rely on JOC Contractor to produce them for City review and approval and is considered to be Pre-Construction and incidental design services included in JOC Contractor's overhead for GMP Job Orders. In addition JOC Contractor will not be reimbursed for any Pre-Job Order costs, including proposal preparation, attendance during negotiations, or site visits.

16.2.3 JOC Contractor's Job Order Cost Proposal

16.2.3.1 JOC Contractor must respond within ten (10) calendar days of the RFP date or site visit, whichever is later or as otherwise indicated on a case-by-case basis, by submitting JOC Contractor's Job Order Cost Proposal to the City representative.

16.2.3.2 Unless otherwise required under the terms of the RFP, JOC Contractor's Job Order Cost Proposal must include the following.

- a. JOC Contractor's Job Order Cost Proposal in PDF and electronic format;
- b. A Project Schedule and schedule of values that reflects the costs of each work element on the schedule. The schedule must show all milestones (e.g., permits, submittals, ordering materials, demolition, work phases, closeout and completion date); and
- c. Necessary documentation will be required to indicate that adequate scoping, layout, setup and planning to accomplish the Work has been done. Examples of documentation that might reasonably be expected include sketches, drawings, calculations, catalog cuts and specifications produced

to a level of detail and skill that could be expected of experienced, competent Project Managers with five or more periods experience in their respective trade.

- 16.2.3.3 JOC Contractor must select Subcontractors based on qualifications alone or on a combination of qualifications and price and must not select Subcontractors based on price alone. A qualifications and price selection may be a one-step selection based on a combination of qualifications and price or two-step selection. In a two-step selection, the first step must be based on qualifications alone and the second step may be based on a combination of qualifications and price or on price alone.
- 16.2.3.4 Upon request, JOC Contractor must provide City with copies of Subcontractor quotes and the basis for selection of each Subcontractor.
- 16.2.3.5 If City objects to a selected Subcontractor, City will make the objection and the reasons for the objection known to the JOC Contractor. JOC Contractor must then present an acceptable Subcontractor for the applicable discipline. City will not unreasonably object to or withhold approval of a Subcontractor.
- 16.2.3.6 For self-performed work, the City retains the right to have the JOC Contractor establish JOC Contractor's costs by bidding their costs against at least three (3) other interested trade Contractors. No self-performed work will be allowed to be performed on a lump sum basis.
- 16.2.4 Issuance of Job Order
  - 16.2.4.1 City Representative will compare the JOC Contractor's Job Order Cost Proposal with the City's estimate, schedules and other requirements, and then, if the City Representative determines it is in the best interest of City, arrange a meeting with JOC Contractor, at which time the JOC Contractor's Job Order Cost Proposal will be discussed and negotiated.
  - 16.2.4.2 If the City Representative determines that it is in the best interest of the City, City will then issue a Job Order to JOC Contractor for execution.
  - 16.2.4.3 Specific Job Orders may vary, but unless agreed to by City in writing otherwise, the content of Job Orders under the Agreement will generally be as follow, all of which will be signed and/or initialed by JOC Contractor's designated representative:
    - a. The description of the Scope of the Work and Project Schedule (attached as Exhibit A to the Job Order);
    - b. The address or location of the Work;
    - c. The Agreement Price for Work (Construction) included in the Project (attached as Exhibit B to the Job Order);
    - d. The name of the JOC Contractor representative for the Project;
    - e. The Drawings and Specifications for the Project;
    - f. If any shop drawings, project date and/or samples are required for the Job Order, the date for delivery of each required item (included in the Project Schedule, Exhibit A to the Job order); and
    - g. Project Specific Provisions, if any, in Exhibit A to the Job Order, including, without limitation, whether any of the following are required: Pre-Construction Conference, weekly progress meetings, field office,

storage enclosure, materials and equipment handling facility, submittals, shop drawings, product data, equipment list, samples, project manual, schedule of values, Construction progress schedule, narrative reports, progress report, progress charts, progress photographs, materials status report, Construction diagram, Construction status report, operation and maintenance data, operating maintenance instructions and parts list, and as-build drawings.

16.2.5 Job Order Intent. Each Job Order will be interpreted to include all items reasonably necessary to complete the Project under that Job Order as described in the scope of the Work in that Job Order. All Work must be performed in a professional manner and all materials used must be new and of the highest quality and of the type best adapted to their purpose, unless otherwise specified. The Notice to Proceed date, and the award date established therein, will be deemed an integral part of the Job Order the same as if set forth therein.

16.3 **INCIDENTAL DESIGN SERVICES**

16.3.1 This effort includes all “extensions of design” for systems that are typically specified in a performance oriented manner by consultants and designers. Examples include: fire sprinkler systems, fire alarm and sprinkler systems, DDC controls, control systems, prefabricated metal building and similar situations. These designs are normally provided under submittals as a shop drawing with engineering backup and as appropriate, seals of registered engineers specializing in the particular system.

16.3.2 Incidental design includes all documents, sketches, schematic diagrams, floor plan layouts, equipment schedules and other documents produced by the JOC Contractor to define the work required for projects that the City does not develop formal or abbreviated designs requiring a seal by a registered engineer. Incidental design does not include preparation of designs requiring an architect or engineer seal.

16.3.3 JOC Contractor represents, covenants, and agrees, and contractually assumes the obligation to furnish, all of the required Design Services through properly licensed and experienced Design Professionals in complete accordance with all of the duties imposed on a Design Professional under the Agreement Documents, Laws, Regulations, or Legal Requirements, and the common law.

16.3.4 All Design Documents (and all other Project-related documents, models, computer drawings and other electronic expression, photographs and other expressions CADD, and BIM files and images included) that JOC Contractor and/or JOC Contractor’s Design Professional(s) prepare in connection with a Job Order and the copyrights therein (collectively, the “Instruments of Service”) will be the property of City. JOC Contractor covenants and agrees to execute any additional document reasonably requested by City to confirm such assignment without any additional compensation.

16.4 **CONSTRUCTION SERVICES**

16.4.1 The following subsections of this Section 16.4 set forth requirements beyond those set forth in Section 4 above which apply to Construction Services performed under a Job Order.

16.4.2 JOC Contractor must perform the Work using only those firms, team members and individuals designated by JOC Contractor consistent with each Job Order or otherwise

approved by City pursuant to the General Conditions. No other entities or individuals may be used without the prior written approval of the Project Manager.

16.4.3 Construction Phasing

16.4.3.1 City use of the facilities is anticipated while the Work is being performed. The Work must be planned and accomplished so that there will be a minimum of interference and inconvenience to occupants in the building and agencies in the vicinity and to other craftsmen who may have to do work in the affected facilities. Any blockage of building exits or driveways must be coordinated in advance.

16.4.3.2 If applicable, furniture, portable office equipment and wall appurtenances not rigidly fastened to the walls must be moved by JOC Contractor, protected from damage and replaced to the original position upon completion of the work. If the work required by the Job Order will not allow furniture and portable office equipment to be replaced to its original position, new locations will be designated by City. Incidental costs associated with moving one-piece furnishings up to approximately 150 pounds to perform such tasks as painting, carpet or tile replacement, etc., are considered a general cost of building renovation and must be included in the JOC Contractor's Coefficient. Costs for large scale or wholesale removal and replacement of large quantities of desks or modular workstations, copiers, multiple full file cabinets, etc. to another location or storage outside the work space, or disassembly and reassembly of modular furniture is not considered part of the JOC Contractor's Coefficient and will be priced separately.

16.4.3.3 The work must, so far as practicable, be done in definite sections or divisions and confined to limited areas which must be completed before work in other sections or divisions are begun.

16.4.4 Work Site Conflicts. In the event of a conflict between JOC Contractor and others in an occupied facility or where other Contractors are performing work on the same facility under other Agreements, City will decide to dispute and that decision will be final.

16.4.5 Ownership of Work Product. Work Product prepared or otherwise created in connection with the performance of this Agreement, including the Work, are to be and remain the property of City. For purposes of this provision, "Work Product" will include all designs, drawings, plans, specifications, ideas, renderings and other information or matter, in whatever form created (e.g., electronic or printed) and in all media now known or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C. §101 (Copyright Act). If for any reason any such Work is found not to be a work for hire, JOC Contractor hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.

16.5 **OPTIONAL LIQUIDATED DAMAGES**

16.5.1 Specific Job Orders. City will have the right to assess liquidated damages in relation to any specific JOC Project Agreement as set forth below.

16.5.2 Substantial Completion Liquidated Damages. JOC Contractor acknowledges and agrees that if JOC Contractor fails to obtain Substantial Completion of the Work within the Agreement Time, City will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain.

Therefore, City and JOC Contractor agree that if JOC Contractor fails to achieve Substantial Completion of the Work within the Agreement Time, City will be entitled to retain or recover from JOC Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9.

16.5.3 Final Acceptance Liquidated Damages. For the same reasons set forth in Section 16.5.2 above, City and JOC Contractor further agree that if JOC Contractor fails to achieve Final Acceptance of the Work within the Agreement Time, City will be entitled to retain or recover from JOC Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9 commencing from the actual date of Substantial Completion or Final Acceptance as required under any specific JOC Project Agreement.

16.5.4 MAG Liquidated Damages. Liquidated damages provisions in MAG § 108.9 may apply to any specific JOC Project Agreement.

16.5.5 City may deduct liquidated damages assessed pursuant to this Section 16.5 from any unpaid amounts then or thereafter due JOC Contractor under the Agreement or any specific JOC Project Agreement between JOC Contractor and City. Any liquidated damages not so deducted from any unpaid amounts due JOC Contractor must be payable to City at the demand of City, together with interest from the date of the demand at the highest lawful rate of interest payable to JOC Contractor.

16.6 **PERFORMANCE MEASUREMENT**

16.6.1 Performance Assessment. After the Final Acceptance of Work under each Job Order, City will complete a written evaluation of the performance of JOC Contractor on the Job Order.

16.6.2 Consideration in Assignment of Work. JOC Contractor's record of cost, schedule and quality performance and comparative assessments will be significant considerations in City's determination whether to award future Job Orders. JOC Contractor agrees that any determination by City not to award future Job Orders or Option periods based on performance will be at the sole discretion of City.

**SECTION 17 - PROVISIONS APPLICABLE SOLELY TO PRE-CONSTRUCTION SERVICES FOR CONSTRUCTION MANAGER AT RISK**

17.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Section 2 and 15.1 above will apply to all Pre-Construction Services Agreements.

17.2 **GENERAL**

17.2.1 CM@Risk must perform the Services required by, and in accordance with the Agreement Documents and as outlined in Exhibit A of the Agreement to the satisfaction of the Project Manager, exercising the degree of care, skill, diligence and judgment a professional construction manager experienced in the performance of such services for construction and/or facilities of similar scope, function, size, quality, complexity and detail to the Project in urban areas throughout the United States, would exercise at such time, under similar conditions. CM@Risk must, at all times, perform the required services consistent with sound and generally accepted engineering principles and construction management and construction contracting practices.

- 17.2.2 As a participating member of the Project Team, CM@Risk must provide to City and Design Professional a written evaluation of City's Project Program and budget, each in terms of the other, with recommendations as to the appropriateness of each. CM@Risk must prepare a Baseline Cost Model that validates City's budget. The Baseline Cost Model must include all assumptions and basis of estimates in enough detail so that the Project Team can compare future detail estimates to the Baseline Cost model for variances. City and Design Professional will provide all the reasonably required data that is available in order to reach agreement between the team members that the Baseline Cost Model is an accurate projection of the costs of the Project.
- 17.2.3 CM@Risk must attend Project Team meetings, which may include, but are not limited to, bi-weekly Project management meetings, Project workshops, special Project meetings, construction document rolling reviews, public meetings and partnering sessions. CM@Risk attendance at design or other meetings in which CM@Risk is provided the opportunity but does not actively participate and/or is not properly prepared is not acceptable. Repeated instances of non-participation and/or lack of preparedness will be grounds for termination of CM@Risk Agreement for default.
- 17.2.4 CM@Risk must provide Pre-Construction Services, described herein, in a timely manner and consistent with the intent of the most current Drawings and Specifications. CM@Risk must promptly notify City in writing whenever CM@Risk determines any Drawings or Specifications are inappropriate for the Project and/or cause changes in the scope of Work that deviates more than the allowed contingencies within the Baseline Cost Model or requires an adjustment in the Baseline Cost Model, Detailed Cost Estimate, Detailed Project Schedule, GMP Proposals and/or in the Agreement Time for the Work, to the extent such as established.
- 17.2.5 CM@Risk when requested by City, must attend, make presentations and participate as may be appropriate in public agency and or community meetings, relevant to the Project. CM@Risk must provide drawings, schedule diagrams, budget charges and other materials describing the Project when their use is required or appropriate in any such public agency meetings.
- 17.2.6 Ownership of Work Product. All Work Product prepared or otherwise created in connection with the performance of this Agreement, including the Work, are to be and remain the property of City. For purposes of this provision, "Work Product" will include all designs, drawings, plans, specifications, ideas, renderings and other information or material, in whatever form created (e.g., electronic or printed) and in all media now know or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C. §101 (Copyright Act). If for any reason any such Work is found not to be a work for hire, Contractor hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.
- 17.2.7 CM@Risk represents to City in completing Pre-Construction Services and providing the reports and analysis required thereunder, that Work can be properly and timely constructed within the GMP Proposal, if accepted. CM@Risk does not assume any design responsibilities unless specifically called for in the scope of work, but CM@Risk will be responsible for their errors, omissions or inconsistencies included in the Work.

17.3 **DETAILED PROJECT SCHEDULE**

17.3.1 The fundamental purpose of the Detailed Project Schedule is to identify, coordinate and record the tasks and activities to be performed by all of the Project Team members and then for the Project Team to utilize that Deliverable as a basis for managing and monitoring all member's compliance with the schedule requirements of the Project. Each Project Team member is responsible for its compliance with the Detailed Project Schedule requirements. CM@Risk must, however, develop and maintain the Detailed Project Schedule on behalf of and to be used by the Project Team based on input from the other Project Team members. The Baseline Project Schedule must be developed as part of the Baseline Cost Model. The Detailed Project Schedule must use the Critical Path method ("CPM") technique, unless required otherwise, in writing by City. CM@Risk must use scheduling software acceptable to City to develop the Detailed Project Schedule. The Detailed Project Schedule must be presented in graphical and tabular reports as agreed upon by the Project Team. If Project phasing as described below is required, the Detailed Project Schedule must indicate milestone dates for the phases once determined. As part of construction phase, City may require CM@Risk to prepare a "resource loaded" schedule for all work, including work performed by Subcontractors, detailing each of the project tasks and the required/anticipated number of personnel per day for each task. CM@Risk must also indicate on the schedule its ability to meet said required/anticipated personnel requirements.

17.3.2 CM@Risk must include and integrate in the Detailed Project Schedule the services and activities required of City, Design Professional and CM@Risk including all construction phase activities based on the input received from City and the Design Professional. The Detailed Project Schedule must define activities as determined by City to the extent required to show: (a) the coordination between preliminary design and various pre-construction documents, (b) any separate long-lead procurements, (c) any permitting issues, (d) any land, right-of-way, or easement acquisition, (e) bid packaging strategy and awards to Subcontractors and Suppliers, (f) major stages of construction, (g) start-up and commissioning, and (h) occupancy of the completed Work by City. The Detailed Project Schedule must include by example and not limitation, proposed activity sequences and durations for design, procurement, construction and testing activities, milestone dates for actions and decisions by the Project Team, preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead time procurement (if any), milestone dates for various construction phases, Total Float for all activities to the extent authorized by City, relationships between the activities, City's occupancy requirements showing portions of the Project having occupancy priority, and proposed dates for Final Acceptance.

17.3.3 A Baseline Project Schedule must be initiated with the project Baseline Cost Model and agreed to by the project team at the same time. CM@Risk must update and maintain a detailed Project Schedule throughout pre-construction such that it will not require major changes at the start of the construction phase to incorporate CM@Risk's plan for the performance of the construction phase Work. CM@Risk must provide updates and/or revisions to the Detailed Project Schedule for use by the Project Team, whenever required, but no less often than at the Project Team meetings. CM@Risk must include with such submittals a narrative describing its analysis of the progress achieved to-date vs. the Baseline Project Schedule, including any concerns regarding delays or potential delays, and any recommendations regarding mitigating actions.

- 17.3.4 If phased construction is deemed appropriate at the time of developing the Baseline Cost Model or during the development of the Detailed Project Schedule, and City approves, CM@Risk must review the design and make recommendations regarding the phased issuance of Construction Documents to facilitate phased construction of the Work, with the objective of reducing the Project Schedule and/or Cost of the Work. CM@Risk must take into consideration such factors as natural and practical lines of work severability, sequencing effectiveness, access and availability constraints, total time for completion, construction market conditions, labor and materials availability, and any other factors pertinent to saving time and cost.
- 17.3.5 Long Lead Time Items. As part of developing the Detailed Project Schedule, CM@Risk must identify all long lead time materials, fabrications, equipment, or other items which may impact the Project Schedule and may require early action on the part of the Project Team. Dates for selecting and ordering long lead time items will be included and highlighted in the Detailed Project Schedule
- 17.3.6 Equipment Plan. Contractor must develop an Equipment Plan that addresses all rental and owned equipment, regardless of whether such equipment will be provided by CM@Risk or subcontractor(s), that will be necessary to construct the Project and the cost of which will be included as a Cost of the Work in the GMP Proposal. The Equipment Plan will seek to minimize the cost of the equipment to City and maximize the efficient and coordinated use of the equipment for completion of the Project. The Equipment Plan will not only include the costs and allowable lease rates for the equipment, but will also include an equipment schedule that will be incorporated into the Detailed Project Schedule and the Schedule of Values submitted with the GMP Proposal.
- 17.4 **DESIGN DOCUMENT REVIEWS**
- 17.4.1 CM@Risk must evaluate periodically the availability of labor, materials/equipment, cost-sensitive aspects of the design; and other factors that may create an unacceptable variance to the Baseline Cost Model and/or Baseline Project Schedule.
- 17.4.2 CM@Risk must recommend, in conjunction with the Project Team, those additional surface and subsurface investigations that, in its professional opinion, are required to provide the necessary information for CM@Risk to construct the Project. These additional investigations, if agreed to be necessary by the Project Manager and the Design Professional, will be acquired by City and copies of the reports will be provided to CM@Risk.
- 17.4.3 CM@Risk must meet with the Project Team as required to review designs during their development. CM@Risk must familiarize itself with the evolving documents through pre- construction. CM@Risk must proactively advise the Project Team and make recommendations on factors related to construction costs, and concerns pertaining to the feasibility and practicality of any proposed means and methods, selected materials, equipment and building systems, and, labor and material availability. CM@Risk must furthermore advise the Project Team on proposed site improvements, excavation and foundation considerations, as well as, concerns that exist with respect to coordination of the Drawings and Specifications. CM@Risk must use established value analysis principles in recommending cost effective alternatives.
- 17.4.4 CM@Risk must routinely conduct constructability and bid-ability reviews of the Drawings and Specifications as necessary to satisfy the needs of the Project Team. The reviews must attempt to identify all discrepancies and inconsistencies in the Construction Documents



especially those related to clarity, consistency, completeness and coordination of Work of Subcontractors and Suppliers.

- 17.4.4.1 CM@Risk must evaluate whether: (a) the Drawings and Specifications are configured to enable efficient construction; (b) design elements are standardized; (c) construction efficiency is properly considered in the Drawings and Specifications; (d) module/preassembly design is prepared to facilitate fabrication, transport and installation; (e) sequences of Work required by or inferable from the Drawings and Specifications are practicable; (f) the design has taken into consideration efficiency issues concerning access and entrance to the site, laydown and storage of materials, staging of site facilities, construction parking, and other similar pertinent issues; and (g) the design maintains continued operation of the existing City systems and maintains traffic on adjacent roadways. CM@Risk must also review the Drawings and Specifications to ensure that what is depicted therein can be constructed as designed and must promptly inform the Project Team of any issues.
- 17.4.4.2 CM@Risk must check cross-reference and complementary Drawings and sections within the Specifications and in general evaluate whether: (a) the Drawings and Specifications are sufficiently clear and detailed to minimize ambiguity and to reduce scope interpretation discrepancies; (b) named materials and equipment are commercially available and are performing well, or otherwise, in similar installations; (c) Specifications include alternatives in the event a requirement cannot be met in the field; and (d) in its professional opinion, the Project is likely to be subject to Differing Site Conditions.
- 17.4.4.3 The results of the reviews must be provided to Project Team in formal, written reports clearly identifying all reviewed documents and the discovered discrepancies and inconsistencies in the Drawings and Specifications with notations and recommendations made on the Drawings, Specifications and other documents. CM@Risk must meet with Project Team to discuss any findings and review reports.
- 17.4.4.4 CM@Risk's reviews must be from a Contractor's perspective, and though it will serve to eliminate/reduce the number of RFIs) and changes during the construction phase, responsibility for the Drawings and Specifications will remain with the Design Professional and not CM@Risk.
- 17.4.5 It is CM@Risk's responsibility to assist the Design Professional in ascertaining that, in CM@Risk's professional opinion, the Construction Documents are in accordance with applicable Laws, Regulations, or Legal Requirements, building codes, sound engineering principle's rules and regulations. If CM@Risk recognizes that portions of the Construction Documents are at variance with applicable laws, statutes, ordinances, building codes, sound engineering principle's rules and regulations, it must promptly notify the Project Team in writing, describing the apparent variance of deficiency. However, the Design Professional is ultimately responsible for the compliance of the Drawings and Specifications with those laws, statutes, ordinances, building codes, rules and regulations.
- 17.4.6 The Project Team will routinely identify and evaluate using value analysis principles and alternate systems, approaches, design changes that have the potential to reduce Project costs while still delivering a high quality and fully functional Project consistent with the Project Program. If the Project Team agrees, CM@Risk in cooperation with the Design Professional, will perform a cost/benefit analysis of the alternatives and submit such in writing to the Project Team. City, through the Project Manager, will direct which alternatives

will be incorporated into the Project. The Design Professional will have full design responsibility for the review and incorporation of CM@Risk suggested alternatives into the Drawings and Specifications. CM@Risk must analyze the costs and schedule impacts of the alternatives against the Baseline Cost Model and Schedule and provide a recommendation for the Project Team's consideration and City's approval prior to the establishment of the GMP.

17.5 **BASELINE COSTS MODEL, DETAILED COST ESTIMATES, AND SCHEDULE OF VALUES**

17.5.1 At the conclusion of the Master Planning and Programming, if required, CM@Risk will review all available information regarding the design and scope of the Project using CM@Risk's experience in performing similar work, knowledge of similar projects and current and projected construction costs and, based upon that review, must develop a Baseline Cost Model for review by the Project Team and approval by City. Once approved by City, the Baseline Cost Model will be continually referenced as detailed estimates are created as the design progresses throughout Pre-Construction until the final GMP for the entire Project is established. A final GMP for the entire Project must be established and approved by City prior to the start of construction. It is the responsibility of CM@Risk to ensure City has sufficient information to evaluate and approve a final GMP prior to the time necessary to start construction so construction can be completed within the Agreement Time. The Project Detailed Cost Estimate will be the best representation from CM@Risk of what the complete functional Project's construction costs will be as indicated by the most current available documents and will be constantly checked against the Baseline Cost Model. CM@Risk must communicate to the Project Team and assumptions made in preparing the Baseline Cost Model. The Baseline Cost Model must support CM@Risk's Detailed Cost Estimates and may be broken down initially as dictated by the available information, as required by City.

17.5.2 After receipt of the Design Professional's most current documents from certain specified pre- construction milestones, CM@Risk must provide a draft Detailed Cost Estimate including a detailed written report detailing any variances to the Baseline Cost Model and Baseline Project Schedule. The Design Professional and CM@Risk will reconcile any disagreements on the estimate to arrive at an agreed upon Detailed Cost Estimate for the construction costs based on the scope of the Project through that specified pre- construction milestone. Pre-Construction milestones applicable to this paragraph are: Master Planning and Programming, Schematic Design, 50% Design Development, 100% Design Development, and 50% Construction Drawings, If no consensus is reached, City will make the final determination. If the Project Team requires additional updates of the Detailed Cost Estimate beyond that specified in this paragraph, CM@Risk must provide the requested information in a timely manner.

17.5.3 If at any point the Detailed Cost Estimate submitted to City exceeds the previously accepted Baseline Cost Model or previously approved Detailed Cost Estimate agreed to as set forth in Section 17.5.2 above, CM@Risk must make appropriate recommendations to project Team on means/methods, materials, and or other design elements that it believes will reduce the estimated construction costs, such that it is equal to or less than the established Project Team's Baseline Cost Model.

17.5.4 Unless other levels of completion are agreed to in writing in the Construction Documents, at 50% Construction Drawings and included with the associated report, CM@Risk must also submit to the Project Team for review and approval a Schedule of Values that complies

with the following requirements. The Schedule of Values must be based on City standard bid schedule and highlight significant variances from any previously submitted Schedule of Values. The Schedule of Values must be directly related to the breakdowns reflected in the Detailed Project Schedule and CM@Risk's Detailed Cost Estimate. In addition, the Schedule of Values must: (a) detail unit prices and quantity take-offs, (b) detail all other contingencies and unit price Work shown and specified in the detailed design documents.

17.5.5 CM@Risk is to track, estimate/price and address the Project Team's overall project cost issues that arise outside of the Baseline Cost Model and the latest approved Detailed Cost Estimate such as: City generated changes, Project Team proposed changes, alternate system analysis, constructability items and value engineering analysis. The system used to implement this process will be referred to as the Design Evolution Log. This is to be addressed between the Baseline Cost Model and the Master Planning and Programming Detailed Cost Estimate, and then (unless other levels of completion are agreed to in writing in the Construction Documents) between the Detailed Cost Estimates for each of the pre-construction milestones thereafter, Schematic Design, 50% Design Development, 100% Design Development, and 50% Construction Documents, and the bid packages for all Phases.

17.5.6 Upon request by City, CM@Risk must submit to City a cash flow projection for the Project based on the current updated/revised Detailed Project Schedule and the anticipated level of payments for CM@Risk during the design and construction phases. In addition, if requested by City and based on information provided by City, CM@Risk must prepare a cash flow projection for the entire Project based on historical records for similar types of projects to assist City in the financing process.

17.5.7 Construction Water. CM@Risk must estimate the quantity of water to be used and include the cost thereof in each Detailed Cost Estimate and GMP Proposal provided by City.

17.6 **SUBCONTRACTOR AND MAJOR SUPPLIER SELECTIONS**

17.6.1 There are two ways to select Subcontractors and major Suppliers prior to submission of a GMP Proposal: (1) qualifications-based selection; or (2) a combination of qualifications and price. Except as noted below, the selection of Subcontractors/Suppliers is the sole responsibility of CM@Risk. In any case, CM@Risk is solely responsible for the performance of the selected Subcontractors/Suppliers, and for compliance with the requirements of Title 34 of the Arizona Revised Statutes in the selection of a Subcontractors/Suppliers, to the extent applicable. CM@Risk must comply with its Subcontractor Selection Plan submitted with its Statement of Qualifications.

17.6.2 City may approve the selection of a Subcontractor(s) or Suppliers(s) based only on their qualifications when CM@Risk can demonstrate it is in the best interest of the Project. All Work that is performed, after such a qualifications-based selection, for a price that is negotiated by CM@Risk will be billed in accordance with the GMP for actual costs and may be subject to audit by City.

17.6.2.1 Qualifications based selection of a Subcontractor(s)/Supplier(s) should only occur prior to the submittal of the GMP Proposal.

17.6.2.2 If a Subcontractor/Supplier selection plan was submitted and agreed to by City, CM@Risk must apply the plan in the evaluation of the qualifications of a Subcontractor(s) or Supplier(s) and provide City with its review and recommendations.

- 17.6.2.3 CM@Risk must receive written City approval for each selected Subcontractor(s) and Supplier(s).
- 17.6.2.4 CM@Risk must negotiate costs for services/supplies from each Subcontractor/Supplier selected under this method.
- 17.6.3 All Work must be competitively bid unless a Subcontractor or Supplier was selected pursuant to Section 17.6.2 above.
  - 17.6.3.1 CM@Risk must develop Subcontractor and Supplier interest, submit the names of a minimum of three qualified Subcontractors or Suppliers for each trade in the Project for approval by City and solicit bids for the various Work categories. If there are not three qualified Subcontractors/Suppliers available for a specific trade or there are extenuating circumstances warranting such, CM@Risk may request approval by City to submit less than three names. Without prior written notice to City, no change in the recommended Subcontractors/Supplies will be allowed.
  - 17.6.3.2 If City objects to any nominated Subcontractor/Supplier or to any self-performed Work for good reason, CM@Risk must nominate a substitute Subcontractor/Supplier that is acceptable to City.
  - 17.6.3.3 CM@Risk must distribute Drawings and Specifications, and when appropriate, conduct a Pre- Bid Conference with prospective Subcontractors and Suppliers.
  - 17.6.3.4 If CM@Risk desires to self-perform certain portions of the Work, it must request to be one of the approved Subcontractor bidders for those specific bid packages. CM@Risk's bid will be evaluated in accordance with the process identified below. If events warrant and City concurs that it is necessary in order to ensure compliance with the Project Schedule and/or the most recent Detailed Cost Estimate, CM@Risk may be authorized to self-perform Work without bidding or rebidding the Work. When CM@Risk self-performs work without bidding, only the actual costs associated with performing the Work in accordance with the approved GMP will be billed and may be subject to audit by City.
  - 17.6.3.5 CM@Risk must receive, open, record and evaluate the bids; provided, however, that if CM@Risk or one of its affiliates is bidding to self-perform the Work that is the subject of the bid, then the bids must be received, opened, recorded and evaluated by Project Manager instead of CM@Risk. Bids for each category of Work must be opened and recorded at a pre-determined time. The apparent low bidders must be interviewed to determine the responsiveness of their proposals. In evaluating the responsiveness of bid proposals CM@Risk, in addition to bid price, may consider the following factors: past performance on similar projects, qualifications and experience of personnel assigned, quality management plan, approach or understanding of the Work to be performed, and performance schedule to complete the Work. The final evaluation of Subcontractor/Supplier bids must be done with Project Manager in attendance to observe and witness the process. CM@Risk must resolve any Subcontractor/Supplier bid withdrawal, protest or disqualification in connection with the award at no increase in the Cost of Work.
- 17.6.4 CM@Risk will be required to prepare two different reports on the subcontracting process.
  - 17.6.4.1 Within fifteen days after each major Subcontractor/Supplier bid opening process; CM@Risk must prepare a report for City's review and approval identifying the recommended Subcontractors/Supplier for each category of Work. The report must detail:

- (a) the name of the recommended Subcontractor/Supplier and the amount of the Subcontractor/Supplier bid for each sub-agreement; (b) the sum of all recommended Subcontractor/Supplier bids received; (c) and trade work and its cost that CM@Risk intends to self-perform, if any.
- 17.6.4.2 Upon completion of the Subcontractor/Supplier bidding process, CM@Risk must submit a summary report to City of the entire Subcontractor/Supplier selection process. The report must indicate, by bid process, all Subcontractors/Suppliers contacted to determine interest, the Subcontractors/Suppliers solicited, the bids received and costs negotiated, and the recommended Subcontractors/Suppliers for each category of Work.
- 17.6.5 The approved Subcontractors/Suppliers will provide a Schedule of Values with their bid proposals, which will be used to create the overall Project Schedule of Values.
- 17.6.6 If after receipt of sub-bids or after award to Subcontractors and Suppliers, City objects to any nominated Subcontractor/Supplier or to any self-performed Work without any reasonable basis, CM@Risk must nominate a substitute Subcontractor or Supplier, preferably if such option is still available, from those who submitted Subcontractor bids for the Work affected. Once such substitute Subcontractors and Suppliers are consented to by City, CM@Risk's proposed GMP for the Work or portion thereof must be correspondingly adjusted to reflect any higher or lower costs from any such substitution.
- 17.7 **GMP PROPOSAL**
- 17.7.1 When a GMP Proposal is submitted for a phase of the Work, the GMP will have a Detailed Cost Estimate of the Costs of the Work (as set forth in Section 15.2) in each phase of the Work that is being proposed plus the current estimate for all other Work. City will not approve the GMP for the phase of work without a total estimate for the complete Project. City may request a GMP Proposal for all or any portion of the Project and at any time during pre-construction. Any GMP Proposals submitted by CM@Risk must be based on and consistent with Baseline Cost Model and the current update/revised Detailed Cost Estimate at the time of the request and include any clarifications or assumptions upon which the GMP Proposal(s) are based.
- 17.7.2 A GMP Proposal for the entire Project will be the sum of the Cost of the Work, CM@Risk Fee, and General Conditions Cost. CM@Risk guarantees to complete the Project at or less than the final GMP Proposal amount plus approved Change Orders. CM@Risk will be responsible for any costs for expenses that would cause the Cost of the Work actually incurred, including the Construction Fee and General Conditions Costs, to exceed the GMP.
- 17.7.3 CM@Risk must prepare its GMP Proposal in accordance with City's request for GMP Proposal requirements based on the most current completed Drawings and Specifications at that time, which unless otherwise directed by City in writing, will be at 100% Construction Drawings. CM@Risk must mark the face of each document of each set upon which its GMP Proposal is based. These documents must be identified as the GMP Plans and Specifications. CM@Risk must send one set of those documents to the Project Manager, keep one set and return the third set to the Design Professional.
- 17.7.4 An updated/revised Detailed Project Schedule, Equipment Plan, and Schedule of Values must be included in any GMP Proposal(s), all of which must reflect the GMP Plans and Specifications the Detailed Project Schedule must be shown in relationship to the Project Schedule and identify any variance to the Baseline Project Schedule. Any such Detailed

Project Schedule updates/revisions must continue to comply with the requirements of Section 17.3.1 through 17.3.5.

17.7.5 GMP Proposals(s) Review and Approval

17.7.5.1 CM@Risk must meet with the Project Team to review the GMP Proposal(s) and the written statement of its basis. In the event the Project Team discovers inconsistencies or inaccuracies in the information presented, CM@Risk must make adjustments as necessary to the GMP Proposal.

17.7.5.2 If during the review and negotiation of GMP Proposals design changes are required, City may authorize and cause the Design Professional to revise the GMP Plans and Specifications to the extent necessary to reflect the agreed-upon assumptions and clarifications contained in the final approved GMP Proposal. Such revised GMP Plans and Specification will be furnished to CM@Risk. CM@Risk must promptly notify the Project Team in writing if any such revised GMP Plans and Specifications are inconsistent with the agreed upon assumptions and clarifications.

17.7.6 All portions of or items comprising the GMP Proposal are subject to audit by City, as deemed appropriate by City, including, without limitation, any based upon unit prices or Work to be self- performed by CM@Risk, or its affiliates.

17.8 **PAYMENT PROCEDURE FOR PRE-CONSTRUCTION SERVICES**

17.8.1 Requests for monthly payments by CM@Risk for Pre-Construction Services must be submitted monthly and must be accompanied by a progress report, detailed invoices and receipts, if applicable. Any requests for payment must include, as a minimum, a narrative description of the tasks accomplished during the billing period, a listing of any Deliverables submitted, and copies of any Subconsultants' requests for payment, plus similar narrative and listings of Deliverables associated with their Work. Payment for services negotiated as a lump sum will be made in accordance with the percentage of work completed during the preceding month.

17.8.2 In no event will City pay more than seventy-five (75%) of the Agreement Price until acceptance of ALL Pre-Construction Services and award of the final approved Construction Services Agreement for the entire Project by City Council. If CM@Risk does not prepare a GMP Proposal that is acceptable to City, or the GMP Proposal exceeds the City's Construction Budget, then CM@Risk understands and acknowledges that it will forfeit any right to receive the 25% of the Agreement Price being retained by City.

17.8.3 CM@Risk agrees that no charges or claims for costs or damages of any type will be made by it for any delays or hindrances beyond the reasonable control of City during the progress of any portion of Pre-Construction Services specified in this Agreement. Such delays or hindrances, if any, will be solely compensated for by an extension of time for such reasonable period and may be mutually agreed between the parties. It is understood and agreed, however, that permitting CM@Risk to proceed to complete any such Services, in whole or in part after the date to which the time of completion may have been extended, will in no way act as a waiver on the part of City of any of their respective legal rights herein.

17.8.4 No compensation to CM@Risk will be allowed contrary to Article I, Chapter I, Title 34 of the Arizona Revised Statutes.

17.8.5 If any service(s) executed by CM@Risk is abandoned or suspended in whole or in part, for a period of more than 180 days through no fault of CM@Risk, CM@Risk is to be paid for the services performed prior to the abandonment or suspension.

17.9 **SURVIVAL OF THE DESIGN SERVICES AGREEMENT, DUTIES, OBLIGATIONS AND WARRANTIES**

If the GMP Proposal is accepted by City and a Construction Agreement is entered into between City and CM@Risk, the duties, obligations and warranties of CM@Risk under the Pre- Construction Services Agreement survive and are incorporated into the resulting Construction Agreement.

# General Conditions Appendices

## **SECTION 15 – APPENDICES**

The following Appendices attached hereto are referenced in the General Conditions and are incorporated herein.

- Appendix 1 – Policy Statement for Calculating Delays and Damages
- Appendix 2 – Cost Reduction Incentive Proposals for Design Bid Build Agreements
- Appendix 3 – Contractor’s Affidavit Regarding Settlement of Claims
- Appendix 4 – Forms of Performance Bond
- Appendix 5 – Forms of Payment Bond
- Appendix 6 – Dispute Resolution
- Appendix 7 – Certificate of Completion
- Appendix 8 – Construction Sign Detail
- Appendix 9 – Cost of the Work (Applicable solely to Construction Manager at Risk and Job Order Contracting)
- Appendix 10 Landscape Establishment Period



## CALCULATING DELAYS AND DAMAGES

The purpose of this policy statement is to establish guidelines and procedures for negotiation between the Contractor and City of Chandler relating to compensation for delays pursuant to Arizona Revised Statutes (A.R.S.) 34-221(F). This policy statement contains notice requirements in addition to those set forth in the Agreement Documents, and will be the Agreement Provision contemplated by that statute.

NOTE: As used herein, the term "Engineer" will refer to the City of Chandler City Engineer or his/her designated representative. Nothing in this Policy Statement will be construed to void any provision in the Agreement which requires timely notice of delays or provides for arbitration or any other procedure for settlement or provides for liquidated damages.

### I. TYPES OF DELAYS:

For the purposes of this document, there are essentially four types of delays encountered by City of Chandler Construction Contractors; excusable/compensable, excusable/non-compensable, non-excusable, and concurrent. Only delays that extend Agreement Completion Time set forth in the Agreement Document will be considered for issues relating to Agreement extensions or additional compensation. All other delays are considered to be activity delays and do not entitle the Contractor to either time extensions or additional compensation. Agreement Completion Time will be defined as the date set forth in Maricopa Association of Governments (MAG) Uniform Standard Specification Section 101 and as may be modified by the Agreement Documents.

#### A. Excusable/Compensable:

These are delays caused solely by the City's actions or inactions, are unreasonable under the circumstances, and which were not within the contemplation of the parties to the Agreement at or prior to the time of execution of the Agreement. Since the Contractor presumably has no control over the events causing the delay, he may be entitled to both Agreement time extensions and additional compensation for delay damages. Further, he/she may be entitled to additional compensation from the impact of that delay on other work. Examples of excusable/compensable (E/C) delays include: failure to properly locate an underground City-owned utility within 2 feet of the actual location; failure to relocate City-owned utilities far enough in advance of construction in an area where the Contractor is scheduled to work that it delays start or completion of the Contractor's regularly scheduled work; failure to provide City-furnished equipment or materials in a timely manner if required by the Agreement; failure to acquire necessary Right-of-Way or Public Utility Easements prior to the Contractor beginning Work in the area; failure to timely return Shop Drawings or other Agreement Submittals in accordance with the Agreement; unreasonable delay by the City in making decisions which affect critical activities; surveying errors when the City is contractually responsible for providing Project Surveying. This list is not meant to be all inclusive, but is intended merely as examples of the type of City action or inaction which can result in a Contractor's claim for additional time and

compensation.

B. Excusable/Non-compensable:

These are delays over which neither the City nor the Contractor had control. Since both parties to the Agreement have been potentially damaged by the delay, but neither have caused it, only Time Extensions are warranted. Examples of excusable, non-compensable (E/N) delays include: unusually severe weather; fire; acts of God; failure of non-City owned utilities (SRP, CenturyLink, Cable TV, Southern Pacific Railroad, and Southwest Gas, etc.) to properly or timely locate accurately; failure of non-City owned utilities to relocate in advance of construction; the voluntary or involuntary filing for Bankruptcy protection by a Supplier or Subcontractor which causes the Supplier/Subcontractor to fail to meet a contractual deadline provided the Contractor can provide documentation that he/she executed the required Purchase Orders/Subcontract Agreements and received delivery schedules which, if met, would have eliminated the delay; delays as a result of an incomplete shutdown of a City or non-City owned utility main (the City does not guarantee a complete shutdown). This list also is not necessarily all inclusive but merely indicative of type and class of E/N delays.

C. Non-excusable/Non-compensable:

These are delays caused by the actions or inactions of Contractor or an officer, employee, agent, Subcontractor, Supplier or any other party for whom the Contractor is responsible. Since the Contractor has assumed responsibility for the risks associated with the events that caused the delay, he/she are not entitled to either time extensions or monetary delay damages. All non-excusable delays are also non-compensable. Examples of non-excusable, non-compensable (N/N) delays include: failure to perform by the Contractor, its Subcontractors and/or Suppliers (except as noted in section I.B above); failure to provide adequate labor, materials, and/or equipment on the Project; failure to perform contractually-required coordination with utilities, agencies and other Contractors; failure to notify the Engineer, in writing, of delay impacts within two working days, as required by MAG 104.2.3, or the next work day, as required by MAG 109.8.2; failure to timely submit Shop Drawings; failure to pothole or otherwise visually locate utilities sufficiently ahead of the Work to allow the Engineer to direct corrective action when necessary; delays due to retesting of previously failed work, re-inspection, and/or restaking resulting from faulty workmanship, poor quality control, or lack of compliance with Agreement Specifications. Again, this list is not necessarily all inclusive.

D. Concurrent:

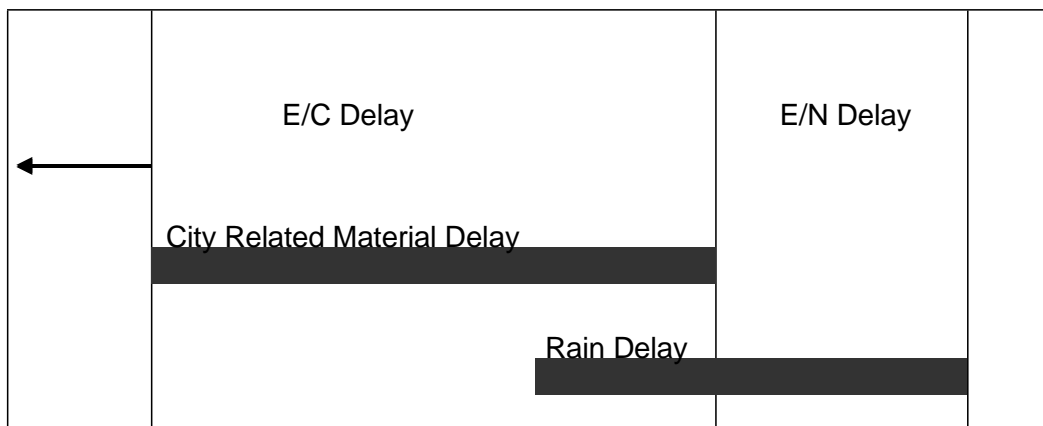
When two or more delays occur simultaneously or overlap, each delay is analyzed separately to determine its impact on the overall project completion date based on when that delay started. Once again, only those delays which actually extend the Agreement completion time are considered as delays. The concurrent delay is considered an additional delay only to the extent it prolongs

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the delay to the Agreement Completion Time beyond the date that the one it is concurrent with had already delayed that date. For example, if two delays are concurrent, and one is five days long and the second is seven days long, the second concurrent delay will only extend the Agreement Completion Time by two days. The same method of analysis is used when there are multiple concurrent delays. Only those extending the Project Completion Date are considered to be delays for the purposes of this policy. The portion of each concurrent delay that delays the completion of the work is classified in the same manner as described previously for individual delays and being either E/C, E/N or N/N.

An example of a concurrent delay is where the City delays furnishing material, but the Contractor could not have installed it anyway due to unusually severe weather. The effect of the first delaying activity will extend for the full duration and will be considered controlling on the Contractor's schedule. A subsequent, concurrent delay will thereafter only be considered to effect the project completion (if at all) once the first delaying activity has ceased to impact the project completion. In this case, if the unusually severe weather continued and delayed the work after the material was delivered, the first portion of the delay would be classified E/C (delay for material) and the second as E/N (delay due to unusually severe weather). Using the procedure set forth above, the entire concurrent portion would be considered E/C as shown in the chart which follows.

Example of a Concurrent Delay:



## II. ANALYZING THE DELAY:

The Contractor must provide all documents required or requested by the Engineer to analyze the delay(s). It is important to understand that, prior to the delay analysis, delays and their impacts are alleged issues. The information the Contractor provides will be compared with the Inspector's Daily Log, Schedules and other available Project information and together they will support or refute that delays occurred and, if so, how they impact other work and the overall project completion. The Contractor's delay in providing these documents will be considered prima facie evidence that either the delay did not occur or it did not impact the Project Completion Date and any claim for time extension or damages will be denied.

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The Engineer will accept delay analyses in CPM format, as these may demonstrate to his/her satisfaction whether or not Project Completion has been impacted by a specific event. If the Contractor chooses not to use CPM scheduling procedures, then the burden will be on the Contractor to prove to the Engineer's satisfaction that the Project Completion has been impacted. The procedures below assume that the Contractor is using CPM scheduling methods. As a minimum the Contractor must provide the following materials to the Engineer:

- A. **As-Planned Schedule.** The initial construction schedule, required by the Agreement Documents, will be considered the baseline schedule. It is to the Contractor's advantage that the As-Planned (baseline) Schedule be as detailed as possible in order for delays, as they occur, to be incorporated into the schedule in representative locations. It is also to the Contractor's advantage to use a computer software program to generate the schedule since updated schedules are required monthly by the Agreement Documents and since updated schedules are required to support delays and requests for additional compensation for delays. The As-Planned (baseline) Schedule must be presented in network format which clearly shows the interrelationships of the activities. The Contractor must also provide a printout of the activities showing early start, early finish, late start, late finish, duration and float. The activity list printout must also indicate predecessor and successor activities.
- B. **As-Built Schedules.** The as planned (baseline) schedule must be updated with complete progress-to-date information (actualized) up to the date of the start of the alleged delay. Each updated schedule will serve as the as-built schedule for analyzing the alleged delay and provide a new baseline as-planned schedule for the next delay. This process must be repeated for each alleged delay as it occurs. In updating the baseline schedule, the alleged delay must be treated as an activity and inserted into the schedule as a predecessor to the impacted activity (ies). When an activity that has already started is impacted, it is preferable to divide this activity into two parts and show the impact affecting the second part. For schedules which incorporate a time line (or data date), the delay activity must be inserted at the time it actually occurred. Some software scheduling programs have a PAUSE-RESUME feature that can be used to facilitate the requirements. The updated schedule must also be accompanied by a listing of activities as with the baseline schedule. This activities list must contain the alleged delay as an activity showing the duration and the activities which are predecessors and successors to it. When computer generated schedules are used, the Contractor must provide, in electronic media format, the complete data files for the updated schedule that included the delay activity, preferably either in Suretrak or in Microsoft Project. Each electronic media must contain a label identifying the Project name, Contractor's name, program name and version number, data date and project finish date.
- C. **Other Documents:** In order to determine the amount of the alleged delay and if it is compensable, the Contractor must provide all backup documentation relevant to the issue and as required by the Engineer. This documentation must include copies of such items as: purchase orders; delivery schedules; correspondence; memoranda of telephone calls; force account daily worksheets (initialed by the Inspector); payroll data; estimating (bid) worksheets; and any other materials which may be

requested by the Engineer.

- D. Procedure: Only after receipt of sufficient documentation will the Engineer analyze each alleged delay and determine if it is supported or refuted. If supported, the Engineer will determine if it is excusable or non-excusable, compensable or non-compensable. If the Engineer determines that the delay did not affect the Project Completion, the as-planned schedule, which has been updated to the date of the alleged delay, must be revised to indicate this. If the Engineer determines the delay did occur but was N/N, then no time extension will be granted. It is imperative that an actualized schedule be submitted as soon as the occurrence of the alleged delay is known. In no event will the Contractor submit an actualized updated schedule later than 60 days after the occurrence of the alleged delay becomes known.

If the Engineer determines the delay did occur and was excusable but, due to a reason listed in section I.B. is non-compensable, he/she will determine the length of the E/N delay and prepare a Change Order to add that time to the Agreement. The Engineer's decision will be final.

If the Engineer determines the delay was excusable and compensable, he/she will determine the length of the E/C delay and proceed to review the Contractor's damage calculations in accordance with Section III. The Engineer will check the Contractor's calculations, review the backup documentation provided, and prepare a Change Order to cover both the additional compensation and the time extension. The Engineer's decision on both the time extension and additional compensation for the delay will be final.

If the issue involves a concurrent delay, the Engineer will analyze available data to determine the portions which are E/C, E/N, and/or N/N as described above. The Engineer will proceed to determine the length of E/C delay and verify the Contractor's delay damage calculations, if any are provided. Upon completion of this review, the Engineer will prepare a Change Order for the Contractor's review and signature. The Engineer's decision regarding excusable delay and additional compensation for the delay is final.

The amount of time the Engineer will require to analyze the alleged delay(s) will depend upon the Engineer's workload, the complexity of the delay analysis, availability of supporting data, extent of cooperation by the Contractor, and other factors beyond the Engineer's control. It is entirely possible other delay(s) may occur while the Engineer is analyzing particular claim for delay(s). The Engineer's failure to respond to the Contractor in a set period of time will not be used as the basis for a further delay claim or as justification for extending and existing delay claim. The time required for delay analysis by the Engineer will not be counted against the time allotted for processing Final Payment as required by (MAG Section 109.7(B)) or the release of retention and Final Payment as prescribed by A.R.S. Arizona Revised Statutes §34-221.

III. CALCULATING MONETARY DELAY DAMAGES:

Additional compensation for delay, when authorized by the Engineer, will be calculated in accordance with MAG Section 109.5 ACTUAL COST WORK with the following exceptions:

- A. No additional compensation or other monetary damages will be awarded or paid for any loss of anticipated profits by the Contractor, Subcontractors or Suppliers.
- B. No additional compensation or other monetary damages will be awarded for home office overhead or non-project general conditions of the Contractor, Subcontractors or Suppliers.
- C. Equipment:
  - 1. Contractor-owned equipment rate calculations must be computed in accordance with Section 109.04(D)(3), Arizona Department of Transportation "Standard Specifications for Road and Bridge Construction," 2008 or latest edition and as modified herein. Year and regional adjustment factors must be based on the most recent publications of the Rental Rate Blue Book for Construction Equipment, published by the Equipment Guide-Book Company, San Jose, CA, same as provided by ADOT and in print as of the date of alleged delay. In no event will the compensation for Contractor-owned equipment exceed the purchase price, including tax, paid by the Contractor for the equipment. Compensation will not be allowed for small tools or equipment that show a daily equipment rental rate of less than \$5.00 per day or for unlisted equipment that has a value of less than for hundred dollars (\$400.00).
  - 2. For leased and rented equipment or equipment not otherwise listed in the Blue Book, rental contracts, or other supporting data will be used to establish the hourly rate. No hourly operating expense will be allowed for delay on standby equipment. In no case will equipment be considered for rental which exceeds the hourly rate for the first eight hours and the daily rate divided by eight for all additional hours as compared with similar equipment listed in the Blue Book. The hourly standby rate must be computed as the lesser of:
    - a. Dividing the monthly invoice or rental value by 176 hours per month when the equipment is utilized by the Contractor for more than three weeks;
    - b. Dividing the monthly invoice or rental value by 40 hours per week when the equipment is utilized by the Contractor for more than three days.In no event will compensation be paid for delay at more than 8 hours per day or 40 hours per week.
  - 3. Except for vehicles used by supervisory personnel, all equipment will be paid at the "standby" rate during the delay period.

## General Conditions Appendix 1

4. Equipment brought solely to mitigate the delay (such as pumps, light plants, etc.) may be paid in accordance with ADOT section 109.04(D) (3).
5. The Blue Book regional adjustment will apply in determining rental rates.

### D. Material:

Allowable material charges may include, in addition to material incorporated in the work material used to mitigate the delay such as barricades, plates, shoring, cold mix, etc. Except in emergencies the Contractor will not employ such material without the prior written approval of the Engineer.

### E. Labor:

1. Except for Supervisory Personnel (Superintendent, Project Engineer, and Foremen), labor wages will not be paid after the first one-half day of claimed delay or impact. It is expected the Contractor will reassign or layoff unneeded employees.
2. For Foreman wages to be included, that Foreman must have been actively employed on the project prior to the commencement of the delay and be directly responsible for the activity being delayed.
3. Labor burden must be actual amounts incurred but must not exceed the ADOT approved rate.

### F. All costs (equipment, material, and labor) must be substantiated by the City of Chandler's Daily Work Reports.

## IV. DOCUMENT REQUIRED FOR CLAIM ANALYSIS:

For purposes of reviewing the Contractor's request for additional compensation, it will be required that the Contractor submit the following listed information. Information requested must be prepared on forms which are substantially similar to the City of Chandler's Daily Work Report form, a copy of which is attached as an exhibit.

### A. Labor:

For each employee, laborer, and foreman, for which compensation is requested: Name, classification, dates of work performed, daily hours worked, total hours worked, labor rates, labor burden rates, overtime or premium time charges. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Certified payroll reports for the period of work claimed.
2. Accounting of Fringe Benefits – certified by a CPA.
3. Contractor's and Subcontractor's daily field reports and daily diaries.

## General Conditions Appendix 1

### B. Materials:

For all materials for which compensation is requested, if any, total quantities of materials, prices, extensions and transportation costs must be provided on a daily basis. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Invoices for all materials incorporated.
2. Weigh tickets.
3. Purchase orders.
4. Delivery schedules.
5. Quotes or proposals from manufacturers or supplier.
6. Freight bills, Bills of Lading, or other documentation to show transportation costs.
7. Restocking charges-invoices from vendor.

### C. Equipment:

For all equipment, the Contractor must provide the Engineer with the designation, dates and hours of usage, dates and hours of standby, if any, daily hours, total hours, rental rates and extension for each unit of equipment and machinery. Rental rates will be as established in Section III. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Owned:
  - a. Purchase contracts(s).
  - b. Depreciation schedule(s).
  - c. Invoices for fuel, lube, repairs and other operating costs.
2. Leased:
  - a. Lease agreement with hourly rate, overtime rate, double shift rate, etc.
  - b. Invoices or other documentation showing hours worked on a daily basis.

### D. Subcontractors/Owner-Operators:

In the event the Contractor submits a claim which includes requests for compensation for Subcontractors of Owner-Operators, the same information requested of the Contractor must be provided by the Subcontractor/Owner-Operator. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Bid/Estimate work sheets and/or spreadsheets.
2. Subcontract Agreements or Agreements with Owner-Operator.
3. All invoices and billing statements received from the Subcontractor/Owner-Operator which relates to the amount requested.

### E. Miscellaneous:



## General Conditions Appendix 1

Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Evidence of payment for bonds and insurance premiums (MAG 109.5.6).
2. Taxes – unless the Contractor can show otherwise, taxes are reimbursable at 65% of the total cost (less bonds and insurance).

### V. TIME LIMIT ON SUBMISSIONS OF CLAIM FOR DELAY OR IMPACT DAMAGES:

No claims for delay or impact damages will be considered or allowed more than 45 days after the event or occurrence which the Contractor claims gives rise to the delay or impact. In no event will a claim for delay or impact damages be considered after submission by the Contractor of the Final Payment Request.

## **COST REDUCTION INCENTIVE PROPOSALS FOR DESIGN BID BUILD AGREEMENTS**

The Contractor may submit to the Engineer proposals for modifying the Plans, Specifications, or other requirements of the Agreement for the sole purpose of reducing the total cost of Project construction. The proposals must not impair in any manner the essential functions or characteristics of the project; including but not limited to service life, economy of operations, ease of maintenance, desired appearance, compatibility with existing or planned equipment, standardization of systems, or design and safety standards.

It must not be inferred from this Policy that the Engineer is required to consider any proposal submitted.

Submissions that propose changes in the basic design of a bridge, propose changes in pipe line size, materials, bedding conditions, pipe specifications; or that propose any change in pavement design will not be considered.

Proposals submitted pursuant to this Policy will be identified as Cost Reduction Incentive Proposals. They must be submitted in writing and, at a minimum, contain the following.

1. Complete the attached or similar cost reduction incentive proposal form.
2. A description of both the existing Agreement Requirements for performing the work and the proposed changes.
3. All Engineering Drawings and computations necessary for the thorough and expeditious evaluation.
4. An itemization of the existing Agreement Requirements that must be changed if the Proposal is adopted and a recommendation as to the manner in which the change should be made.
5. A detailed estimate of the cost of performing the Work under the existing Agreement and under the proposed changes, including the cost of developing and implementing the changes.
6. The Agreement items affected by the proposed changes and any variations in quantities resulting from the changes.
7. An objective estimate of any effects the proposal will have on collateral cost to the City, costs of related items, and cost of maintenance and operation.
8. A statement as to the effect that the Proposal will have on the time for the completion of the Project.
9. A statement as to the time by which a Change Order adopting the Proposal must be executed or when the Engineer must have given verbal approval.

## General Conditions Appendix 2

Proposals will be processed expeditiously; however, the City will not be liable for any delay in acting upon any Proposal nor for any failure to accept any Proposal pursuant to this Special Provision.

The Engineer will be the sole judge of the acceptability of a Proposal and of the estimated net savings in construction costs from the adoption of all or any part of the Proposal. The Contractor will be notified in writing by the Engineer as to whether his/her Proposal has been accepted. The decision by the Engineer is final.

When the City deems such action to be appropriate, it reserves the right to require the Contractor to share equally in the cost to the City of investigating, evaluating, and processing the proposal as a condition for the consideration of such Proposal. Such cost must be shared whether the Proposal is accepted or rejected. When such a condition is imposed, the City will estimate these costs and the Contractor must indicate his acceptance thereof in writing. Such acceptance will authorize the City to deduct the Contractor's share of the costs from any monies due or that may become due to the Contractor under the Agreement.

If the Contractor's Proposal is accepted in whole or in part, the necessary Agreement Modifications and Agreement Price Adjustments will be affected by the execution of a Change Order which will specifically state that it is executed pursuant to this Special Provision.

The Contractor must continue to perform the work in accordance with the requirements of the Agreement until a Change Order incorporating the Proposal has been executed or until he/she has been given verbal approval by the Engineer that his/her Proposal has been accepted. If the Change Order has not been executed or he/she has not been given verbal approval on or before the date specified on the attached cost reduction incentive proposal form or on or before such other date as the Contractor may have subsequently specified in writing, the Proposal may be deemed to be rejected.

The executed Change Order will incorporate the changes in the Plans, Specifications, or other requirements of the Agreement which are necessary to permit the Proposal, or such part of it which has been accepted, to be put into effect, and will include any condition – upon which the City's approval thereof is based, if such approval is conditional. The executed Change Order may also extend the time for the completion of the Agreement if such an extension has been deemed to be warranted by the Engineer as a result of his evaluation of the Proposal.

The executed Change Order will also establish the estimated net savings in the cost of performing the Work attributable to the Proposal effectuated by the Change Order. In determining the net savings, the right is reserved to the Engineer to disregard the Agreement bid prices if, in his/her judgment, such prices do not represent a fair measure of the value of the Work to be performed or to be deleted. The net savings will be established by determining the Contractor's cost of performing the Work, taking into account his/her cost of developing the Proposal and implementing the change, and reducing this amount by any ascertainable collateral costs to the City. The executed Change Order may provide that the Contractor be paid 50 percent of the estimated net savings amount.

The executed Change Order may also provide for the adjustment in Agreement prices. Agreement prices may be adjusted by subtracting the City's share of the accrued net savings.

## General Conditions Appendix 2

The amount specified to be paid to the Contractor in the executed Change Order which effectuates a Cost Reduction Proposal will constitute full compensation to the Contractor for the Cost Reduction Proposal and the performance of the work thereof pursuant to the said Change Order.

Upon acceptance of a Cost Reduction Incentive Proposal, any restrictions imposed by the Contractor on its use or on disclosure of the information will become void, and the City thereafter will have the right to use all or any part of the Proposal without obligation or compensation of any kind to the Contractor.

**COST REDUCTION INCENTIVE PROPOSAL FORM**

**TO:** CIP City Engineer

**FROM:**

**PROJECT NAME:** Traffic Signal at Layton Lakes Boulevard and Queen Creek Road

**CITY PROJECT NUMBER:** DS2202.401

**DATE:**

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Summary of Change (Brief description of proposed change including advantages and disadvantages):

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ESTIMATED COST SUMMARY (Attached detailed estimate):

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|    |   |          |
|----|---|----------|
| A. | Original Cost:                                | \$ _____ |
| B. | Proposed Cost:                                | \$ _____ |
| C. | Construction Savings (A-B):                   | \$ _____ |
| D. | Gross Savings (Included OH % , Bond %)        | \$ _____ |
| E. | Contractor Implementing                       | \$ _____ |
| F. | City Implementing Cost:                       | \$ _____ |
|    | Reduction in Agreement Price (C+D-E-F) x 50%: | \$ _____ |

Date by which a Change Order must be issued so as to obtain maximum cost reduction:

**CITY OF CHANDLER, ARIZONA  
PUBLIC WORKS & UTILITIES DEPARTMENT**

**CONTRACTOR'S AFFIDAVIT REGARDING SETTLEMENT OF CLAIMS**

\_\_\_\_\_, Arizona  
Date \_\_\_\_\_

**Project Name: Traffic Signal at Layton Lakes Boulevard and Queen Creek Road  
City Project No.: DS2202.401**

To the City of Chandler, Arizona

Gentlemen:

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the total compensation of \$\_\_\_\_\_, as set out in the final pay application, as full and complete payment under the terms of the Agreement, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of the above described project. The undersigned further agrees to indemnify and save harmless the City of Chandler against any and all liens, claims or liens, suits, actions, damages, charges and expenses whatsoever, which said City may suffer arising out of the failure of the undersigned to pay for all labor performances and materials furnished for the performance of said installation.

Signed and dated at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
CONTRACTOR

By \_\_\_\_\_

STATE OF ARIZONA            )  
  ) SS  
COUNTY OF MARICOPA    )

The foregoing instrument was subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
My Commission Expires

**PERFORMANCE BOND**

ARIZONA STATUTORY PERFORMANCE BOND  
PURSUANT TO TITLES 28, 34, AND 41, ARIZONA REVISED STATUTES  
(Penalty of this bond must be 100% of the Agreement amount)

**KNOW ALL MEN BY THESE PRESENTS THAT:** \_\_\_\_\_

(hereinafter "Principal"), and \_\_\_\_\_ (hereinafter "Surety"), a corporation organized and existing under the laws of the State of \_\_\_\_\_ with its principal office in the City of \_\_\_\_\_, holding a certificate of authority to transact surety business in Arizona issued by the Director of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto \_\_\_\_\_(hereinafter "Obligee") in the amount of \_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), for the payment whereof, Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Agreement with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ for construction of **Traffic Signal at Layton Lakes Boulevard and Queen Creek Road, DS2202.401** which Agreement is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all the undertakings, covenants, terms, and conditions of the Agreement during the original term of the Agreement and any extension of the Agreement, with or without notice of the Surety, and during the life of any guaranty required under the Agreement, and also performs and fulfills all the undertakings, covenants, terms, conditions, and agreements of all duly authorized modifications of the Agreement that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond will be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this Agreement.

The prevailing party in a suit on this bond may recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
PRINCIPAL SEAL

\_\_\_\_\_  
AGENT OF RECORD

By \_\_\_\_\_

\_\_\_\_\_  
SURETY SEAL

\_\_\_\_\_  
AGENT ADDRESS

**PAYMENT BOND**

ARIZONA STATUTORY PAYMENT BOND  
PURSUANT TO TITLES 28, 34, AND 41, OF THE ARIZONA REVISED STATUTES  
(Penalty of this Bond must be 100% of the Agreement amount)

**KNOW ALL MEN BY THESE PRESENTS THAT:** \_\_\_\_\_

(hereinafter "Principal"), as Principal, and \_\_\_\_\_(hereinafter "Surety"), a corporation organized and existing under the laws of the State of \_\_\_\_\_ with its principal office in the City of \_\_\_\_\_, holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto \_\_\_\_\_ (hereinafter "Obligee") in the amount of \_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), for the payment whereof, the Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Agreement with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ for construction of **Traffic Signal at Layton Lakes Boulevard and Queen Creek Road, DS2202.401** which Agreement is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all moneys due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in said Agreement, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2 Arizona Revised Statutes, and all liabilities on this bond will be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this Agreement.

The prevailing party in a suit on this bond may recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
AGENT OF RECORD

\_\_\_\_\_  
PRINCIPAL SEAL

By \_\_\_\_\_

\_\_\_\_\_  
SURETY SEAL

\_\_\_\_\_  
AGENT ADDRESS



## **DISPUTE RESOLUTION**

### A. INFORMAL DISPUTE RESOLUTION

The parties to the Agreement agree that time is of the essence in relation to performance of the Agreement and completion of the Project, therefore any and all disputes in relation to the Agreement will initially be referred to the Project Manager, the Design Professional Representative and/or the Contractor Representative as applicable to the dispute, for immediate resolution. If, after good faith efforts to reach a resolution, none is reached, any party to the dispute may submit the dispute to the Dispute Resolution Representative ("DRR") process set forth below, which is intended to be an expedited process.

### B. DISPUTE RESOLUTION REPRESENTATIVE ("DRR") PROCESS

1. The Parties under the Agreement agree that all claims and disputes in relation to the Project which are not resolved in the ordinary course of the Project ("Claim" or "Claims") will, as a prerequisite to any mediation, or litigation of the Claim, first be submitted for resolution between the designated Dispute Resolution Representatives of the Parties as set forth herein (the "DRR Process").
2. The DRR Process will be initiated through service of a DRR Notice as set forth below:
  - a. For claims by the Contractor or the Design Professional, the DRR Process will be initiated by the party asserting the claim serving written notice on the City setting forth in detail: (i) the basis for the claim; (ii) the effect of the Claim upon the construction of, and/or Project Schedule for, the Project; (iii) the specific relief requested, the amount thereof, and how such was calculated; (iv) the parties involved in the Claim, and how they are involved; (v) the specific Agreement provisions in the Agreement Documents (including, if applicable, drawings and specifications) which apply; and (vi) efforts made to date to resolve the Claim.
  - b. For claims by the City, the DRR process will be initiated by the City providing written notice to the other parties of the basis and amount of its claim, the parties involved in the Claim, and how they are involved, the provisions in the Agreement Documents that apply, and the relief requested.
  - c. The DRR Notice will be hand-delivered and e-mailed to the other parties' designated Dispute Resolution Representatives.
3. The other parties will respond in writing to the DRR Notice ("DRR Response") within ten (10) calendar days of receipt of the DRR Notice, setting forth those items set forth in the DRR Notice that they agree with, dispute, and/or have questions concerning. The DRR Response will be hand-delivered and e-mailed to the other parties' Dispute Resolution Representatives.

4. The designated Dispute Resolution Representatives for the Parties to the claim will then meet as soon as possible and in any event within twenty (20) calendar days of submission of the DRR Notice (regardless of whether a DRR Response has been submitted by all parties involved in the dispute), at a mutually agreed upon time and place, to attempt to resolve the Claim based upon the DRR Notice and DRR Response.
5. At any time after the first meeting required above, either party may terminate the DRR Process by written notice to the other party.
6. The parties may agree, in writing, to extend or modify the time limits or other provisions of the DRR process in relation to a specific pending Claim.
7. Unless otherwise designated in a written notice to the other parties, the City and the representatives of the Contractor and of the Design Professional will act as the parties' designated Dispute Resolution Representatives.
8. If a resolution of the Claim is reached, that resolution must be set forth in writing and must be signed by the Parties' designated Dispute Resolution Representative. If the resolution involves a change in any Agreement Documents, the Agreement Price, the Project Schedule, or any other change requiring a written Change Order or Amendment, the parties must execute an appropriate written Change Order or Amendment pursuant to the terms of the Agreement Documents.

C. MEDIATION

1. Unless extended by written agreement of the parties involved in the dispute, any Claim not resolved through the DRR process set forth above within five (5) calendar days after the meeting required under B (4) above, or after the DRR is terminated pursuant to B (5) above, whichever is earlier, will be submitted to mediation as a condition precedent to litigation by either party.
2. The mediation will be commenced by written demand upon the other party for mediation. If the parties cannot agree upon a mediator within ten (10) calendar days of the written demand, either party may make a request to the Civil Presiding Judge of the Maricopa County Superior Court to appoint a mediator. The mediation will occur within forth (40) calendar days of the written demand for mediation, unless the parties agree, in writing, to a longer period of time.
3. The qualifications for the mediator will be that he/she be: (a) an experienced mediator, arbitrator or litigator of construction disputes; and (b) having engaged a significant portion of his/her time involving and/or resolving construction disputes for at least the past five (5) years.
4. Each party will provide to the other party and the mediator all of the information and documentation required under B(1) and (2) above, together with any additional information and documentation which the party believes relevant. In addition, the parties will exchange, and provide to the mediator

General Conditions  
Appendix 6

such additional memoranda, information and/or documentation, as the mediator may request, and in the form and at such times, as the mediator may direct.

5. The parties will share the mediator's fee and any filing fees equally. The mediation will be held in Chandler, Arizona, unless another location is mutually agreed upon. Agreements reached in mediation will be specifically enforceable in any court having jurisdiction thereof.

D. LITIGATION

Any claim arising out of or related to the Agreement, except Claims relating to aesthetic effect and except those claims waived as provided for in the Agreement Documents, must be resolved through litigation in the Maricopa County, Arizona Superior Court.



**CITY OF CHANDLER, ARIZONA  
PUBLIC WORKS & UTILITIES DEPARTMENT**

**CERTIFICATE OF COMPLETION**

|                             |  |                 |            |
|-----------------------------|--|-----------------|------------|
| <b>PROJECT NAME:</b>        | <b>Traffic Signal at Layton Lakes Boulevard and Queen Creek Road</b> |                 |            |
| <b>CITY PROJECT NO.:</b>    | <b>DS2202.401</b>  |                 |            |
| <b>If Federally Funded:</b> | <b>N/A</b>   |                 |            |
| <b>FEDERAL NO.:</b>         | <b>N/A</b>   | <b>ADOT NO:</b> | <b>N/A</b> |

*(This section to be completed by Prime)*

I HEREBY CERTIFY THAT ALL GOODS AND/OR SERVICES REQUIRED BY CITY OF CHANDLER FOR THIS PROJECT HAVE BEEN DELIVERED IN ACCORDANCE WITH THE AGREEMENT DOCUMENTS AND BID SPECIFICATIONS AND ALL ACTIVITIES REQUIRED BY THE AGREEMENT UNDER THE AGREEMENT HAVE BEEN COMPLETED AS OF THE COMPLETION DATE LISTED HERE:

|                                      |  |
|--------------------------------------|--|
| <b><u>FINAL ACCEPTANCE DATE:</u></b> |  |
|--------------------------------------|--|

**PRIME CONTRACTOR:**

|                   |  |              |  |
|-------------------|--|--------------|--|
| <b>FIRM NAME:</b> |  |              |  |
| <b>PRINCIPAL:</b> |  |              |  |
| <b>TITLE:</b>     |  |              |  |
| <b>SIGNATURE:</b> |  | <b>DATE:</b> |  |

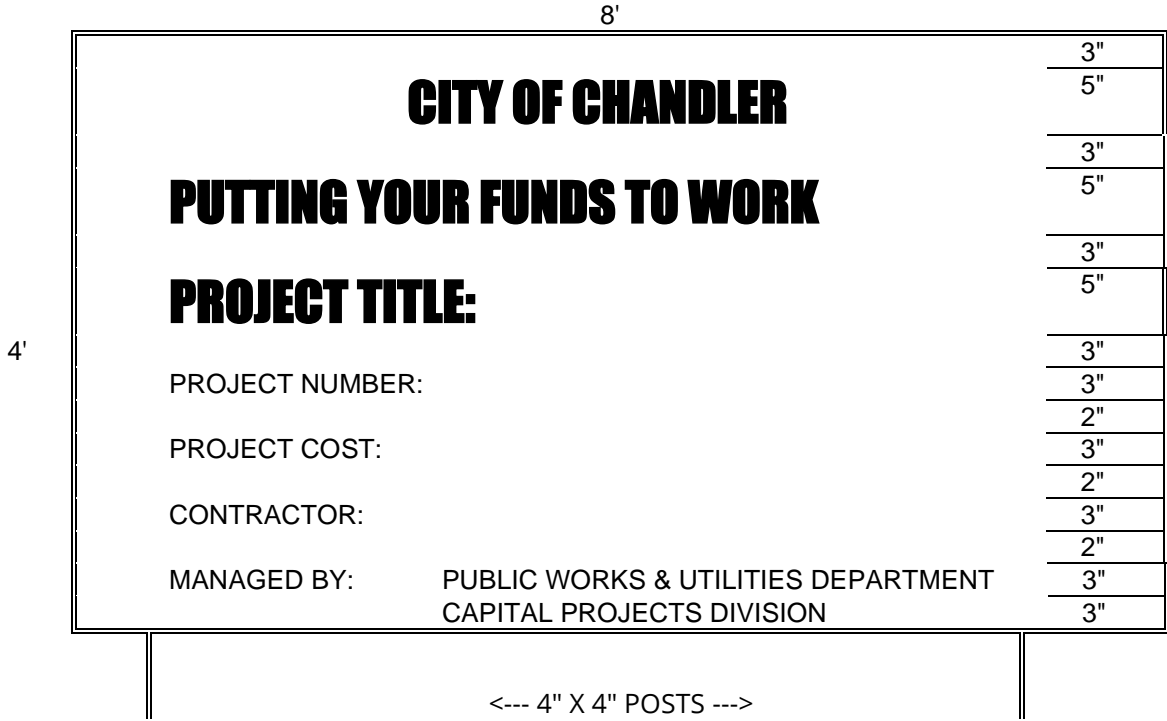
**CERTIFIED BY [INSERT NAME AND TITLE OF PARTY THAT OVERSEES CONSTRUCTION]:**

|                   |  |              |  |
|-------------------|--|--------------|--|
| <b>FIRM NAME:</b> |  |              |  |
| <b>SIGNATURE:</b> |  | <b>DATE:</b> |  |

**PROJECT ACCEPTED BY CITY OF CHANDLER:**

|                   |  |              |  |
|-------------------|--|--------------|--|
| <b>NAME:</b>      |  |              |  |
| <b>SIGNATURE:</b> |  | <b>DATE:</b> |  |

**CONSTRUCTION SIGN DETAIL**



NOTES:

SIGN(S) MUST BE FURNISHED AND ERECTED PRIOR TO COMMENCEMENT OF CONSTRUCTION. POSTS MUST BE ANCHORED A MINIMUM OF TWO FEET INTO THE GROUND. BOTTOM OF SIGN MUST BE A MINIMUM OF FOUR FEET ABOVE THE GROUND.

TYPICAL PROJECT IDENTIFICATION SIGN FOR GENERAL PROJECTS MUST BE NON-REFLECTORIZED GREEN BACKGROUND, AND NON-REFLECTORIZED WHITE LETTERS AND NUMERALS.

ONE SIGN MUST BE ERECTED FOR BUILDINGS AND OTHER LIMITED AREA SINGLE SITES. FOR MULTIPLE SITES, ONE SIGN MUST BE ERECTED AT EACH SITE.

FOR LINEAR PROJECTS ONE HALF MILE OR LONGER, PLACE ONE SIGN AT EACH END OF THE PROJECT.

## **COST OF THE WORK**

**(APPLICABLE SOLELY TO CONSTRUCTION MANAGER AT RISK AND JOB ORDER CONTRACTING)**

### **SECTION 1 – COSTS TO BE REIMBURSED**

#### **1.1 Cost of the Work**

The term Cost of the Work will mean costs necessarily incurred by Contractor in the proper performance of the Work. Such costs must be at rates not higher than the standard paid at the place of the Project except with prior consent of City. The Cost of the Work will include only the items set forth in this Section 1.

#### **1.2 Labor Costs**

- 1.2.1 Wages of construction workers directly employed by the Contractor to perform the construction of the Work at the site or, with City's approval, at off-site workshops. Cost to be reimbursed will be the actual wages paid to the individuals performing the work.
- 1.2.2 Wages or salaries of the Contractor's supervisory and administrative personnel when stationed at the site with City's approval. No Contractor personnel stationed at the Contractor's home or branch offices will be charged to the Cost of the Work. Non-field office based Contractor management and support personnel are expected to provide service and advice from time to time throughout the job and his/her time devoted to Project matters is considered to be covered by the Contractor's Fee.
- 1.2.3 Wages and salaries of Contractor's supervisory or administrative personnel who would normally be stationed at the field office in accordance with Section 1.2.2 but who become engaged, at factories, workshops or on the road, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of his/her time required for the Work. Employee bonuses and/or costs associated with Employee Stock Ownership Plans ("ESOP") will not be considered reimbursable labor or labor burden costs and will be considered non-reimbursable costs considered to be covered by the Contractor's Fee.
- 1.2.4 Costs paid or incurred by Contractor for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holiday, vacations and pensions, provided such costs are based on wages and salaries included in the Cost of the Work under Subparagraphs 1.2.1 through 1.2.3.
  - 1.2.4.1 Cost of the Work will include the actual net cost to Contractor for worker's compensation insurance attributable to the wages chargeable to the Cost of Work per this Agreement. The actual net cost of worker's compensation must take into consideration all cost adjustments due to experience modifiers, premium discounts, policy dividends, retrospective rating plan premium adjustments, assigned risk pool rebates, any applicable weekly maximums, etc. Contractor may charge an estimated amount for worker's compensation insurance costs, but will make appropriate cost adjustments to actual costs within 45 days of receipt of actual cost adjustments from the insurance carrier.

- 1.2.4.3 Overtime wages paid to salaried personnel (if approved in advance in writing by City) will be reimbursed at the actual rate of overtime pay paid to the individual. No time charges for overtime hours worked on the Project will be allowed if the individual is not paid for the overtime worked.
- 1.2.4.4 Any overtime premium or shift differential expense to be incurred by Contractor for hourly workers will require City's advance written approval before the incremental cost of the overtime premium or shift differential will be considered a reimbursable cost. If the Contractor is required to work overtime as a result of an inexcusable delay or other coordination problems caused by the Contractor or anyone he/she is responsible for, the overtime premium and/or shift differential expense portion of the payroll expense and related labor burden costs will be considered as cost not to be reimbursed.
- 1.2.4.5 Reimbursable labor burden costs will be limited to payroll taxes, worker's compensation insurance, the employer's portion of union benefit costs for union employees working on the Project, and the actual verifiable fringe benefit costs incurred by Contractor for non-union individuals working on the Project subject to the following maximum percentages for the following reimbursable non-union fringe benefit costs. The following maximums (as a percentage of reimbursable actual wages by individual) will apply for each of the following types of fringe benefit costs specifically attributable to each of the non-union personnel working on the Project:

- Medical Insurance, Dental, Life & AD&D Insurance: 12.00%
- Holiday, vacation and other paid time not worked: 10.00%
- Pension Plan Contributions to Vested Employee Account, Simplified Employee Pension Plans, or 401K matching plans (Note: ESOP related costs are covered by the Contractor Fee) 10.00%

For non-union personnel, no other fringe benefit costs (other than the three specific categories listed immediately above, will be considered reimbursable Cost of Work. Any labor burden costs that are in excess of the amounts considered reimbursable or are otherwise not considered reimbursable under the terms of this agreement are intended to be covered by the Contractor Fee.

### **1.3 Subcontract Costs**

- 1.3.1 Payments made by Contractor to Subcontractors in accordance with the requirements of the subcontracts.
- 1.3.2 For Scope of Work Bid Packages typically performed by Subcontractors, Contractor may "self- perform" such work on an actual cost basis subject to an agreed upon Guaranteed Maximum Price for the "self-performed work". The Contractor must, unless agreed to by City in writing, bid his/her proposed guaranteed Maximum Price for the work to be "self-performed" against at least three other interested trade Contractors. All savings under any such Subcontract for "self-performed work" must be applied to reduce the Cost of Work under the Agreement and the Guaranteed Maximum Price. For purposes of defining "self-performed work" subject to this provision, any division of Contractor, or any separate Contractor or Subcontractor that is partially owned or wholly owned by the Contractor or any of his/her employees or employee's relatives will be considered a related party entity

and will be subject to this provision regarding “self-performed work”. No self-performed work will be allowed to be performed on a Fixed Price basis.

- 1.3.3 Contractor (with respect to its Suppliers, Subcontractors and all lower tier Subcontractors) must provide City advance written notice and must obtain City's approval for any proposed Subcontract Change Order, Material Purchase Order, or other financial commitment in an amount in excess of \$5,000 prior to placing such order or entering into such agreement (regardless of whether or not any such commitment will affect the prime Agreement Guaranteed Maximum Cost). It is agreed that sums applicable to any Subcontract Change Order, Purchase Order or other financial commitment entered into in violation of the above notice and approval requirement will not be included in the amounts owing to Contractor, Subcontractors or Suppliers whether as Costs of the Work or as reasonable termination costs in the event of termination.

#### **1.4 Costs of Material and Equipment Incorporated in the Completed Construction**

- 1.4.1 Costs, including transportation and storage, of materials and equipment incorporated or to be incorporated in the completed construction.
- 1.4.2 Costs of materials described in the preceding Subparagraph 1.4.1 in excess of those actually installed to allow for reasonable waste and spoilage. Unused excess materials, in any, will become City's property at the completion of the Work or, at City's option, may be sold by the Contractor. Any amounts realized from such sales must be credited to City as a deduction from the Cost of Work.
- 1.4.3 Proceeds from the sale of recyclable materials, scrap, waste, etc. will be credited to job cost.

#### **1.5 Costs of Other materials and Equipment, Temporary Facilities and Related Items**

- 1.5.1 Costs, including transportation and storage, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers, that are provided by the Contractor at the site and fully consumed in the performance of the Work; and cost (less salvage value) of such items if not fully consumed, whether sold to others or retained by Contractor. Cost for items previously used by Contractor will mean fair market value.
- 1.5.2 Rental charges for temporary facilities, machinery, equipment, and hand tools not customarily owned by construction workers that are provided by Contractor at the site, whether rented from Contractor or others, and costs of transportation, installation, minor repairs and replacements, dismantling and removal thereof. Rates and quantities of equipment rented will be subject to City's prior written approval.
- 1.5.2.1 The Projected usage for each piece of equipment to be rented for use on the Project and the estimated total rentals must be considered by Contractor before the piece of equipment is rented so that an appropriate rent versus buy decision can be made. Purchased equipment must be considered “job owned”. At the completion of the Project, Contractor must transfer title and possession of all remaining job-owned equipment to City, or Contractor may keep any such equipment for an appropriate fair market value credit to job cost, which will be mutually agreed to by City and Contractor.



1.5.2.2 Each piece of equipment to be rented must have hourly, daily, weekly and monthly rates and the most economical rate available will be reimbursed based on the circumstances of actual need and usage of the piece of equipment while it is stationed at the jobsite. When the piece of equipment is no longer needed for the work, no rental charges will be reimbursed if the piece of equipment remains at the jobsite for the convenience of Contractor.

### **1.5.2.3 Equipment Rental Rates**

1.5.2.3.1 Compensation for equipment used on the Project will be paid in accordance with the Equipment Plan submitted by Contractor in the accepted GMP Proposal and no payments will be made in excess of the rates set forth in the Equipment Plan, or actual documented costs, whichever is less.

1.5.2.3.2 All equipment rental rates and costs are subject to City's right to audit when submitted as part of Equipment Plan and/or at any time during the Project.

1.5.2.4 The aggregate rentals chargeable for each piece of Contractor owned tools or equipment must not exceed 50% of the fair market value of such equipment at the time of its commitment to the Work. The original purchase price and date of purchase of the equipment will be documented with a copy of the purchase invoice for the piece of equipment. Such aggregate limitations will apply and no further rentals will be charged even if a piece of equipment is taken off the job and is later replaced by a similar piece of equipment. For purposes of computing the aggregate rentals applicable to aggregate rental limitations, rental charges for similar pieces of equipment will be combined if the pieces of equipment were not used at the same time.

1.5.2.5 Fair market value for used material and equipment as referred to in the Agreement Documents will mean the estimated price a reasonable purchaser would pay to purchase the used material or equipment at the time it was initially needed for the job. Note: This is usually lower than the price a reasonable purchaser would pay for similar new construction material or construction equipment.

1.5.2.6 All losses resulting from lost, damaged or stolen tools and equipment will be the sole responsibility of Contractor, and not City, and the cost of such losses will not be reimbursable under the Agreement.

1.5.2.7 Contractor will be required to maintain a detailed equipment inventory of all job-owned equipment (either purchased and charged to job cost or job-owned through aggregate rentals) and such inventory must be submitted to City each month. For each piece of equipment, such inventory should contain at a minimum (1) original purchase price or acquisition cost (2) acquisition date (3) approved Fair Market Value at the time the piece of equipment was first used on the job and (4) final disposition.

1.5.2.8 All costs incurred for minor maintenance and repairs will be reimbursed at actual cost. Such costs include routine and preventative maintenance, minor repairs and other incidental costs. Repairs and/or replacement of a capital nature are considered to be covered by the rental rates. Major repairs and overhauls are not considered routine and ordinary; consequently such costs are not reimbursable and are intended to be covered by the rental

rates.

- 1.5.3 Costs of removal of debris from the Site.
- 1.5.4 Costs of document reproductions, facsimile transmissions and long-distance telephone calls, postage and parcel delivery charges, telephone service at the site and reasonable petty cash expenses of the site office.
- 1.5.5 That portion of the reasonable expenses of Contractor's personnel incurred while traveling in discharge of duties connected with the Work.
  - 1.5.5.1 No travel expenses will be reimbursed to Contractor's representatives unless Project related travel required them to travel to a destination more than 100 miles from the Project location. Any travel involving airfare will require advance written approval by an authorized City's representative.
- 1.5.6 Costs of materials and equipment suitably stored off the site at a mutually acceptable location, if approved in advance by the City.
- 1.5.7 Reproduction costs will be the actual costs of reproduction subject to a maximum of five cents (\$.05) per square foot for prints and a maximum of five cents (\$.05) per 8 ½ by 11-inch page for offset print or photo copied agreement documents, specifications, etc. Telephone costs will be the actual costs paid to the third party telephone company for the field office telephone.

## **1.6 Miscellaneous Costs**

- 1.6.1 That portion of insurance and bond premiums that can be directly attributed to the Agreement. The City will reimburse Contractor for contractually required bond at time of first pay application for GMP and Cost-Based Agreements upon receipt of proof of payment from the Contractor. If the Contractor completes Work for less than the Agreement Price, Contractor must credit the City a pro-rated amount for the unused portion of the bond payment
  - 1.6.1.1 Contractor's actual cost for insurance will be considered to be included within the Maximum limit for General Conditions Costs. All premiums for any insurance and bonds required for the Project must reflect the net actual costs to Contractor after taking into consideration cost adjustments due to experience modifiers, premium discounts, policy dividends, retrospective rating plan premium adjustments, assigned risk pool rebates, refunds, etc.
  - 1.6.1.2 The amount to be reimbursed to Contractor for all contractually required insurance will be actual costs not to exceed a total of 2% of the Agreement Value, unless Contractor establishes to City's satisfaction that the actual cost is higher and City agrees to such actual higher cost in writing. If Contractor's cost of contractually required insurance is greater than the amount agreed to be reimbursed per this Agreement Provision, the difference will be considered to be covered by the Contractor's Fee. The City will reimburse Contractor for contractually required insurance on a monthly basis for GMP and Cost-Based Agreements. If Contractor can demonstrate substantial savings by paying for all insurance in advance, the City may agree to reimburse all insurance costs at time of first pay

- application for GMP and Cost-Based Agreements with proof of payment from Contractor.
- 1.6.2 Sales, use or similar taxes imposed by a governmental authority that are related to the Work.
- 1.6.3 Fees and assessments for the building permit and for other permits, licenses and inspections for which Contractor is required by the Agreement Documents to pay.
- 1.6.4 Fees of laboratories for tests required by the Agreement Documents, except those related to defective or nonconforming Work and which do not fall within the scope of ¶ 1.7.3 below.
- 1.6.5 Royalties and license fees paid for the use of a particular design, process or product required by the Agreement Documents; the cost of defending suites or claims for infringement of patent rights arising from such requirement of the Agreement Documents; and payments made in accordance with legal judgments against Contractor resulting from such suites or claims and payments of settlements made with City's consent. However, such costs of legal defenses, judgments and settlements must not be included in the calculation of the Contractor's Fee or subject to the Guaranteed Maximum Price.
- 1.6.6 Data processing costs related to the Work. However, any such data processing costs will be limited to the cost of personal computer hardware used at the field office in the normal day to day administration, management and control of the Project. The aggregate charges for any such hardware must not exceed the Fair Market Value of the hardware at the time it was brought to the field office. If the total charges for any particular piece of hardware reach an amount equal to the Fair Market Value, that particular piece of hardware must be turned over to City whenever it is no longer needed for the Project. If Contractor elects to keep the particular piece of hardware, the job costs must be credited with a mutually agreeable amount which will represent the Fair Market Value of the particular piece of hardware at the time it was no longer needed for the job. Software or other costs associated with the use of computer programs will not be considered to be a reimbursable cost and will be considered to be covered by the Contractor's Fee.
- 1.6.7 Deposits lost for causes other than Contractor's negligence or failure to fulfill a specific responsibility to City as set forth in the Agreement Documents.
- 1.6.8 Legal, mediation and arbitration costs, including attorneys' fees, other than those arising from disputes between City and Contractor, reasonably incurred by Contractor in the performance of the Work and with City's prior written approval; which approval will not be unreasonably withheld.
- 1.6.9 Expenses incurred in accordance with Contractor's standard personnel policy for relocation and temporary living allowances of personnel required for the Work, if pre-approved by City in writing. If City authorizes the reimbursement of relocation costs, the reimbursable relocation expenses will be limited to a maximum of \$50,000 per person. Any relocation cost incurred by Contractor in excess of the amount reimbursed by City will be considered to be covered by the Contractor's Fee.

## **1.7 Other Costs and Emergencies**

- 1.7.1 Other costs incurred in the performance of the Work if and to the extent approved in

advance in writing by City.

- 1.7.2 Costs due to emergencies incurred in taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property.
- 1.7.3 Costs of repairing or correcting damaged or nonconforming Work executed by Contractor, Subcontractors or Suppliers, provided that such damaged or nonconforming Work was not caused by negligence or failure to fulfill a specific responsibility of Contractor and only to the extent that the cost of repair or correction is not recoverable by Contractor from insurance, sureties, Subcontractors or Suppliers.

## **1.8 Related Party Transactions**

- 1.8.1 The term “related party” will mean a parent, subsidiary, affiliate or other entity having common ownership or management with Contractor; any entity in which any stockholder in, or management employee of, Contractor owns any interest in excess of ten percent in the aggregate; or any person or entity which has the right to control the business or affairs of Contractor. The term “related party” includes any member of the immediate family of any person identified above.
- 1.8.2 If any of the costs to be reimbursed arise from a transaction between Contractor and a related party, Contractor must notify City in writing of the specific nature of the contemplated transaction, including the identity of the related party and the anticipated cost to be incurred, before any such transaction is consummated or cost incurred. If City, after such notification, authorizes in writing the proposed transaction, then the cost incurred will be included as a cost to be reimbursed, and Contractor must procure the Work, equipment, goods or service from the related party, as a Subcontractor. If City fails to authorize the transaction, Contractor must procure the Work, equipment, goods or service from some person or entity other than a related party.

## **SECTION 2 – COSTS NOT TO BE REIMBURSED**

- 2.1 The Cost of Work must not include:
  - 2.1.1 Salaries and other compensation of Contractor’s personnel stationed at Contractor’s principal office or offices other than the site office, except as specifically provided in Subparagraphs 1.2.2 and 1.2.3.
  - 2.1.2 Expenses of Contractors’ principal office and offices other than the site office.
  - 2.1.3 Overhead and general expenses, except as may be expressly included in Section 1.
    - 2.1.3.1 Costs of Contractor’s home office computer services or other outside computer processing services will be considered overhead and general expense. Accordingly, Contractor should not plan to perform any such computer related services or alternatives at the field office when such services or functions can be performed at Contractor’s home or branch offices, or other outside service locations.
  - 2.1.4 Contractor’s capital expenses, including interest on Contractor’s capital employed for the Work.

- 2.1.5 Rental costs of machinery and equipment, except as specifically provided in subparagraph 1.5.2.
- 2.1.6 Except as provided in Subparagraph 1.7.3 of the Agreement, costs due to the negligence or failure to fulfill a specific responsibility of Contractor, Subcontractors and Suppliers or anyone directly or indirectly employed by any of them or for whose acts of them may be liable.
- 2.1.7 Any cost not specifically and expressly described in Section 1.
- 2.1.8 Costs, other than costs included in Change Orders approved by City that would cause the GMP to be exceeded.

### **SECTION 3 – DISCOUNTS, REBATES, REFUNDS AND SAVINGS**

- 3.1 Cash discounts obtained on payments made by Contractor will accrue to City if (1) before making the payment, Contractor included them in an Application for Payment and received payment therefore from City, or (2) City has deposited funds with Contractor with which to make payments; otherwise, cash discounts will accrue to Contractor. Trade discounts, rebates, refunds and amounts received from sales or surplus materials and equipment will accrue to City, and Contractor must make provisions so that they can be secured.
  - 3.1.1 Cost of the Work will be credited with all insurance policy discounts, performance and payment bond rebates or refunds, refunds or return premiums from any Subcontractor default insurance, refunds or rebates from any Contractor controlled insurance programs applicable to the Project, merchandise rebates of any nature, refunds of any nature, insurance dividends; and a portion of any volume rebates or free material credits earned with purchase of material or other goods and services charged to the job.
  - 3.1.2 “Cash” discounts which may accrue to Contractor will be limited to a maximum of 1.5% of invoice cost. Any portion of “Cash” discounts greater than 1.5% will automatically accrue to City if Contractor is eligible to take advantage of the discounts.
- 3.2 Amounts that accrue to City in accordance with the provisions of Paragraph 3.1 will be credited to City as a deduction from the Cost of the Work.
- 3.3 Any and all savings on the GMP, or any separately guaranteed items comprising the GMP, will belong to City, subject to any express right in the Agreement for Contractor to share in savings. Savings are subject to City’s right to audit, and may be audited separately.

### **SECTION 4 – GENERAL CONDITIONS COSTS**

- 4.1 General Conditions Costs may include, but are not limited to, the following types of costs incurred by Contractor during construction of the Work to the extent they are reimbursable Costs of the Work as delineated above: payroll costs for Work conducted at the site, payroll costs for the superintendent and full-time general foremen, payroll costs for management

## General Conditions Appendix 9 – CM@Risk & JOC

personnel resident and working on the site workers not included as direct labor costs engaged in support (e.g. loading/unloading, clean-up, etc.), administrative office personnel, costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses, utilities, fuel, sanitary facilities and telephone services at the site, costs of liability insurance premiums not included in labor burdens for direct labor costs, costs of bond premiums, costs of consultants not in the direct employ of Contractor or Subcontractors, fees for permits and licenses.

- 4.2 General Conditions Costs may be paid on a percentage of the Agreement Price or on a lump/stipulate sum basis as set forth in the Agreement. All costs included in the General Conditions Costs will not be separately invoiced to or paid by City.
- 4.3 The total amount of General Conditions Costs for the Work may be divided by the number of days allowed for performance of the Work, to determine a fixed daily rate for General Conditions Costs that may be used in computing the General Conditions Costs allocated to any period of time, or for any adjustments in the General Conditions Costs agreed to in writing by City.

## LANDSCAPE ESTABLISHMENT PERIOD

### **Section 1 – Description and General**

Contractor is in direct control of work performed under the Landscape Establishment Period. If work is subcontracted, a representative of the Contractor will be present at the site of the work for all hours that the subcontractor works. Subcontracting of Landscape Establishment work will be permitted for weed eradication with herbicides, because of special licensing. A licensed temporary service may be used to supply labor to Contractor if Contractor has received approval from City Representatives. Contractor will submit the required subcontract documentation.

Contractor must provide adequate personnel to accomplish the required maintenance of the plant materials at intervals acceptable to City Representatives.

If not healthy at the end of the maintenance period, the maintenance must be continued until the plant material is approved by City.

#### **1.1 Time and Schedule**

Unless otherwise expressly agreed to in writing by City, the Landscape Establishment Period will be per General Conditions Section 6.5.4.

#### **1.2 Planted Stock and Seeding Establishment**

- 1.2.1 Tree planting and staking must be per City of Chandler Standard Detail C-801.
- 1.2.2 All trees will stand erect on their own without stakes when brought to this site. If the tree cannot stand on its own when nursery stakes are removed, the tree will be removed and replaced.

#### **1.3 Pre-Emergent Herbicide and Weed Control**

- 1.3.1 Contractor will provide three applications of an approved pre-emergent herbicide on all unpaved areas of the project, as directed by City Representatives, to control weed growth in all areas of the project. The number of applications may be increased as directed by the City Representative, and at no additional cost to City, if the City Representative deems additional applications are required to control weed growth.
- 1.3.2 Application sequence will be approved in advance by City. The first application of pre-emergent will be completed prior to the application of Decomposed Granite and will be included with the cost of the Decomposed Granite as specified and part of the Construction Phase portion of work. The second application of pre-emergent will be completed after installation of the Decomposed Granite and no later than half-way through the Landscape Establishment Period. The third and final application of pre-emergent will be applied 15 days prior to completion of the Landscape Establishment portion of the project. The second and third pre-emergent applications will be included with the cost of Landscape Establishment. Watering will be completed in accordance with the manufacturer's recommendations, as included and as related to each application.
- 1.3.3 The pre-emergent herbicide will be applied in accordance with the Technical Specifications and the recommendations of the pre-emergent herbicide manufacturer, as approved by City Representatives.

General Conditions  
Appendix 10

- 1.3.4 The control of weeds will be accomplished by the use of herbicides. Manual removal of weeds will be required, after herbicides have taken affect.
- 1.3.5 Contractor is responsible for the removal and disposal of all trash and debris that during the Landscape Establishment Period. Contractor will keep the project in a neat and orderly manner during the duration of the Landscape Establishment Period.

**1.4 Water**

The water used during Landscape Establishment to properly maintain the plant material will be furnished by City, at designated sources from within the project limits, at no charge to Contractor. Contractor will be responsible for all equipment, materials and labor necessary to load, transport and unload water for watering purposes.

**1.5 Plant Material Replacements**

The plant material replacement will be considered as included in the work for Landscape Establishment, and will be made at no charge to the City.

- 1.5.1 Shrub and Plant Replacement - During the second half of the Landscaping Establishment period, Contractor will provide, where required, plant replacements as follows:

| <u>Original Size</u> | <u>Replacement Size</u> |
|----------------------|-------------------------|
| 1 gallon             | 5 gallon                |
| 5 gallon             | 15 gallon               |
| 15 gallon            | 24-inch box             |
| 36-inch box          | 48-inch box             |

- 1.5.2 Tree Replacement – During the second half of the Landscape Establishment Period, Contractor will provide plant material replacements for existing plants that die as follows:

| <u>Existing Plant Material Sizes</u> | <u>Replacement Size</u> |
|--------------------------------------|-------------------------|
| Trees:                               |                         |
| 2-inch Caliper                       | 24-inch box             |
| 4-inch Caliper                       | 36-inch box             |
| 6-inch Caliper and greater           | 54-inch box             |
| Shrubs:                              |                         |
| All Existing Shrubs                  | 15 gallon               |

**1.6 Measurement and Payment**

See Technical Specifications for Measurement Payment provisions.



**EXHIBIT C**

**TECHNICAL SPECIFICATIONS**



TRAFFIC SIGNAL AT  
LAYTON LAKES BLVD AND QUEEN CREEK RD

CITY OF CHANDLER PROJECT NO. DS2202.401

**TECHNICAL SPECIFICATIONS**

PREPARED FOR:

CITY OF CHANDLER  
PUBLIC WORKS & UTILITIES  
CAPITAL PROJECTS

PREPARED BY:

**Kimley»Horn**

1661 EAST CAMELBACK ROAD, SUITE 400  
PHOENIX, AZ 85016

**DATE: SEPTEMBER 2024**



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## **PART A: BID ITEMS**

The following items, though not a comprehensive list, are non-payment items being considered incidental to the project, the costs of which are to be included within other bid items:

- Saw cutting
- Locating (or pothole) of new or existing utilities
- Concrete curb and gutter transition, MAG Std. Det. 221
- Curb transition, MAG Det. 220-2 and 221
- SWPPP preparation and document maintenance
- Contractor's site office or yard.
- Roadway sweeping
- Any and all permits – preparation costs and permit fees
- Protective fencing or plating for open trenches
- Photographing and videotaping of the project
- Preparation of record drawings
- Crown line
- Temporary pavement as required for all pipeline and underground work
- Removal of existing landscape irrigation pipe, tubing, and equipment

### **ITEM NO. 1      CONSTRUCTION SURVEYING AND LAYOUT**

#### **Description:**

The Contractor will furnish all labor, materials, and equipment necessary to perform all surveying, staking, laying out of control lines, and verifications of the accuracy of all existing control points that are delineated in the Contract Documents. The work will be done under the direction of a Registered Land Surveyor (RLS) licensed to practice in the State of Arizona.

#### **Construction Requirements:**

**Staking Outline:** Prior to beginning any survey operations, the Contractor will furnish to the Engineer, 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 will also be a schedule that 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 will furnish field books to be used for recording survey data and field notes. These books will be available for inspection by the City at any time and will become the property of the City upon completion of the work.

**Survey Control Verification:** Control Points (horizontal and vertical) -The existence and

location of all survey monuments, benchmarks, and control points will be verified prior to demolition or construction activity. Immediately notify the City of Chandler Project Manager when location discrepancies greater than 0.02 foot horizontal or 0.01-foot vertical are found. All datum will be based upon the City of Chandler datum.

**Control Lines:** Construction control lines with grade breaks, transition points, horizontal and vertical curves, etc., will be established and referenced prior to construction.

**Temporary Benchmarks:** Temporary benchmarks will be established prior to construction, maintained and periodically verified for accuracy throughout the construction phase.

**Pre-Construction Location Survey:** All existing features will be located prior to construction, 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 will be re-locatable after construction. Distances measured will be within 0.01 foot.

**Survey monuments:** The land surveyor will follow the requirements of A.R.S. § 33-103 when establishing, replacing or setting Public Land System Survey monuments at Section or Quarter Section corners and will follow the requirement in Section 9© of the Arizona Boundary Survey Minimum Standards when establishing new or replacement boundary monuments and witness corner monuments. Finally, land surveyors will also comply with the requirements of A.R.S. § 104 through 106 when establishing, replacing or setting any type of boundary monument. Whenever any monuments are established, including those set to replace missing or damaged monuments of a previous survey, those actions require the surveyor to create and record a survey drawing documenting the new monumentation as established.

**Water and Sewer Line Appurtenances:** Water and sewer line surface appurtenances such as manholes, valves, and cleanouts that lie within the construction area will be located and noted on the contractor's approved construction documents prior to any demolition or excavation.

**Match Points and Removals:** Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify City Representatives when location discrepancies of connecting facilities greater than 0.10 foot horizontal or 0.02-foot vertical are found.

**Construction Stakes:** The Contractor will 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 will be responsible for their conformance with the Project Plans and Technical Specifications.

The stakes will be established in accordance with the following guidelines which represent the minimum standard and the Contractor will provide additional stakes and controls necessary to perform the work. The Contractor will 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) Roadway:** Subgrade stakes will be set to subgrade elevation at 50-foot intervals on straight sections, 25 foot intervals through vertical curves, on horizontal curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves and grade breaks. Stakes will 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 20 feet. ABC stakes will be set to ABC elevation at 33-foot intervals on straight sections, 25 foot intervals through vertical curves, on horizontal curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves, and grade breaks. Stakes will 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 20 feet.

- (1) Where the existing pavement will be milled and inlayed, the Contractor will provide 10-foot grid interval surface control horizontally and vertically.
- (2) Pavement edges will 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 will be set to finished elevation at 33-foot intervals on straight sections, 25-foot intervals on curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves, and grade breaks.

**(b) Sidewalk and Bike Paths:** Stakes are not required for sidewalks five feet or less in width which are adjoining existing curb and gutter.

- (1) Sidewalk stakes will be set to grade on an offset and tacked for line at 25-foot intervals at the beginning and end of horizontal and vertical curves and grade breaks.

**(c) Storm Sewer and Drainage:** All cuts will be to the invert of the pipe, given to the nearest 0.01 of a foot.

- (1) Stakes for storm sewer will be driven flush with the existing ground, set on an offset at 50-foot 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 will be marked with the offset and indicated cut to top of manhole

grade and inverts.

- (4) Stakes for storm water inlets, two per inlet, will be set on a line normal to the roadway at the center line of the inlet five and ten 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 will be supplied to the Contractor and City of Chandler Inspector.
- (d) Water:** All cuts will be to the invert of the pipe, given to the nearest 0.10 of a foot.
- (1) Stakes for water will be driven flush with the existing ground, set on an offset at 50-foot 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 stakes per hydrant set parallel with the roadway five 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 stakes per meter set parallel with the roadway five 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 will be supplied to the Contractor and City of Chandler Inspector.
- (e) Traffic Signing, Striping and Detector Loops:** The Contractor will delineate the procedures and controls to be utilized in the Staking Outline.
- (f) 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 may order any or all of the staking and layout work redone at no additional cost.

### **Measurement and Payment:**

Construction Surveying and Layout will be measured as a single complete unit of work and paid at the contract lump sum price, which price will be 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 will be the basis on which monthly progress payments will be made. This schedule will 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 NO. 2 OWNERS ALLOWANCE:**

### **Description:**

This bid item provides a funding mechanism up to the bid item amount to perform out of scope work per General Conditions Section 9 – Changes to the Agreement. Reimbursement from this allowance (in whole or in part) is not ensured and shall not be anticipated, nor planned on receiving. The amount from this allowance shall be included in the total agreement amount as part of this project.

### **Construction Requirements:**

Any deductions or increases in the agreement price must be captured in an approved Owners Allowance request, which is supported by backup per General Conditions Section 7 – Agreement Price, or as the Project Owner and City Construction Representative may require. To use this Owners Allowance, the contractor must work with the City Construction Representative to receive final concurrence from the Project Owner.

Any work performed or costs incurred by the Contractor before an approved Owners Allowance Request will be the responsibility of the Contractor and will not be reimbursed.

### **Measurement:**

There is no direct measurement for the Owners Allowance. The allowance is a fixed amount designated in the construction agreement, to be utilized only as directed by the City Construction Representative with final concurrence from the Project Owner. The contractor is responsible for tracking the Owners Allowance costs to verify they are within the bid item amount.

### **Payment:**

Payments will be made based on actual costs incurred and approved through Owners Allowance Requests, up to the total amount of the Bid Item. Any unused portion of the Owners Allowance will not be paid out and shall be removed at the end of the project through the close out Change Order. No additional payment will be made for costs exceeding the allowance and will require the contractor to submit a formal Owners Allowance request prior to starting work.

## **ITEM NO. 3 EROSION CONTROL (SWPPP PREPARATION, INSTALLATION, MAINTENANCE, AND REMOVAL)**

### **Description:**

The work under this item shall include furnishing a City approved Storm Water Pollution

Prevention Plan (SWPP). The work shall also include furnishing, installing, maintaining, removing, and disposing of temporary erosion control measures as shown on the SWPP, as directed by City Representatives, and in accordance with ADOT Standard Specifications Section 810.

**Materials:**

All materials shall conform to the requirements of ADOT Standard Specifications Subsection 810-2.

**Construction Requirements:**

All work under this item will be completed in conformance with the approved SWPP, ADOT Standard Specifications Subsection 810-3, as directed by the City Representative, and all applicable City, County, State, and Federal regulations.

**Measurement and Payment:**

Erosion Control will be measured as a single complete unit of work and shall be paid for at the contract unit price lump sum, which price will be full compensation for the work, complete in place, including all materials, SWPP Plan, preparation, installation, maintenance, and removal of all temporary erosion control measures as described in herein and in the SWPP plan.

No payment will be made for rejected best management practices, for maintenance after a storm event, or for damage by the contractor. No allowance will be made for extra material used in overlapping at splice joints.

**ITEM NO. 4 MOBILIZATION/DEMOBILIZATION**

**Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary to conform to MAG Uniform Standard Specifications Section 109.10.

**Measurement and Payment:**

Mobilization/Demobilization will be measured as a single complete unit of work and paid at the contact lump sum price, which price will be full compensation for the work, complete in place.

## **ITEM NO. 5 SUBGRADE PREPARATION**

### **Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary for the excavation for the grading and construction of the roadway as specified in the Project Plans.

### **Construction Requirements:**

Subgrade Preparation will comply with MAG Standard Specifications Section 301 in its entirety, except as modified herein.

### **Measurement:**

Subgrade Preparation will be measured per square yard including roadway excavation, borrow excavation, and fill construction.

### **Payment:**

The accepted quantity of Subgrade Preparation, measured as provided above, will be paid for at the contract unit price per square yard, which price will be full compensation for the work, complete in place.

## **ITEM NO. 6 REMOVE AND REPLACE ASPHALTIC CONCRETE PAVEMENT**

### **Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary to remove, dispose, and replace existing asphaltic concrete pavement, including asphaltic surface and base course, aggregate base course, and tack coat at locations as specified on the project plans.

### **Materials and Construction Requirements:**

All Materials and construction methods used in the removal, disposal, and replacement of asphaltic concrete pavement, including asphaltic surface and base course, aggregate base course, and tack coat, shall conform to the requirements of City of Chandler applicable design, standard details, specifications, and supplements, and MAG Standard Specifications Section 205, 310, 336, 350, 601, and 702 except as modified herein.

Asphaltic Concrete Pavement mix design will conform to current East Valley Asphalt Committee (EVAC) Hot Mix Approved Asphalt Mixes. For current EVAC specifications see City of Mesa website located here:

<http://www.mesaaz.gov/business/engineering/approve-products-equipment-natural->

[gasline-contractors.](#)

The work under this item shall match gradation and thickness of existing asphaltic pavement structural section. Contractor shall remove existing asphaltic concrete surfacing and base course, and aggregate base, regardless of thickness. Butt joints on previously placed cooled pavement shall be tack coated prior to continuing the paving operation. The Contractor shall replace traffic marking markings, in kind, per City of Chandler design, standards, and details.

**Measurement:**

Remove and Replace Asphaltic Concrete Pavement will be measured per square yard, based on actual field measurement of area, including asphaltic surface and base course, aggregate base course, and tack coat.

**Payment:**

Remove and Replace Asphaltic Concrete Pavement, measured as provided above, will be paid for at the contract unit price per square yard, which price will be full compensation for the work, complete in place, including asphaltic surface and base course, aggregate base course, and tack coat.

**ITEM NO. 7      VERTICAL CURB & GUTTER, TYPE A, H=6 IN, MAG DET 220-1**

**Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary to construct new curb and gutter at locations as specified in the Project Plans.

**Materials:**

Vertical Curb & Gutter will comply with MAG Details 220-1.

**Construction Requirements:**

The work under this item will comply with MAG Standard Specifications Section 340 in its entirety, and MAG Standard Detail 220-1.

**Measurement and Payment:**

Vertical Curb & Gutter will be measured per linear foot and will be paid for at the contract unit price per linear foot, which price will be full compensation for the work, complete in place.

Directional Concrete Ramps will comply with City of Chandler Details C-258-1 and C-249 in their entirety, as specified in the Project Plans, all City of Chandler supplements, and

MAG Standard Specifications.

**ITEM NO. 8      CONCRETE SIDEWALK, MAG DET 230**

**Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary construct new concrete sidewalk per MAG Detail 230 at all locations as specified in the Project Plans.

**Materials:**

All materials will conform to MAG Detail 230 in their entirety, except as modified herein.

**Construction Requirements:**

Comply with Section 4.72 of City of Chandler Engineering & Design Standards Manual and MAG Detail 230 in their entirety and all City of Chandler supplements, except as modified herein.

**Measurement and Payment:**

Concrete Sidewalk will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, complete in place.

**ITEM NO. 9      DUAL DIRECTIONAL CONCRETE CURB RAMP WITH  
DETECTABLE WARNING, COC DET C-258-1**

**Description:**

The work under this item shall consist of furnishing of all materials, labor, and equipment necessary to construct directional concrete curb ramps at locations as specified in the project plans and in accordance with these specifications.

**Materials and Construction Requirements:**

All Materials and Construction Methods will comply with City of Chandler Details C-258-1 and C-249 in their entirety, as specified in the plans, all City supplements and MAG Standard Specifications, except as modified herein.

Detectable Warning will be per City's Approved Products List.

The work under this item also includes construction of the adjacent concrete sidewalk areas, concrete curb, and detectable warnings.

**Measurement and Payment:**

Dual Directional Concrete Curb Ramps will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the item, complete in place.

No additional measurement or payment will be made for detectable warnings, additional sidewalk area or concrete curb, the cost being considered included in price of this item.

**ITEM NO. 10 CONCRETE VALLEY GUTTER, MAG DET 240**

**Description:**

The work under this item shall consist of furnishing all materials, labor, and equipment necessary to construct concrete valley gutters and aprons at locations as specified in the project plans and in accordance with these specifications.

**Materials and Construction Requirements:**

All materials and work under this item will conform to MAG Detail 240 in its entirety, including MAG Standard Specifications and all City supplements except as modified herein.

**Measurement and Payment:**

Concrete Valley Gutter will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, complete in place.

**ITEM NO. 11 ADJUST PULL BOX TO GRADE**

**Description:**

The work under this item shall consist of furnishing of all materials, labor, and equipment necessary to adjust existing pull boxes to grade at locations as specified in the project plans and the requirements of these specifications.

**Materials and Construction Requirements:**

Existing pull boxes shall be reset to new grade level at locations as shown on the plans and per the requirements of COC Detail 103-1 and ADOT Standard Specifications Section 732, except as modified herein.

Excavation and backfill shall be in accordance with COC Detail 103-1 and the requirements of the ADOT Standard Specifications Subsection 203-5. Contractor shall

dispose of surplus or unsuitable material at own expense.

Any items damaged by the contractor's operations shall be replaced at no additional cost to the City.

**Measurement and Payment:**

Adjust Pull Box to Grade will be measured as a unit for each adjusted pull box and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place, including any excavating, backfilling, and compacting necessary to complete the work.

**ITEM NO. 12 REMOVE CONCRETE CURB AND GUTTER**

**Description:**

The work under this item will consist of furnishing all materials, labor, and equipment for the removal and disposal of existing concrete curb & gutter at locations as specified in the Project Plans.

**Construction Requirements:**

Removal and disposal of existing concrete curb & gutter will comply with MAG Standard Specifications Section 350 and Section 601 in its entirety, except as modified herein.

The Contractor will be responsible for removing the identified concrete improvements in their entirety. The Contractor will backfill the excavated area per the City's requirements for backfilling and compaction.

**Measurement and Payment:**

Remove Concrete Curb & Gutter will be measured per linear foot and will be paid for at the contract unit price per linear foot, which price will be full compensation for the work, including all removals, disposals, backfilling, and compaction, complete in place.

**ITEM NO. 13 REMOVE SIDEWALK**  
**ITEM NO. 14 REMOVE CONCRETE VALLEY GUTTER**

**Description:**

The work under these items will consist of furnishing all materials, labor, and equipment for the removal and disposal of existing concrete sidewalks and concrete valley gutters and apron at locations as specified in the project plans and in accordance with these specifications.

### **Construction Requirements:**

The work under these items will comply with MAG Standard Specifications Section 350 in its entirety, except as modified herein.

The contractor will be responsible for removing and disposal of the identified concrete improvements in their entirety. The contractor will backfill the excavated area per the City's requirements for backfilling and compaction.

### **Measurement and Payment:**

Remove Concrete Sidewalk, and Concrete Valley Gutter will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, including all removals, disposals, backfilling, and compaction, complete in place.

## **ITEM NO. 15 REMOVE AND SALVAGE STREETLIGHT POLE AND EQUIPMENT**

### **Description:**

The work under this item shall consist of furnishing all materials, labor, and equipment necessary to remove and salvage streetlight poles and associated equipment at the locations shown on the project plans and in accordance with these specifications.

### **Materials:**

Excavation and backfill shall conform to the requirements of MAG Standard Specifications Section 350.

### **Construction Requirements:**

The work under this item will include removing and salvaging of existing streetlight poles, luminaires, control nodes, mast arms, and any other identified items per the City Representatives approval. The work under this item will also include removing the foundation in its entirety, base, conductors, pull boxes, and all other appurtenances.

The contractor will coordinate all work associated with the streetlight systems (i.e. de-energizing the system, etc.) with SRP Power.

The contractor will submit a request for a Letter of Authorization (LOA) to the City of Chandler at least one week prior to de-energization and removal of the streetlight. The contractor shall submit the following items along with the LOA request: approved City project plans, SRP Job Work Number, approved SRP plans (if applicable), and list of items to be removed.

At least two weeks prior to removal of any material or equipment, the contractor will make arrangements for the City CIP Inspectors and City Traffic Operations Supervisor to



inspect all items to determine which items are salvageable. Any material or equipment not salvageable, as determined by the City CIP Inspector, will be disposed of by the contractor at his expense. All salvaged items will be returned to the City of Chandler storage yard at 1800 S. McQueen Road, Chandler, Arizona. Any items determined to be salvageable prior to removal and then damaged by the contractor's operations shall be replaced at no additional cost to the City.

Pole foundations will be removed completely, backfilled and compacted per MAG Standard Specifications.

**Measurement and Payment:**

Remove and Salvage Streetlight Pole and Equipment will be measured as a unit for each pole removed and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place, as described and specified herein and on the plans, including disposal, excavation, backfilling, and compaction.

No additional payment will be made for the storage or delivery of salvaged materials to the City of Chandler Storage yard, the cost being considered included in the price of this item.

**ITEM NO. 16 REMOVE AND RELOCATE STREETLIGHT**

**Description:**

The work under this item shall consist of furnishing all materials, labor, and equipment necessary for the removal of the streetlight pole foundations, pull boxes, and conductors, and the removal, salvage and reinstallation of streetlight poles, mast arms, control node, luminaire, and fixtures at the locations shown on the project plans and the in accordance with these specifications.

**Materials:**

The material under this item shall comply with City Details C-751-1, C-751-2, C-751-3, C-757-1, C-757-3, City's Approved Product List, and the requirements of ADOT Standard Specifications Section 731.

Excavation, backfill and compaction shall conform to the requirements of MAG Standard Specifications Section 350.

**Construction Requirements:**

At least two weeks prior to removal of any material or equipment, the contractor will make arrangements for the City CIP Inspector and City Traffic Operations Supervisor to inspect all items to determine which items are salvageable. Any material or equipment not salvageable, as determined by the City CIP Inspector, will be disposed of by the

contractor at his expense. Any items determined to be salvageable prior to removal and then damaged by the contractor's operations shall be replaced at no additional cost to the City.

The contractor will be responsible for removing, storing, and reinstalling the identified streetlight poles, mast arms, luminaires, control nodes, and fixtures, and the removal of the existing pole foundations, bases, pull boxes, conductors, hardware and all other appurtenances.

The salvaged streetlight poles, mast arms, luminaires, control nodes, and fixtures will be installed onto a new foundation with new hardware, conduit, pull box, and lighting conductors, and other appurtenances. Streetlight shall be installed per City Details C-751-1, C-751-2, C-751-3, C-757-1, C-757-3, ADOT Standard Specifications Section 731, and SRP requirements.

The contractor will coordinate all work associated with the streetlight systems (i.e. de-energizing the system, etc.) with SRP Power.

The contractor will submit a request for a Letter of Authorization (LOA) to the City of Chandler at least one week prior to de-energization and removal of the streetlight. The contractor shall submit the following items along with the LOA request: approved City project plans, SRP Job Work Number, approved SRP plans (if applicable), and list of items to be removed.

**Measurement:**

Remove and Relocate Streetlight will be measured as a unit for each streetlight removed and reinstalled.

**Payment:**

The accepted quantities of Remove and Relocate Streetlight, measured as provided above, will be paid for at the contract unit price each, for each fully functioning streetlight system installed, complete in place, which price will be full compensation for the work described and specified herein and on the plans, including hardware, wire, conductor, excavation, backfill, pull boxes, foundations, and appurtenances necessary to complete the work.

No additional payment will be made for hauling, storing, delivery, removal, or disposal off-site of materials, the cost being considered included in the price for this item.

## **ITEM NO. 17      TRAFFIC CONTROL**

### **Description:**

Traffic Control is per City's General Conditions and MAG Uniform Standard Details for Public Works Construction, Section 401 "TRAFFIC CONTROL".

### **Construction Requirements:**

Traffic Control is per City's General Conditions and MAG Uniform Standard Details for Public Works Construction, Section 401 "TRAFFIC CONTROL".

### **Measurement:**

Traffic Control is per City's General Conditions and MAG Uniform Standard Details for Public Works Construction, Section 401 "TRAFFIC CONTROL".

### **Payment:**

Traffic Control is per City's General Conditions and MAG Uniform Standard Details for Public Works Construction, Section 401 "TRAFFIC CONTROL".

## **ITEM NO. 18      UNIFORMED OFF-DUTY LAW ENFORCEMENT OFFICER**

### **Description:**

The work under this item will consist of coordinating, scheduling, and utilizing Local Law Enforcement Officers for traffic control purposes, as required by the City. The Agreementor is encouraged to first utilize City of Chandler officers for off-duty law enforcement officer services. Should City of Chandler officers not be available for the time(s) requested by the Agreementor, the Agreementor may utilize officers from other jurisdictions with prior approval by City Representatives. In all cases, the Agreementor will be responsible for obtaining, coordinating, and paying all costs for local enforcement officers and their vehicles.

### **Construction Requirements:**

A uniformed off-duty law enforcement officer shall not be scheduled to work more than 12 consecutive hours unless an emergency exists. In an emergency situation, the Agreementor shall coordinate with the officer to remain in their current capacity until another officer can take over.

### **Measurement:**

Off-duty officer services will be measured for each hour a uniformed off-duty law

enforcement officer and authorized vehicle is employed directly by the Agreementor and authorized in advance by the City Representative. Off-duty officer services will be rounded to the nearest hour.

Uniformed off-duty law enforcement officer services used outside the project limits will not be reimbursed under this item. The project limits are defined as the construction work zone as shown on the approved traffic control plan for the specific area under construction.

**Payment:**

The accepted quantities of Uniformed Off-Duty Law Enforcement Officer, measured as provided above, will be paid for at the Agreement unit price per hour, which price will be full compensation for the work, complete in place, including vehicle and workman's compensation.

**ITEM NO. 19 LANDSCAPE / IRRIGATION RESTORATION**

**Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary to restore the existing landscape and irrigation in areas that are disturbed by construction. The decomposed granite and turf installation for these areas is included in this bid item. Contractor will renew and replace the existing decomposed granite to match replaced decomposed granite within these restoration areas. Work in this bid item includes any sprinkler irrigation restoration associated with the disturbed areas.

**Materials:**

Any disturbed existing irrigation system will require that the Contractor re-construct the irrigation system using the emitters, sprinklers, valves, piping, fittings, controllers, wiring, and other components, of sizes and types to match existing equipment and as called for in the contract documents.

All replacement or repair materials will match the existing materials that have been damaged. Irrigation materials and components will be from the same manufacturer as originally installed. Emitters and sprinklers will have the same volume output as original. PVC pipe may be from a different manufacturer, but the grade will be as originally installed. All mainline fittings will be Schedule 80, all lateral fittings will be Schedule 40.

Turf Restoration area will receive 'Midiron Hybrid Bermuda' sod or approved equal and will be inspected and approved by City Representatives at the site upon delivery to conformity to specifications. If installation occurs between October 15<sup>th</sup> to April 15<sup>th</sup>, turf restoration areas will receive 'Premium Rye Grass' seed. Sod will be nursery grown, strongly rotted, 2 years old, and free of weeds, undesirable plants and other material which will be detrimental or will hinder the proper development of the sod.

Landscape materials and decomposed granite will be replaced to match existing conditions. Contractor will walk site with City Representatives to inspect Landscape and Irrigation Restoration areas prior to construction activities.

### **Construction Requirements:**

Contractor will verify exact limits of disturbance with City Representatives in areas specified in on the Project Plans as Landscape and Irrigation Restoration Areas. All work will be in accordance with these Technical Specifications and MAG Standard Specifications.

Contractor will identify and coordinate limits of disturbance areas where appropriate with City Representatives prior to beginning of construction activities. Contractor will contact City Representatives for review and approval of all Landscape and Irrigation Restoration materials prior to installation.

The work will also consist of reconstructing, rerouting, modifying, or repairing the existing irrigation system in areas specified in on the Project Plans. The Contractor will be required to repair and/or replace all disturbed or damaged irrigation components, returning their operation to 100 percent within 24 hours following initial disturbance of the irrigation components. The existing irrigation that will be impacted includes the drip irrigation system for the trees, shrubs and ground covers, as well as the sprinkler irrigation system for the turf areas. The work will include furnishing and installing the various irrigation sleeves, piping, drip emitters, gate valves, electric control valves, wiring, and valve boxes, including required excavation and backfill at the specified in locations shown on the Project Plans or as directed by the City Representatives.

All work will be in accordance with the details shown on the Project Plans, or as directed by the City Representatives and the requirements of these Technical Specifications. The existing irrigation components will be protected and maintained in their current condition where feasible or repaired, replaced, extended and reconnected in areas including, but not limited to, those areas that are disturbed during the construction, areas shown on the Project Plans or as directed by City Representatives. The Contractor will be required to maintain water to all existing plant materials throughout the duration of the contract using repairs, reconnections, replacements or rerouting of the system as approved by City Representatives. The Contractor will ensure that the entire existing and new irrigation systems within the project limits are operational and functional and will test and receive approval from City Representatives prior to proceeding with other related work. The City Representatives will inspect and give approval prior to backfilling.

The system will be constructed to grades and conform to areas and locations as shown on the drawings.

**Protection of Existing Vegetation:** The work will include the protection of all existing plant material. Contractor will take great care to protect in place all existing plant material. Contractor will replace in like kind and size existing plant material removed, damaged, or

destroyed at no cost to the City and to the satisfaction of City Representatives. The Contractor will identify, and the City Representatives will review existing plant materials within the disturbance areas. Salvage and relocate or replace all plant material in conflict with the construction as designated in Landscape and Irrigation Restoration Areas in like kind and size per the direction of City Representatives.

Identify, protect, and maintain existing vegetation within the protected areas indicated on the Contract Drawings during the Contract from the Notice-To-Proceed to Final Acceptance. Perform the Work of this Section in accordance with the standards of the Tree Care Industry Association (TCIA). Do not perform work within the protected areas unless approved by City Representatives. Do not store materials within the protected areas. Do not permit vehicle parking, foot traffic, or other activity not approved in writing by City Representatives within the protected areas. Provide labor and new and undamaged materials that constitute "Best Practice" to meet the letter and intent of this Contract. Follow the safety requirements of ANSI Z133.1.

**Verification of Conditions:** Prior to the start of construction, Contractor will conduct onsite inspections of plants and vegetation with the City of Chandler Representative and identify and inventory the plants and vegetation that are to remain in place during this area tour. Field measure and stake Project improvements as needed for establishing the location and limits of disturbance.

#### **Construction within Protected Areas:**

**Demolition and Construction Activities:** Contractor will perform demolition and construction activities within protected areas in a manner that minimizes damage to tree roots and branches. Use hand tools where necessary. Make minimal use of construction equipment within the protected areas. Use such equipment within the protected area only when approved by City Representatives. Tree pruning will be performed by a Certified Arborist. Notify the City Representatives 72 hours prior to the use of the equipment within the protected areas.

Provide bridging materials, such as protective planking, in protected areas where construction equipment operates. When utilities must be installed within protected areas, bore under the protected areas whenever possible instead of digging open trenches through them.

**Excavating around Trees and Shrubs:** Contractor will excavate around trees and shrubs within protected areas only where indicated on the Project Plans. When work that may impact protected plants occurs, plan the work to assure minimal disturbance to the plants, follow good horticultural practices, and direct pruning and wound treatment in accordance with this Section.

**Protecting Root Systems:** Contractor will protect root systems from damage due to runoff or spillage of noxious materials in solution during storage or construction activities. Protect root systems from flooding or soil erosion. Provide a minimum of two layers of untreated burlap as a covering over exposed root face areas. Do not disturb or excavate

protected root zone areas unless specifically authorized to do so by City Representatives. Where trenching for utilities is required within protected areas, excavate under or over roots by hand digging under the authority of City Representatives. If large roots are encountered, or if a condition potentially fatal to the plant is observed, notify City Representatives prior to continuing or commencing work. Do not cut main lateral roots or taproots, those 2-1/2 inches in diameter or greater; however, smaller roots that interfere with the installation of new work may be cut. Cut smaller roots with sharp pruning instruments, but do not break or chop roots. Excavate root systems by hand in areas where new construction is required within protected areas. Use a narrow-tine spading fork to expose roots. Cut exposed roots back from the new construction. Do not permit exposed roots to dry out before permanent backfills is placed. Provide temporary earth cover, or pack the roots with peat moss, and wrap the roots with burlap. Water and maintain the roots in a moist condition, and temporarily support and protect them from damage until they are permanently relocated and covered with backfill. Provide imported topsoil backfill to cover exposed roots in soil cuts. Do not overload root zones by placing backfill above the existing grade.

**Protecting, Restoring, or Modifying Irrigation System:** The work under this item will consist of testing, reconstructing, or modifying the existing irrigation systems that are damaged by the construction or as specified in on the Project Plans for modification. Prior to construction activities, the Contractor will stake areas that are designated to be disturbed. The Contractor, along with City Representatives, will meet with the maintenance representative, owner, owner representative, for each area within the project that is designated to be disturbed to determine where the existing and functioning irrigation system is located and how it is operated. The Contractor will be required to repair and or replace all disturbed or damaged irrigation components to 100 percent operational. Contractor will ensure that all reconnections (water and power) have been tested and approved by City Representatives prior to back filling. Prior to final acceptance and during the maintenance period specified, the contractor and the City Representatives will meet again with the designated representative to engage each and every irrigation system that has been disturbed or that is adjacent to this project. The Contractor will ensure that each system has been returned to a fully operational and functional system and that all deficiencies have been corrected. All work will comply with these plans and Technical Specifications.

The underground location of the irrigation facilities is unknown. The Contractor will take care to minimize disturbance to these areas.

All construction will be coordinated to ensure that the existing irrigation system and its associated electrical controls are fully functional within 24 hours of modifications. Work activities that require more than 24 hours of outage will be coordinated with City Representatives for approval and alternate irrigation methods such as truck watering or temporary "rain or rent" systems will be required as directed by City Representatives. The cost of alternate irrigation methods necessary due to extended irrigation system outages will be at the Contractor's expense, at no cost to the Department.

All work will be in accordance with the details shown on the Project Plans, or as directed

by City Representatives and the requirements of these Specifications. All work will be inspected and approved by City Representatives prior to backfilling and will comply with all the requirements of Section 808 Water Distribution as specified in the most recent edition of the ADOT Standard Specifications for Road and Bridge Construction.

**Repair/Restoration:** Contractor will restore all landscape areas and other surface improvements that were to remain in place, but that have been damaged by the Contractor’s actions or omissions. Restore landscape areas as nearly as possible to the original condition.

**Repairing Damaged Plants:** Where damage to vegetation has occurred, Contractor will prune plants in accordance with Tree Care Industry Association (TCIA) standards to remove branches from the work area, and where needed to maintain the health of the plant. Remove material in a manner that yields minimal impact and is approved by City Representatives.

**Replacing Damaged Plants:** Contractor will remove plants that were identified by City Representatives to remain in place, but that are damaged during the course of the work to an extent that they cannot be repaired; and replace the damaged plants with new plants of the same type and value. Remove and replace damaged plants as directed by the City Representatives. Base the value of plants that are to be replaced on the criteria found in the Council of Tree and Landscape Appraisers’ “Guide for Plant Appraisal”, as evaluated by City Representatives. Contractor will remove and replace damaged plants at no additional cost to the City. Plants will be replaced at the following sizes or as directed by City Representatives:

| <u>Existing Plant Material Size</u> | <u>Replacement Size</u> |
|-------------------------------------|-------------------------|
| Trees:                              |                         |
| 2” Caliper                          | 24” Box                 |
| 4” Caliper                          | 36” Box                 |
| 6” Caliper                          | 54” Box                 |
| All Existing Shrubs                 | 5 Gallon                |

Clean up the ground areas under plants remaining in place as directed by City Representatives. Wash off foliage that becomes soiled, or when directed to do so by City Representatives. Remove materials that fall or flow into protected areas. Provide protective barriers as needed or as directed by City Representatives to prevent materials from falling or flowing into protected areas.

**Waste Management:** Contractor will gather and dispose of spoils and vegetative waste, including dead and damaged plants and the trimmings accumulated from the operations to clear and remove existing vegetation. Dispose of spoils and vegetative waste off-site in conformance with the regulations imposed by the local authorities, and in an area approved for such disposal by the local authorities.

**Maintenance of Vegetation:** Contractor will care for and maintain existing vegetation within protected areas as indicated on the Project Plans. Provide water and labor as needed for plant health, growth, and for washing down soiled foliage. Provide fertilizer,



deep root fertilization, pesticides, anti-desiccants, and other materials and labor as needed to maintain the existing plants in a healthy and growing condition. Provide plant maintenance for the duration of the Contract, until Final Acceptance.

**Record Drawings:** The Contractor will keep and maintain separate record drawings (“field redlined record drawings”), corrected shop drawings, or other drawings necessary for the Engineer to show the landscape and irrigation work as constructed. These field redlined record drawings will be kept on the worksite and they will be maintained clear, accurate and current as changes occur that may differ with the bid set construction documents and addenda. All landscape and irrigation related elements buried or backfilled will be recorded in the “field redlined record drawings” prior to burial and backfilling occurs. The Contractor will submit the updated field redlined record drawings with monthly pay estimates to City Representatives. Complete field redlined record drawings that the Contractor maintains will be submitted to City Representatives in a format that will allow City Representatives to create the formal record drawings. The Contractor will submit the field redlined record drawings to City Representatives prior to the end of each construction phase. No extra measurement or direct payment will be made for this work; the cost being considered included in the price of the contract items.

**Measurement and Payment:**

Landscape / Irrigation Restoration Areas will be measured as a single complete unit of work and will be paid for at the contract lump sum price, which will be full compensation for the work, complete in place, including all costs, materials, equipment, labor, and operations necessary for the furnishing and full restoration of all plant materials, decomposed granite, turf grass, drip and sprinkler irrigation, and other miscellaneous items to the satisfaction of City Representatives.

**ITEM NO. 20 4 IN WHITE TRAFFIC PAINT STRIPE**

**Description:**

The work under this item shall consist of cleaning and preparing the pavement surface, furnishing all materials, and applying white, water-borne, fast-dry or rapid-dry Type II (High build) traffic paint, and reflective glass beads at the locations shown on the plans, City Details, MUTCD, and associated ADOT Specifications, the requirements of these specifications, or as directed by the Engineer.

**Materials:**

The materials under this item will conform to the current editions of the City Details C-614, C-618, and C-623 and ADOT Standard Specifications Subsection 708-2, except as modified herein. Any materials not specifically covered shall meet the approval of the Engineer.

**Construction Requirements:**

The work under this item will conform to the layouts in the project plans, City Details C-614, C-618, and C-623 and ADOT Standard Specifications Subsection 708-3 except as modified herein, or unless otherwise revised by the Engineer.

**Measurement:**

Pavement marking paint will be measured by the linear foot along the centerline of the pavement stripe. Skips in dashed lines will not be included in the measurement. Length of pavement markings will be based on a 4-inch wide stripe. Measurement for striping with a plan width greater than the basic 4 inches as shown on the plans or directed by the Engineer will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches)} \times \text{Linear Feet}}{4 \text{ (inches)}}$$

No separate measurement or payment will be made for cleaning and preparing the pavement surface, including abrasive sweeping and high-pressure air spay, and for disposal of excess materials, cleaning fluids, and empty material containers, the cost being considered as included in contract items.

**Payment:**

Pavement striping of the type specified, measured as provided above, will be paid for at the contract unit price per linear foot for the total length of painted line applied to the nearest foot, which price shall be full compensation for the work, complete in place, including glass beads, as described, and specified herein and on the plans.

**ITEM NO. 21 4 IN WHITE THERMOPLASTIC TRAFFIC STRIPE**

**Description:**

The work under these items shall consist of cleaning and preparing the pavement surface, furnishing all materials, and applying white thermoplastic reflectorized pavement markings using extrusion or ribbon dispensing devices of the required shape and thickness to the prepared pavement surface at the locations and in accordance with the details shown on the plans, the manufacturer's specifications, MUTCD, and the requirements of these specifications.

**Materials:**

The materials for these items shall conform to the current editions of the City Details C-614, C-618, and C-623, these specifications, and ADOT Standard Specifications Subsection 704-2, except as modified herein.

The preformed pavement markings must be a resilient white product with uniformly distributed glass beads throughout the entire cross-sectional area. Lines are to be capable of being affixed to asphalt pavements by the use of normal heat from a propane type of torch.

The markings must be capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures. The markings will have resealing characteristics, including the capability of fusing with itself and previously applied thermoplastic when heated with a torch.

The markings must be able to be applied with no minimum ambient or surface temperature requirements.

Material must be composed of a modified ester rosin, aggregates, pigments, binders, and glass beads which have been factory produced as a finish product, which shall be designed to meet the requirement of the latest MUTCD. The thermoplastic material will also conform to AASHTO, designation M249 Specifications for White Reflective Thermoplastic – Solid form, with the exception of the relevant differences for the material being supplied in a preformed state.

New pavement markings will have a uniform adequate nighttime retro-reflectivity when installed. The pavement markings will have an average minimum retro-reflectivity of three hundred fifty (350) millicandelas for white with an 88.76 degree entrance angle and a 1.05 degree observation angle.

**Graded Glass Beads:** The material must contain a minimum of thirty (30) percent glass beads by weight and be uniformly distributed throughout the material. The beads will be clear and transparent and will not consist of more than twenty (20) percent of irregular fused spheroids, or silica. The index of refraction will not be less than 1.50. Test for roundness will conform to ASTM D-1155 Standard Test Method for Roundness of Glass Sphere requirements or latest revisions thereof. The material will be supplied with factory applied surface beads at a rate of one (1) pound per ten (10) square feet. The surface beads will have a minimum roundness of ninety (90%) percent and refractive index of 1.50.

**White Pigments:** Sufficient titanium dioxide pigment will be used to ensure a color equivalent to Federal Highway White Docket No. FHWA-99-6190 Table 5 and Table 6 was revised and corrected.

**Skid Resistance:** The surface of the material must provide a minimum resistance value of forty-five (45) British Pendulum (Tester) Number (PBN) with properly applied and embedded surface beads when tested according to ASTM E-303 Standard Test Method for Measuring Surface Frictional Properties.

**Dimensions:** The material must be supplied at a minimum thickness of ninety (90) mils or one hundred twenty-five (125) mils as ordered. The thickness measurement will exclude the top surface beads.

The material must be as sized in the FHWA, Standard sizes as shown in the MUTCD.

**Environmental Resistance:** The material must be designed for use in heavy traffic locations where a maximum wear and tear is present and resistant to deterioration due to exposure to sunlight, water, oil, gasoline, salt, or adverse weather conditions.

**Construction Requirements:**

The work under these items shall conform to the layouts in the plans, City Details C-614, C-618, and C-623, these specifications, and ADOT Standard Specifications Subsection 704-3, except as modified herein.

**Application on Asphalt:** The materials will be applied using a propane torch method recommended by the manufacturer. The material must be able to be applied with no preheating of the pavement to a specific temperature. The pavement will be clean, dry, and free of debris. Supplier must enclose application instructions with each box/package shipped.

**Warranty:** There will be a minimum of two (2) year guarantee/non-prorated warranty on workmanship, material, and durability under normal urban traffic conditions from date of delivery.

**Satisfactory Performance Life:** All supplied preformed, heat-fused thermoplastic material will be considered as providing satisfactory performance life if they do not deteriorate due to natural or environmental causes within their material warranty period as herein specified.

Unsatisfactory performance conditions will be cause for immediate material rejections and replacement at no cost to the City. Unsatisfactory performance conditions include, but are not limited to, the display of the following:

- Bubbles, wrinkles, ripples, peeling, cracks, or breaks on any portion of the applied material greater than 1" x 1" in dimension. This requirement does not apply regarding minor defects around edges or other imperfections in the material due to failure of the asphalt substrate.
- Any shrinkage
- Significant visible delamination from the substrate
- Significant discoloration, including clouding or chalking of the surface.
- Loss of nighttime retro-reflectivity as observed at night under headlights and/or standard practices (including FHWA's minimum retro-reflectivity guidelines) will be used by the City to judge satisfactory performance.

**Measurement:**

Thermoplastic pavement longitudinal markings (i.e. edge lines and lane lines) and traverse markings (i.e. crosswalks and stop bars) will be measured by the linear foot along the centerline of the pavement marking line and will be based on a 4-inch wide line.

Measurement for striping with a plan width greater than the basic 4 inches as shown on the plans or directed by the Engineer will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches)} \times \text{Linear Feet}}{4 \text{ (inches)}}$$

Crosswalk lines and stop bars traverse lines will be measured for centerline length and adjusted for widths other than 4 inches, as defined above.

No separate measurement or payment will be made for cleaning and preparing the pavement surface, including abrasive sweeping and high-pressure air spay, and for disposal of excess materials, cleaning fluids, and empty material containers, the cost being considered as included in contract items.

**Payment:**

The accepted quantities of 4 Inch White Thermoplastic Traffic Stripe, measured as provided above, will be paid for at the contract unit price, complete in place, including pavement surface preparation and glass beads.

- ITEM NO. 22    THERMOPLASTIC/PREFORMED SYMBOL LEFT TURN ARROW**
- ITEM NO. 23    THERMOPLASTIC/PREFORMED SYMBOL RIGHT TURN ARROW**

**Description:**

The work under these items shall consist of cleaning and preparing the pavement surface, furnishing all materials and applying preformed reflectorized thermoplastic arrows to the pavement in accordance with the details shown on the project plans, the manufacturer's specifications, MUTCD, the requirements of the specifications.

**Materials:**

The materials for these items shall conform to the current editions of the City Details C-614, C-618, and C-623, the requirements of these specifications, and ADOT Standard Specifications Subsection 704-2, except as modified herein.

The preformed pavement markings must be a resilient white product with uniformly distributed glass beads throughout the entire cross-sectional area. Symbols are to be capable of being affixed to asphalt pavements by the use of normal heat from a propane type of torch.

The markings must be capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures. The markings will have resealing characteristics, including the capability of fusing with itself and previously applied thermoplastic when heated with a torch.

The markings must be able to be applied with no minimum ambient or surface

temperature requirements.

Material must be composed of a modified ester rosin, aggregates, pigments, binders, and glass beads which have been factory produced as a finish product, which shall be designed to meet the requirement of the latest MUTCD. The thermoplastic material will also conform to AASHTO, designation M249 Specifications for White Reflective Thermoplastic – Solid form, with the exception of the relevant differences for the material being supplied in a performed state.

New pavement markings will have a uniform adequate nighttime retro-reflectivity when installed. The pavement markings will have an average minimum retro-reflectivity of three hundred fifty (350) millicandelas for white with an 88.76 degree entrance angle and a 1.05 degree observation angle.

**Graded Glass Beads:** The material must contain a minimum of thirty (30) percent glass beads by weight and be uniformly distributed throughout the material. The beads will be clear and transparent and will not consist of more than twenty (20) percent of irregular fused spheroids, or silica. The index of refraction will not be less than 1.50. Test for roundness will conform to ASTM D-1155 Standard Test Method for Roundness of Glass Sphere requirements or latest revisions thereof. The material will be supplied with factory applied surface beads at a rate of one (1) pound per ten (10) square feet. The surface beads will have a minimum roundness of ninety (90%) percent and refractive index of 1.50.

**White Pigments:** Sufficient titanium dioxide pigment will be used to ensure a color equivalent to Federal Highway White Docket No. FHWA-99-6190 Table 5 and Table 6 was revised and corrected.

**Skid Resistance:** The surface of the material must provide a minimum resistance value of forty-five (45) British Pendulum (Tester) Number (PBN) with properly applied and embedded surface beads when tested according to ASTM E-303 Standard Test Method for Measuring Surface Frictional Properties.

**Dimensions:** The material must be supplied at a minimum thickness of ninety (90) mils or one hundred twenty-five (125) mils as ordered. The thickness measurement will exclude the top surface beads.

The material must be as sized in the FHWA, Standard sizes as shown in the MUTCD.

**Environmental Resistance:** The material must be designed for use in heavy traffic locations where a maximum wear and tear is present and resistant to deterioration due to exposure to sunlight, water, oil, gasoline, salt, or adverse weather conditions.

### **Construction Requirements:**

The work under these items will conform to the layouts in the Project plans, City Details C-614, C-618, and C-623, these specifications, and ADOT Standard Specifications Subsection 704-3, except as modified herein.

**Application on Asphalt:** The materials will be applied using a propane torch method recommended by the manufacturer. The material must be able to be applied with no preheating of the pavement to a specific temperature. The pavement will be clean, dry and free of debris. Supplier must enclose application instructions with each box/package shipped.

**Warranty:** There will be a minimum of two (2) year guarantee/non-prorated warranty on workmanship, material, and durability under normal urban traffic conditions from date of delivery.

**Satisfactory Performance Life:** All supplied preformed, heat-fused thermoplastic material will be considered as providing satisfactory performance life if they do not deteriorate due to natural or environmental causes within their material warranty period as herein specified.

Unsatisfactory performance conditions will be cause for immediate material rejections and replacement at no cost to the City. Unsatisfactory performance conditions include, but are not limited to, the display of the following:

- Bubbles, wrinkles, ripples, peeling, cracks, or breaks on any portion of the applied material greater than 1" x 1" in dimension. This requirement does not apply regarding minor defects around edges or other imperfections in the material due to failure of the asphalt substrate.
- Any shrinkage
- Significant visible delamination from the substrate
- Significant discoloration, including clouding or chalking of the surface.
- Loss of nighttime retro-reflectivity as observed at night under headlights and/or standard practices (including FHWA's minimum retro-reflectivity guidelines) will be used by the City to judge satisfactory performance.

**Measurement:**

Thermoplastic Preformed Left Turn Arrow and Right Turn Arrow will be measured by each unit applied.

**Payment:**

The accepted quantities of Thermoplastic Preformed Left Turn Arrow and Right Turn Arrow, measured as provided above, will be paid for at the contract unit price for each arrow applied, which price shall be full compensation for the item, complete in place, including necessary cleaning, and primer.

## **ITEM NO. 24 BIKE LANE SYMBOL SET, TYPE II (HIGH-BUILD)**

### **Description:**

The work under this item shall consist of cleaning and preparing the pavement surface, furnishing all materials and applying white water-borne, fast-dry or rapid-dry Type II (High-build) traffic paint, and reflective glass beads at the locations and in accordance with the details shown on the plans, MUTCD, and associated ADOT Supplements, the requirements of these specifications, or as directed by the Engineer.

### **Materials:**

The material under these items shall conform to the City Details C-614 and C-623, and ADOT Standard Specifications Subsection 708-2. The Bike Lane Symbol Set must be waterborne pavement marking paint, Type II (High-build). Any materials not specifically covered shall meet the approval of the Engineer.

### **Construction Requirements:**

The work under this item shall conform to the layouts in the project plans, City Details C-614 and C-623, and the ADOT Standard Specifications Subsection 708-3.

### **Measurement:**

Bike Lane Symbol Set will be measured by each painted symbol set applied.

No separate measurement or payment will be made for cleaning and preparing the pavement surface, including abrasive sweeping and high-pressure air spay, and for disposal of excess materials, cleaning fluids, and empty material containers, the cost being considered as included in contract items.

### **Payment:**

Bike Lane Symbol Set, measured as provided above, will be paid for at the contract unit price for each painted symbol set, which price shall be full compensation for the work, complete in place, including glass beads, as described in the plans and specified herein.

## **ITEM NO. 25 REMOVE AND SALVAGE SIGN**

### **Description:**

The work under this item shall consist of furnishing all equipment, labor, and materials necessary to remove and salvage existing signs at locations as specified in the project plans and ADOT Standard Specifications Section 202. The work shall also include backfilling and compacting the resulting cavities.



### **Construction Requirements:**

The work under this item shall conform to ADOT Standard Specification Subsection 202-3. The contractor will be responsible for removing, salvaging, storing, and delivering the identified existing signs, and removing the existing sign foundation, signpost, hardware and appurtenances and salvaging as required.

At least two weeks prior to removal of signs, the contractor will make arrangements for the City Representative to inspect all items to determine which items are salvageable. Any items not salvageable, as determined by the City, will be disposed of by the contractor at his expense. All salvaged items will be returned to the City of Chandler storage yard at 1800 S McQueen Road, Chandler, Arizona. Any items determined to be salvageable prior to removal and then damaged during the removal or delivery will be replaced at no cost to the City.

After the sign has been removed, the excavated area shall be completely backfilled and compacted and returned to its former state before removal. Excavation, backfill and compaction shall conform to the requirements of MAG Standard Specifications Section 350.

The contractor will utilize the existing stop signs and other signing items instead of temporary signing at those locations as much as possible until the existing signing items are no longer determined to be necessary. All items to be removed and which will not be incorporated into the new work, will be removed in a manner which will not produce unnecessary damage or disturbance. The contractor will not disturb any other signs, signposts, foundations, or object marks, not specifically indicated on the plans or in the technical specifications to be removed unless otherwise direction by City Representatives.

Any items which are not identified to be removed but which are damaged as a result of the construction will be replaced at the contractor's expense.

### **Measurement and Payment:**

Remove and Salvage Sign will be measured as a unit for each sign removed and will be paid for at the contract unit price per each, which price shall be full compensation for the work, complete in place.

No measurement or payment will be made for hauling, storing, delivery, removal, or disposal offsite of the signs, signposts, foundations, hardware, excavation, backfill and compaction, the cost being considered as included in the price of the contract item.

**ITEM NO. 26 REMOVE PULL BOX**

**Description:**

The work under this item shall consist of the removal and disposal of pull boxes at the locations as shown on the project plans and as specified herein.

**Construction Requirements:**

The removal of pull boxes will only occur after all cables and conductors have been removed from the conduits entering and exiting the pull box. The contractor will remove and dispose of the existing pull boxes. After the pull box has been removed, the excavated area shall be completely backfilled and compacted and returned to its former state before removal. Excavation, backfill and compaction shall conform to the requirements of MAG Standard Specifications Section 350.

**Measurement:**

Remove Pull Box will be measured per each pull box removed.

**Payment:**

Remove Pull Box, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place.

No additional measurement or payment will be made for disposal off-site of the pull box, removal of cables, conductors, and conduit, backfill and compaction, the cost being considered as included in the price of the contract item.

- ITEM NO. 27 NO. 7 PULL BOX**
- ITEM NO. 28 NO. 7 PULL BOX W/EXTENSION**
- ITEM NO. 29 NO. 9 PULL BOX**

**Description:**

The work under these items shall consist of furnishing and installing pull boxes for traffic signals, including, excavating, backfilling, and compacting at locations as specified on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

All pull boxes, extensions and covers will be polymer concrete material and shall conform to the details and size as specified in the project plans. The material will conform to City Details C-103-1 and C-103-2, Section 5.6 of the City's Engineering and Design Standards

Manual, and ADOT Standard Specifications Section 732, except as modified herein. Contractor to coordination with City CIP Inspector for marking on pull box cover. Markings will be clearly defined and uniform in depth and will be placed parallel to the long side of the lid.

Chipped or cracked pull boxes, covers, and extensions will not be accepted.

Pull box lids will be rated for traffic loads in locations where subject to vehicular traffic. Each lid will be furnished with two lock-down bolts.

Concrete pull boxes and lids will not be used.

**Construction Requirements:**

The pull boxes and extensions shall be installed in accordance with the plans, City Details C-103-1 and C-103-2, Section 5.6 of the City's Engineering and Design Standards Manual, and ADOT Standard Specifications Section 732, except as modified herein.

New pull boxes will be located out of sidewalks, but within the City right of way, as shown on the plans. Adjustments in pull box locations are allowed but are subject to City CIP Inspector approval.

Pull boxes will be installed at finished grade. Contractor will backfill around the pull box with select excavated material and thoroughly compact to within two inches of original grade. The compaction around the box will not cause the sides to deflect or any part of the box or lid to crack. The contractor will replace any cracked, broken, chipped, or damaged pull boxes or lids at no additional cost to the City.

All pull boxes will be left in clean conditions, free of dirt and debris upon completion of work.

**Measurement:**

Pull Box and Pull Box with Extension will be measured as a unit for each pull box installed.

**Payment:**

The accepted quantities for Pull Boxes and Pull Box with Extension, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including any excavating and backfilling necessary to complete work.

**ITEM NO. 30    SCH. 40 PVC ELECTRICAL CONDUIT, 2 IN**  
**ITEM NO. 31    SCH. 40 PVC ELECTRICAL CONDUIT, 2 ½ IN (SRP SERVICE**

|                    |   |
|--------------------|---|
|                    | <b>CONDUIT)</b>   |
| <b>ITEM NO. 32</b> | <b>SCH. 40 PVC ELECTRICAL CONDUIT, 3 IN</b>                     |
| <b>ITEM NO. 33</b> | <b>SCH. 40 PVC ELECTRICAL CONDUIT, 4 IN (DIRECTIONAL DRILL)</b> |

**Description:**

The work under these items shall consist of furnishing and installing electrical conduit for traffic signals and lighting, including horizontal directional drilling, boring, excavating, backfilling, and compacting at locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

Unless otherwise shown on the plans; bends, conduit fittings, expansion joints, 36-inch sweeps and other conduit accessories not specifically mentioned will be manufactured from a material similar to the connecting conduit. Conduit elbows used for fiber optic cable installations (including future installations) will be a minimum of 36-inches and for bends of 90 degrees or greater will be encased in 1- sack slurry or concrete for at least 12” beyond each bend or coupling joint, whichever is greater. All other conduit elbows will be a minimum of 24-inches.

Polyvinyl Chloride (PVC) conduit will conform to ADOT Standard Specifications Subsection 732-2.02.

Conduit runs which enter pole and cabinet foundations will consist of PVC.

The polyethylene base resin will meet the density requirement and melt index properties described herein. The density will not be less than 0.940 and not more than 0.955 g/CM3 in accordance with ASTM D 1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique. The range for the melt index will be between 0.05 to 0.5g/10 minutes in accordance with ASTM D 1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.

Additives to the base resin will be included to provide heat stabilization, oxidation prevention and ultraviolet (UV) protection. It will utilize carbon black in the range of 2 to 3 percent for long term protection against UV degradation. The minimum protection period will be one year from date of manufacture in unprotected, outdoor storage in accordance with ASTM D 1603: Standard Test Method for Carbon Black in Olefin Plastics.

Conduit warning tape will be a minimum five-mil thick metallic detectable tape, with a minimum width of 3 inches. Warning tape will be highly resistant to alkalis, acids, and other destructive agents found in the soil.

Warning tape will have a continuous printed message warning of the location of underground conduits. The message will be in permanent ink specifically formulated for prolonged underground use and will bear the words, “CAUTION – ELECTRIC LINE BURIED BELOW” or “CAUTION – FIBER OPTIC CABLE BURIED BELOW” in black letters on a red (electric) or orange (communications) background. Where both electric

and communication lines are in a single trench, both tapes, as described above will be provided.

Mule tape will be constructed of fiber and will be low-stretch and moisture-resistant. The rope will have a nominal pull strength of 2500-pounds. The mule rope will include a distance marking at intervals not to exceed two feet.

The materials for the Schedule 40 PVC Electrical Conduit, 2 1/2" (SRP Service Conduit) item will include 2.5-inch diameter schedule 40 PVC, 2500lb pull tape, trench, and all other materials incidental to this item of work, conforming to SRP specifications.

### **Construction Requirements:**

All construction will be performed in accordance with the project plans. Where not included in these Specifications or other referenced specifications, the work under this item will be installed per ADOT Standard Specifications Section 732-3.

Open trenching will be backfilled, compacted and regraded to meet pre-disturbance condition within one day following the installation of the conduit, and in accordance with ADOT Standard Specifications.

Conduit runs shown on the plans are depicted to indicate the intended path from point to point. The actual pathway will be staked prior to any excavation and will be modified as necessary, as approved and directed by the City's Representative, to avoid obstructions that will prevent the east of installation, obstacles and future maintenance or conformance with appropriate codes and specifications. Final conduit locations will be documented and submitted to the City's Representative in the form of a record drawing.

Except for factory bends, conduit bends will have a radius of not less than that specified in the NEC. Conduit will be bent without crimping or flattening, using the longest radius practicable. Communications conduits will not deflect more than one inch per foot (1:12) vertically or horizontally, equivalent to a minimum radius of 6 feet.

If the 1:12 rule cannot be achieved, standard factory-made elbows of 11 1/4, 22 1/2, 30 or 45 degrees, with a minimum radius of 24 inches will be used. 90-degree cumulative turns will be made of individual elbows with a minimum radius of 36 inches.

The contractor will trench and install the 2.5-inch diameter conduit at the approximate locations indicated on the plans. The conduit will be installed at a depth as shown on the plans from finished grade to the top of conduit. Each conduit will terminate in a pull box. Elbows will be the same size as the conduit with minimum 18-inch radius at the junction box and 24 inches at all other locations.

All conduit runs will be continuous from pull box to pull box, except at the City Representative's approved splicing locations.

Conduits will be at a minimum cover depth of 48 inches, or as indicated in the Project plans. Backfill compaction will be in accordance with ADOT Standard Specifications Subsection 203-5.03 (B) (4).

When conduit is protected and open areas cannot be installed at the minimum depths, it will be encased in Class B concrete, as defined in ADOT Standard Specifications Section 1006.

Conduit installation methods identified as “Trench” may be completed by a different installation method, if approved in advance by the City’s Representative as a means of facilitating installation or mitigating potential damage to existing surface and subsurface elements. If approved by the City’s Representative, the substitution of a different installation method for the original method of installation specified in the plans will be paid for at the original method of installation bid price of the conduit item.

All unoccupied conduits where work is performed will be sealed with a water-tight, corrosion-proof, removable, reusable, and vermin resistant conduit plug or cap. Prior to use, the conduit plug, or cap will be submitted to the City’s Representative for approval.

Occupied conduit where work is performed will be sealed with a conduit cap, as approved by the City’s Representative. The conduit cap must be water-tight, corrosion-proof, removable, and vermin resistant.

A three inch “Y” will be cut into the face of the curb directly over conduit located under rolled or vertical curbs.

The contractor will place warning tape in all trenches in which new PVC conduit is placed. Warning tape is not required in conduit segments where trenchless methods are used for installation. All warning tape will be buried at a depth of 12 inches below the finish grade.

Conduit under existing pavement, curbs and gutters, sidewalks, concrete flatwork, textured or decorative surfaces, and at other specified locations, will be installed by Horizontal Directional Boring (HDB) or Horizontal Directional Drilling (HDD) methods. Use of either method is allowed, subject to approval of the City’s Inspector.

The proposed bore profile will be submitted to the City’s Representative, after the contractor has completed the necessary potholing, and approved prior to beginning the operation at each location.

Directional boring/drilling will be used to install conduits along a prescribed path from the surface with minimal impact to the surrounding area. Installation will be performed in accordance with industry standards and as directed by the City’s Representative.

The contractor’s installation process shall utilize the “walkover” locating system, or other City Representative approved equivalent, for determining the installation profile. The installation equipment will register the depth, angle, rotation, and directional data. At the surface, equipment will be used to gather the data and relay the information to the equipment operator.

When enlargement of an installation hole is necessary, the hole will be at least 25 percent larger than the conduit to be installed, unless otherwise specified by the City’s Representative. Pulling equipment such as grips, pulling eyes, and other attachment hardware external to the conduit will be permitted as long as a wooden dowel is placed

inside the conduit to prevent it from collapsing at the point of attachment when pull tension is at its peak. A swivel will be used with all pulling hardware when pulling back the conduit into the installation path. Drilling fluid will be pumped down the hole to provide lubrication for the conduit as it is pulled in. The pulling tension for installing conduit into the installation path will not exceed 75 percent of the conduit manufacturer's tensile strength rating in order to prevent the conduit from "necking down" or deforming.

All final installation profiles will be submitted to the City's Representative.

Interconnect conduit will be comprised of four 2-inch conduits, one conduit black in color and the three other conduits gray in color. All unused conduits will have 2500-pound detectable mule tape installed, with detectable members spliced across junction boxes to form a continuously detectable conduit run. All conduits will enter junction boxes using 45-degree sweeps with no less than a 36-inch radius. (unless otherwise specified).

All conduits will have a continuous 2500 lb. mule tape installed within and the ends sealed in a NEC approved manner to keep all moisture and foreign matter out of the conduit. Tying two sections of pull tape together is not allowed and will result in replacement by the contractor. For all conduits that require pull tape, the pull tape shall terminate at the end of the conduit with a minimum of two feet of coiled slack in each pull box. The mule tape traveling through conduit that terminates in a pull box, will have its wire ends connected to allow for a continuous locating signal to be used for the entire conduit run.

A #12 AWG copper conductor tracer wire will be installed within each conduit, or one tracer wire will be installed externally of the conduits, but alongside the conduits within the same bore or trench. Tracer wire must be electrically continuous. Any direct buried copper splice of the tracer wire must meet NEC requirements for direct buried electrical splices.

Existing underground conduit to be incorporated into a new system will be cleaned and blown out with compressed air.

No more than one week prior to installation of cable or conductors, all new and existing conduits in which cable or conductors are to be installed will be cleared/cleaned by pull through a mandrel with a diameter of 90 percent of the conduit inside diameter for PVC conduit. The conduit may be brushed or swabbed, if deemed necessary, prior to pulling the mandrel through conduit.

Where indicated on the plans, the contractor will remove and dispose of existing cables and/or conductors in existing conduits. Prior to their removal, all cables and/or conductors to be removed will be identified and marked at all intermediate pull boxes. Conduits to remain empty for future use will have a detectable mule tape installed.

Where multiple cables, conductors, mule tape, and/or new innerducts are required to be installed in the same conduit, all the materials will be installed at the same time.

Conduit entering pull boxes will be capped with conduit end cap or plug fittings until wiring or cabling is installed.

**Measurement:**

Electrical Conduit will be measured by the linear foot for each diameter size as follows:

- A. From center to center of pull boxes
- B. From edge of foundation to center of pull box
- C. From edge to edge of foundation
- D. From end of conduit to center of pull box or foundation
- E. From end to end of conduit when no pull boxes are used.

**Payment:**

The accepted quantities of Electrical Conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for the work, complete in place, including excavation and backfill and incidentals any necessary to complete the work.

No direct payment will be made for conduit bends at pull boxes, expansion fittings, and coupling fittings, the cost being considered included in the price of this item.

No additional payment will be made for saw cutting, trenching, pavement removal, disposal and pavement replacement done as part of conduit installation, the cost being considered included in the price of this item.

- ITEM NO. 34 POLE FOUNDATION, TYPE A, ADOT DWG T-SL 4.01,**
- ITEM NO. 35 POLE FOUNDATION, TYPE PB (PUSH BUTTON), ADOT DWG T-SL 4.27**

**Description:**

The work under these items shall consist of furnishing all materials and constructing new foundations for traffic signal poles at the locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

Pole foundations shall include all conduit, elbows, anchor bolts, grounding wire and reinforcing steel.

**Materials:**

The work under these items shall conform to ADOT Standard Drawing No. T-SL 4.01, T-SL 4.27, and T-SL 4.28, ADOT Standard Specifications Subsection 731-2 in its entirety, except as modified herein, and the City' Approved Product List.



**Construction Requirements:**

The work under these items shall conform to City Standard Detail C-720, ADOT Standard Drawing No. T-SL 4.01, T-SL 4.27, and T-SL 4.28, and ADOT Standard Specifications Subsection 731-3 in its entirety, except as modified herein.

The top of the foundation shall be flush with the surface of the adjacent ramp, curb or sidewalk.

Sidewalk and curb ramp may not be constructed on top of the pole foundation.

Contractor shall gain approval from City CIP Inspector prior to construction. If foundations are constructed and do not satisfy the plans and specifications, the contractor will be responsible for replacement at their own cost.

**Measurement:**

The foundations for traffic signal poles will be measured as a unit for each type of foundation furnished and installed.

**Payment:**

The accepted quantities of foundations for traffic signal poles, measured as provided above, will be paid for at the contract unit price each, for the type of foundation designated in the bidding schedule, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including hardware, wire, excavation, backfill and incidentals necessary to complete the work.

No measurement or direct payment will be made for anchor bolts the cost being considered as included in the unit price paid for the foundations.

- ITEM NO. 36    POLE FOUNDATION, TYPE QC**
- ITEM NO. 37    POLE FOUNDATION, TYPE RC**

**Description:**

The work under these items shall consist of furnishing all materials and constructing new foundations for traffic signal poles at the locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

Pole foundations shall include all conduit, elbows, anchor bolts, grounding wire and reinforcing steel.

**Materials:**

The work under these items shall conform to City Details C-710, C-713, C-714, and C-

718, ADOT Standard Drawing No. T-SL4.28, ADOT Standard Specifications Subsection 731-2, and the City' Approved Product List.

**Construction Requirements:**

The work under these items shall conform to City Details C-710, C-713, C-714, and C-718, ADOT Standard Drawing No. T-SL4.28, ADOT Standard Specifications Subsection 731-2, and the City's Engineering and Design Standards Manual.

Contractor shall refer to the ADOT Standard Drawing T-SL 4.28 for further information regarding, anchor bolt details, the bolt projection above foundation and the spacing between the top of foundation and the bottom of the pole base plate.

The top of the foundation shall be flush with the surface of the adjacent ramp, curb or sidewalk. The sidewalk and curb ramp may not be constructed on top of the pole foundation. Contractor shall gain approval from City CIP Inspector prior to construction. If foundations are constructed and do not satisfy the plans and specifications, the contractor will be responsible for replacement at their own cost.

**Measurement:**

The foundations for traffic signal poles will be measured as a unit for each type of foundation furnished and installed.

**Payment:**

The accepted quantities of foundations for traffic signal poles, measured as provided above, will be paid for at the contract unit price each, for the type of foundation designated in the bidding schedule, complete in place, which price shall be full compensation for the work described and specified herein and on the plans, including hardware, wire, excavation, backfill and incidentals necessary to complete the work.

No measurement or direct payment will be made for anchor bolts the cost being considered as included in the unit price paid for the foundations.

**ITEM NO. 38      AUDIBLE PEDESTRIAN PUSH BUTTON W/ SIGN**

**Description:**

The work under this item shall consist of furnishing all materials, labor, and equipment necessary for installing audible pedestrian push buttons with signs at the locations as specified in the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

### **Materials and Construction Requirements:**

The work under this item will conform to ADOT Standard Drawing No. T-SL 11-1, ADOT Standard Specifications Subsection 735, and City of Chandler Approved Products List.

Contractor will work with the City's Traffic Management Center for the location and installation of the push buttons.

### **Measurement:**

The Audible Pedestrian Push Button will be measured as a unit for each audible pedestrian push button furnished and installed.

### **Payment:**

The Audible Pedestrian Push Button, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work complete in place, as specified herein and on the project plans and as specified herein.

## **ITEM NO. 39 VIDEO DETECTION SYSTEM (CAMERA)**

### **Description:**

The work under this item shall consist of furnishing and installing a complete working 4-camera video detection system at the locations as specified in the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

A 4-camera video detection system shall consist of a complete assemblage of the video detection equipment and requirements components for detecting vehicles and bicycles per the direction and approval of the City of Chandler Traffic Control Center (TMC) and Traffic Operations Supervisor, and the approval of the City CIP Inspector.

### **Materials:**

The video detection equipment will be FLIR – TRAFISENSE Dual 2 (645) (one per approach). The video detection system shall include all necessary equipment and accessories required to install a complete working detection system. The video detection equipment shall include, but not be limited by the following items (refer to City's Approved Product List):

- TI BPL2 Edge BIU&SIU Interfaces: Two interfaces are required per Traffic Signal Cabinet.
- SDR-240-48 Mean Well Power Supply, and Cables: One Power Supply is needed for every four sensors to ensure adequate power distribution.

- One (1) 10” Steel Din Rail and Two Unistrut Clips with Screws: One set (including the Din Rail and Clips) is needed per Power Supply to securely mount the power supply within the cabinet.
- Phoenix Contact Ground Terminal Block MFR #3044092: One Ground Terminal Block per Camera
- Phoenix Contact White Terminal Block MFR #3045075: One White Terminal Block per Camera
- Phoenix Contact Black Terminal Block MFR #3045088: One Black Terminal Block per Camera
- Altech Corp Fuse Block MFR #CF4U: One Fuse Block per Power Supply
- Little Fuse SLOW BLOW 3.15A 5X20MM Glass Cartridge 250VAC MFR 02183.15HXP: One fuse per Fuse Block
- Pelco Astro-Brac Product #AG-0169-74-96-PNC: One mount per approach is needed to securely install the camera on the signal arm for optimal detection.
- BELDEN 1036A 18-1T STR BC PVC O/A FOIL SHD PVC JKT 105C 300V BLK/WHT/RED UL PLTC OR ITC

Placement of detection zones will be by means of a notebook computer (PC) operating the software suite provided under this item. The VGA mode monitor, integral to the notebook computer (computer screen), will be able to show the detection zones superimposed on images of traffic scenes. Contractor shall work with City TMC to ensure detection zones are correct.

The video detection system will optimally detect vehicle passage and presence when the MVP sensor is mounted 30 feet, or higher, above the roadway when the image sensor is adjacent to the desired coverage area, and when the distance to the farthest detection zone location is not greater than 10 times the mounting height of the camera.

### **Warranty, Support and Service:**

The contractor shall provide a minimum of one-year warranty for the video detection cameras. Ongoing software support by the contractor shall include software updates of the camera sensor, modular cabinet interface unit and computer applications. These updates will be provided free of charge during the one-year warranty period. The contractor shall maintain a program for technical support and software updates following expiration of the warranty period.

### **Construction Requirements:**

A member of the City’s TMC will supervise the installation and testing of the video detection system.

The video detection camera shall be installed and optimized by an authorized FLIR representative per manufacturer's specifications using the PELCO Astra-Brac camera mount between outside signal heads on the level part of signal arm for optimal detection. The contractor shall install a drip loop at each camera mount.

The final mounting location shall be approved by the City's TMC and City Traffic Operations Supervisor, which will inspect and approve the installation and mounting location of the camera prior to acceptance.

**Measurement:**

The Video Detection System will be measured as unit for each video detection system furnished and installed.

**Payment:**

The accepted quantity of Video Detection System, measured as provided above, will be paid for at the contract unit price each, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including sensors, cabling, mounting brackets, interface panels, and all other components necessary to provide a complete functional system.

**ITEM NO. 40 SIGN ASSEMBLY (IISNS)**

**Description:**

The work under these items will consist of furnishing all materials, labor, and equipment necessary for developing shop drawings and mounting details and installing the Internally Illuminated Street Name Signs (IISNS) as specified in the Project Plans.

**Materials:**

The work under this item will conform to the City of Chandler Standard Details C-606 and C-607 and the Manufacturer's requirements.

**Construction Requirements:**

The work under this item will conform to City of Chandler Standard Details C-606, C-607, and C-608 and the Manufacturer's requirements.

IISNS cabling will run un-spliced from the traffic signal control cabinet to the IISNS.

**Measurement and Payment:**

Sign Assembly (IISNS) will be measured as a unit for each IISNS and will be paid for at the contract unit price each, for the IISNS designated in the bidding schedule, which price

will be full compensation for the work, complete in place described and specified herein and on the Project Plans, including IISNS cabling, mounting brackets, and incidentals necessary to complete the work.

- ITEM NO. 41      TYPE A SIGNAL POLE, TYPE A, ADOT DWG T-SL 4.01**
- ITEM NO. 42      TYPE PB, PUSH BUTTON POLE, ADOT DWG T-SL 4.27**

**Description:**

The work under these items shall consist of furnishing all materials and constructing new traffic signal poles at the locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

The work under these items will conform to ADOT Standard Drawing No. T-SL 4.01 and T-SL 4.27, City Approved Product List, and ADOT Standard Specifications Subsection 731-2.

**Construction Requirements:**

The work under these items will conform to City Standard Detail C-720, ADOT Standard Drawing No. T-SL 4.01 and T-SL 4.27 and in accordance with ADOT Standard Subsection 731-3 and City's Engineering and Design Standards Manual.

**Measurement:**

The traffic signal poles will be measured as a unit for each type of pole furnished and installed.

**Payment:**

The accepted quantities of traffic signal poles, measured as provided above, will be paid for at the contract unit price each, for the type of pole designated in the bidding schedule, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including all hardware, wire, and incidentals necessary to complete the work.

- ITEM NO. 43      TYPE QC SIGNAL POLE**
- ITEM NO. 44      TYPE RC SIGNAL POLE**

**Description:**

The work under these items shall consist of furnishing all materials and constructing new

traffic signal poles at the locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

The work under these items will conform to City Details C-710, C-713, C-714 and C-717, City' Approved Product List, and ADOT Standard Specifications Subsection 731-2, except as modified herein.

**Construction Requirements:**

The work under these items will conform to City Details C-710, C-713, C-714 and C-717, C-18, and C-720, ADOT Standard Drawing No. T-SL 4.28 and in accordance with ADOT Standard Subsection 731-3, except as modified herein, and City's Engineering and Design Standards Manual.

**Measurement:**

The traffic signal poles will be measured as a unit for each type of pole furnished and installed.

**Payment:**

The accepted quantities of traffic signal poles, measured as provided above, will be paid for at the contract unit price each, for the type of pole designated in the bidding schedule, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including all hardware, wire, and incidentals necessary to complete the work.

|                    |                                 |
|--------------------|---------------------------------|
| <b>ITEM NO. 45</b> | <b>20 FT MAST ARM (TAPERED)</b> |
| <b>ITEM NO. 46</b> | <b>35 FT MAST ARM (TAPERED)</b> |
| <b>ITEM NO. 47</b> | <b>40 FT MAST ARM (TAPERED)</b> |
| <b>ITEM NO. 48</b> | <b>55 FT MAST ARM (TAPERED)</b> |

**Description:**

The work under these items shall consist of furnishing all materials and constructing new mast arms for traffic signal poles at the locations shown on the project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

The work under these items will conform to City Details C-710, C-713, C-714 and C-717, City's Approved Product List, and ADOT Standard Specifications Subsection 731-2.

**Construction Requirements:**

The work under these items will conform to City Details C-710 C-713, C-714 and C-717, and in accordance with ADOT Standard Subsection 731-3 and City's Engineering and Design Standards Manual.

**Measurement:**

The traffic signal mast arms will be measured as a unit for each type of mast arm furnished and installed.

**Payment:**

The accepted quantities of traffic signal mast arms, measured as provided above, will be paid for at the contract unit price each, for the type of mast arm designated in the bidding schedule, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including all hardware and incidentals necessary to complete the work.

**ITEM NO. 49      METER PEDESTAL CABINET**

**Description:**

The work under this item shall consist of furnishing and installing meter pedestal cabinets at the locations shown in the project plans and in accordance with the details shown on the plans, the manufacturer's specifications, and the requirements of these specifications,

The meter pedestal cabinet assembly shall consist of the foundation, electrical equipment and components, and all necessary hardware and incidentals necessary to complete work.

**Materials:**

The meter pedestal cabinet shall conform to the City's Approved Products list, City Detail C-721, ADOT Standard Drawing No. TS 3-5, and ADOT Standard Specifications Section 734-2, except as modified herein.

The meter pedestal foundation will be 3,000 psi Class S concrete and will conform to ADOT Standard Drawing No. TS 2-6 and ADOT Standard Specifications Section 734-2, except as modified herein.

**Construction Requirements:**

The work under these items will conform to ADOT Standard Drawings No. TS 2-6 and TS 3-5, City Detail C-721, and in accordance with City's Engineering and Design Standard Manual, and ADOT Standard Specifications Section 734-3, except as modified herein.



**Measurement:**

Traffic Signal Meter Pedestal Cabinet will be measured as a unit for each cabinet furnished and installed.

**Payment:**

The accepted quantities of Traffic Signal Meter Pedestal Cabinet, measured as provided above, will be paid for at the contract unit price each, complete in place, which price shall be full compensation for the work described and specified herein and, on the plans, including foundations, conduit, elbows, anchor bolts, and all other components necessary to provide a complete functional assembly.

**ITEM NO. 50 CONTROL CABINET**

**Description:**

The work under this item shall consist of furnishing and installing traffic control cabinet assembly at the location shown in the project plans and in accordance with the details shown on the plans, the manufacturer's specifications, and the requirements of these specifications,

The traffic control cabinet assembly shall consist of the foundation, controller, complete assemblage of electrical equipment and components for controlling the operation and timing of traffic control signals.

**Materials:**

The control cabinet will be a Mobotrex Atc 4-Door cabinet per City's Approved Products List and ADOT Standard Specifications Subsection 734-2, except as modified herein.

The traffic signal controller will be a McCain ATC EX2 TS2 Type 1 (per City's Approved Products List) Controller and will conform to the current editions of the ADOT Standard Specifications Section 734--2, except as modified herein.

The control cabinet foundation will be 4,000 psi Class S concrete and will conform to the manufacturer's specifications and ADOT Standard Specifications Subsection 734-2, except as modified herein.

**Construction Requirements:**

The work under these items will conform to City Detail C-723, the manufacturer's specifications, and ADOT Standard Specifications Section 734-3, except as modified herein.

**Measurement:**

The traffic signal control cabinets will be measured as a unit for each cabinet assembly furnished and installed.

**Payment:**

The accepted quantities of traffic signal control cabinets, measured as provided above, will be paid for at the contract unit price each, complete in place, which price will be full compensation for the work described and specified herein and on the plans, including foundation, controller, service terminal boxes, cabinet mounted service enclosures, meter sockets, breaker panels, foundations, conduit, elbows, anchor bolts, clearance pad, auxiliary signal controls, external logic modules and all other components necessary to provide a complete functional assembly for controlling the operation and timing of traffic control signals.

**ITEM NO. 51      EMERGENCY PRE-EMPTION SYSTEM**

**Description:**

The work under this item will consist of furnishing and installing emergency pre-emption system, at the locations as specified in the project plans and in accordance with the details shown on the plans and the requirement of these specifications.

The emergency pre-emption system shall consist of the vehicle sensors, phase selector cards, wires, and all appurtenances required for the operation of the system.

**Materials:**

The pre-emption system equipment will be Opticom Model No. 721 per the City's Approved Product List and conform to ADOT Standard Specifications Subsection 734-2, except as modified herein.

The pre-emption system will include the following equipment:

- Opticom 721 (One per Approach)
- 762 Phase Selector (Two per Traffic Signal Cabinet)
- Opticom 138 Detector Cable

**Construction Requirements:**

The emergency vehicle pre-emption system shall be furnished and installed as shown on the plans, and in accordance with these specifications and ADOT Standard Specification Subsection 734-3

The pre-emption sensors will be mounted on the specified poles and for specified directions as indicated on the project plans. Sensors will be attached to the mast arm of the specified poles in a rigid and waterproof manner, with cables routed inside the mast arm and pole shaft to the cabinet. Sensors will be aimed by the contractor for maximum distance sensing.

The contractor is responsible for installing all components, making all connections and adjusting sensors for the emergency pre-emption system.

Phase selectors will be placed in the appropriate input file slots in the traffic signal controller cabinet by the contractor.

Preemption cables will run unspliced from the sensors to the existing controller cabinet and will be furnished and installed and terminated in the cabinet by the Contractor, under this item.

Preemption cables will be clearly tagged and marked in the controller cabinet and each pull box they pass through, designating the direction, phase or corner served. The Contractor is responsible for ensuring the emergency pre-emption system is properly aimed and ready for activation prior to the date of turn-on. The contractor will make any adjustments to sensor aiming or cabling, as requested by City Representatives and the City's TMC.

The pre-emption system will be tested by the contractor to insure proper operation.

**Measurement:**

Emergency pre-emption system will be measured as a unit for each pre-emption system furnished and installed.

**Payment:**

The accepted quantities for the emergency pre-emption system, measured as above, will be paid for at the contract unit price each, complete in place, which shall be in full compensation for the work described and specified herein and, on the plans, including pre-emption sensors, phase selector cards, cables, testing, and other components necessary to provide a complete functional emergency pre-emption system.

- ITEM NO. 52      TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE II)**
- ITEM NO. 53      TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE IV)**
- ITEM NO. 54      TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE V)**
- ITEM NO. 55      TRAFFIC SIGNAL MOUNTING ASSEMBLY (TYPE VII)**

**Description:**

The work under these items shall consist of furnishing and installing traffic signal mounting assemblies at the locations as specified in the Project plans and in accordance with the details shown on the plans and the requirements of these specifications.

**Materials:**

The work under these items shall conform to the City's Approved Product List and ADOT Standard Specifications Section 733-2, except as modified herein.

**Construction Requirements:**

The work under these items shall conform to the City's Approved Product List and ADOT Standard Specifications Section 733-3, except as modified herein.

**Measurement:**

The traffic signal mounting assemblies will be measured as a unit for each type of mounting assembly furnished and installed.

**Payment:**

The accepted quantities of traffic signal mounting assemblies, measured as provided above, will be paid for at the contract unit price each, for the type of mounting assembly designated in the bidding schedule, which price shall be full compensation for the work, complete in place, as specified herein and on the project plans, including visors, backplates, and incidentals necessary to complete the work.

- ITEM NO. 56      TRAFFIC SIGNAL FACE (TYPE F) (LED)**
- ITEM NO. 57      TRAFFIC SIGNAL FACE (TYPE FLASHING YELLOW ARROW) (LED)**
- ITEM NO. 58      TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND) (LED COUNTDOWN)**

**Description:**

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal indications and pedestrian signal indications at the locations as specified in the project plans and in accordance with the specifications.

## **Materials:**

The work under these items will conform to the City's Approved Product List, ADOT Traffic Standard Drawings and ADOT Standard Subsection 733-2, except as modified herein.

All traffic signal indications will be Light Emitting Diode (LED) modules.

Vehicle type LED modules will fit in all standard, incandescent vehicle traffic signal housings. Each module will be complete, consisting of:

- A lens
- LED circuit board inclusive of all of the LEDs and required circuit components
- 36-inch 16 AWG wire leads with strain relief and quick connect terminals
- A rigid housing for protection in shipping, handling and installation
- A one-piece neoprene gasket.

## **Pedestrian Signal Module:**

The pedestrian LED traffic signal module will fit the message of a 16 inch by 18-inch pedestrian signal housing built to the PTCSI Standard. The "HAND" and "MAN" symbol will be 12 inches in height and conform to PTCSI Standards.

Pedestrian LED signal modules will be designed so, that when operated over the specified ambient temperature and voltage range, the signal will attract the attention of, and be readable to, a viewer (both night and day) at all distances from 9.8 feet to 196.9 feet (3 meters to 60 meters). The measured chromaticity coordinates of the LED pedestrian signal module will conform to the chromaticity requirements of Section 5.3 and Figure C of the PTCSI standard.

The LED pedestrian signal module will be man/hand overlay with fill-in figures for both the man and the hand. Outline and/or side-by-side modules will not be used.

The LED pedestrian signal module will conform to all other specifications in this document, where applicable.

The LED signal module will be rated for use in the ambient operating temperature range, measured at the exposed rear of the module, of -40oF to +165oF (-40 oC to +74 oC).

The LED signal module will be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, Section 4.7.2.1 and 4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electronic components.

The LED signal module lens will be UV stabilized and scratch resistant.

The external lens surface for all vehicle signals will be smooth, with no raised features, to minimize the collection of dirt, diesel smoke, and other particulate contaminates, and to facilitate periodic cleaning. External lens facets are not allowed. The LED signal module

lens will be UV stabilized and scratch resistant.

The LEDs will be mounted and soldered to a printed circuit board. The LED signal module will be watertight when properly mounted in an installed traffic signal housing. The LED signal module will utilize the same mounting hardware used to secure the incandescent lens and gasket assembly and only require a screwdriver or standard installation tool to complete the mounting into an existing traffic signal housing built to the VTCSH Standard. Unit will connect to existing electrical wiring utilizing quick connect terminal.

The LED signal module will be a single, self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The power supply for the LED signal module will be an integral part of the module. The LED signal module assembly will weigh less than 5 pounds.

The assembly and manufacturing process for the LED signal module will be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

When necessary, modules will have a prominent and permanent vertical indexing indicator, i.e., UP ARROW or the word UP or TOP, for correct indexing and orientation inside signal housing.

Each individual LED signal module will be identified for Warranty purposes and clearly marked with:

- Manufacturer's name
- Date of manufacture
- Unit serial number
- Nominal operating voltage
- Power consumption in Watts

#### **Environmental:**

The LED signal module will operate over the temperature range of -40oF to +165oF (-40 oC to +74 oC). The LED signal module will be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, Section 4.7.2.1 and 4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electronic components.

#### **Electrical – Input:**

LED signal modules will operate from a 60 +/- 3 cycle AC line power over a voltage range from 80 VAC RMS to 135 VAC RMS. The control circuitry will prevent current flow through the LEDs in the off state to avoid any false indication as may be perceived by the human eye. The LED traffic signal module will be operationally compatible with NEMA TS - 1 and NEMA TS - 2 conflict monitoring parameters.

Green LED signals will not illuminate for input voltages below 35 VAC RMS and will illuminate for all input voltages higher than 45 VAC RMS (voltage will be regulated above 80 VAC RMS). This requirement is so that a green indication will not illuminate due to a “floating” or high-impedance neutral connection.

All wiring and terminal blocks will meet the requirements of Section 13.02 of the VTCSH standard. Two secured, color coded, 36 inch (914 mm) long 600 V, 20 AWG minimum, jacketed wires, conforming to the National Electrical Code, rated for service at +221oF (+105oC), are to be provided for electrical connection.

The signal module on-board circuitry will include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.6, NEMA Standard TS-2, 1992.

The individual LED light sources will be wired so that a catastrophic failure of one LED light source will result in the loss of not more than 5 percent of the signal module light output. One LED failure in an LED Signal Module will not affect any other LEDs. In case of a failure of one LED, only one LED will be lost and not an entire string or module.

Power factor will be 90% or greater, at nominal rated voltage, at 77oF (25 oC), after 60 minutes of operation.

Total harmonic distortion induced into an AC power line by an LED signal module, operated at nominal operating voltage, with a power consumption equal to or greater than 15 watts at 77oF (25 oC) will not exceed 20 percent. Total harmonic distortion induced into an AC power line by an LED signal module, operated at nominal operating voltage, with a power consumption less than 15 watts at 77oF (25oC) will not exceed 40 percent.

The LED signal and associated on-board circuitry must meet Federal Communications Commission (FCC) Title 47, subpart B, Section 15 regulations concerning the emission of electronic noise.

### **Optical – Output:**

The light intensity and distribution from LED signal modules will as a minimum, meet the current ITE and CAL TRANS standards and measurement criteria for vehicle traffic control, even after a 30-minute warm up of continuous operation.

Test data to verify the performance as meeting the ITE intensity requirements at +165oF (+74oC) will be supplied from either of the following (or another certified independent test lab):

Lighting Sciences  
7630 East Evans Road  
Scottsdale, AZ 85260

ETL Testing Laboratories  
3933 US Route 11

### Cortland, NY 13045-0950

The light output of all LED vehicle signal modules will also meet ITE specifications for chromaticity.

Fluctuations in line voltage over the range of 80 VAC to 135 VAC will not affect luminous intensity by more than +/- 10 percent.

LED traffic signals will be temperature compensated so as to maintain intensity at elevated temperatures. LED traffic signal will be tested and documented by CAL TRANS as being in compliance with CAL TRANS intensity standards at elevated temperatures.

The LEDs will not exhibit degradation of more than 30% of their initial light intensity following accelerated life testing (operating at +185oF (+85oC) and 85% humidity, for 1000 hours). AlGaAs technology is not acceptable.

#### **Warranty:**

All LED traffic signal modules supplied will be warranted for five years against manufacturing defects.

LED traffic signal modules will be performance warranted to be in compliance with ITE and CAL TRANS minimum intensity standards, at +165oF (+74 oC), after a period of three years, measured at 117 volts AC.

Failures due to acts of God, abuse, and accidents are excluded from warranty coverage.

The manufacturer expressly warrants that all goods furnished will conform to all specifications and appropriate standards, will be new, and will be free from defects in material or workmanship. The manufacturer warrants that all such goods will conform to any statements made on the containers or labels or advertisements for such goods and that any goods will be adequately contained, packaged, marked, and labeled. The manufacturer warrants that all goods furnished will be merchantable and will be safe and appropriate for the purpose for which goods of that kind are normally used. If the manufacturer knows or has reason to know the particular purpose for which the City intends to use the goods, the manufacturer warrants that such goods will be fit for such particular purpose. The manufacturer's warranty will run to the City, its successors, and assigns. The manufacturer agrees to replace or correct defects of any goods not conforming to the foregoing warranty promptly, without expense to the City, when notified of such nonconformity by the City, provided the City elects to provide the manufacturer with the opportunity to do so. In the event of failure of the manufacturer to correct defects in or replace nonconforming goods promptly, City, after reasonable notice to the manufacturer, may make such corrections or replace such goods and charge the manufacturer for the cost incurred by the City in doing so.

#### **Construction Requirements:**

The work under these items will conform to ADOT Standard Specifications Subsection



733-3, except as modified herein.

**Measurement:**

The traffic signal indications and pedestrian signal indications will be measured as a unit for each type of signal face furnished and installed.

**Payment:**

The accepted quantities of traffic signal indications and pedestrian indications, measured as provided above, will be paid for at the contract unit price each, for the type of signal face designated in the bidding schedule, complete in place, which price will be full compensation for the work as specified herein and on the project plans, including visors, backplates, lamps and incidentals necessary to complete the work.

**ITEM NO. 59      LED LUMINAIRE (TRAFFIC SIGNAL)**

**Description:**

The work under these items shall consist of furnishing all materials, labor, and equipment necessary for furnishing and installing LED luminaires at locations as specified in the project plans and in accordance with these specifications.

**Materials:**

LED Luminaires will be in accordance with the City's Approved Product List, City's Engineering and Design Standard Manual and ADOT Standard Specifications, except as modified herein. The luminaire model and house side shields will be the model will be as indicated on the plans.

**Construction Requirements:**

Installation of luminaire will meet City standards and per the City's Approved Product List, and the plans. LED Luminaires will be compatible with and meet mounting requirements per ADOT Standard Drawings and ADOT Standard Specifications Subsection 731, except as modified herein.

House side shields will be installed on the luminaires as indicated on the plans.

**Measurement:**

LED Luminaires will be measured as a unit for each installed in accordance with the plans.

**Payment:**

LED Luminaires, measured as provided above, will be paid for at the contract unit price

each, which will be full compensation for the work, complete in place, including any associated equipment required in the traffic signal cabinet and for installation.

## **ITEM NO. 60      ELECTRICAL CONDUCTORS**

### **Description:**

The work under this item shall consist of furnishing all materials, labor, and equipment necessary to install traffic signal and signal lighting conductors in conduits at the locations as specified in the project plans and in accordance with these specifications.

### **Materials:**

The material under this item will conform to the City of Chandler Engineering and Design Standards Manual, City's Approved Product List, ADOT Traffic Signals & Lighting Standard Drawings, and ADOT Standard Specification Subsection 732-2, except as modified herein.

### **Construction Requirements:**

The work under this item will conform to City of Chandler Engineering and Design Standards Manual, City's Approved Product List, ADOT Traffic Signals & Lighting Standard Drawings, and Subsection 732-3 of the ADOT Standard Specifications, except as modified herein.

### **Measurement:**

Conductors (Signals and Signal Lighting) will be measured as a complete unit of work. This method of measurement shall be used for signal and lighting conductors shown in the signal conductor schedule on the project plans.

No measurements or direct payment will be made for conductors in poles and pull boxes, the cost being considered as included in the contract price for the pole and pull box items.

### **Payment:**

Conductors (Signals and Signal Lighting), measured as provided above, will be paid for at the contract lump sum price, which price will be full compensation for the work, complete in place.

**ITEM NO. 61      FIBER OPTIC CABLE (SINGLE MODE 144)**  
**ITEM NO. 62      UNDERGROUND FIBER OPTIC SPLICE CLOSURE**

**Description:**

The Contractor will furnish all labor, material, and equipment necessary to install Single Mode Fiber Optic (SMFO) communication cables in conduit as shown on the Project Plans.

The SMFO Communication subsystem will be completed with the use of two types of SMFO cable installations. These are (1) 144-fiber trunk or branch cables used for the main communication system backbone, and (2) 12-fiber service cable used for connecting the main trunk or branch cables to the field devices, as shown on the Project Plans. The traffic service cables will be factory terminated to a “Gator Patch” patch panel or approved equal (non-factory terminated poly-mod systems are not an approved equal product), unless otherwise directed by the designated City Representative.

The trunkline cable will have all fibers sealed from moisture and dust particles in a new or existing splice enclosure in No. 9 splice vaults, or as directed by the designated City Representative.

The Contractor will furnish all labor, material, and equipment necessary to install fiber optic splice closures at locations shown in the Project Plans or approved splicing diagrams, and at the cut end of a cable run, or as directed by the designated City Representative. These splice closures will be used to house and protect the splices.

Due to the ever-changing nature of the City fiber network, the approved fiber splicing diagrams will be provided by the City only after the fiber conduit infrastructure installation has passed inspection and prior to the fiber optic cable installation. Should a discrepancy exist between the Project Plans and the approved fiber splicing diagrams in regard to splice locations, the fiber splicing diagrams take priority, unless otherwise directed by the designated City Representative.

**Materials:**

**General Requirements:**

**(A) Documentation:**

The Contractor will provide certification that the cables furnished and installed are in conformance with the appropriate specifications. This certification will be in two parts:

- (1) The Contractor will secure a certification from the cable manufacturer that the cable is in conformance with the Rural Electrification Administration (REA) Bulletin 1753F-601 (where applicable) and these Technical Specifications.
- (2) The Contractor will certify that the installation of the communication cable

subsystem is in accordance with the cable and splice manufacturer's recommendations and these Technical Specifications.

**(B) Warranty:**

Each item of the communication cable subsystem will be warranted by the Contractor against all defects in material and workmanship in accordance with Subsection 106.13 of the ADOT Standard Specifications for Road and Bridge Construction.

**(C) Technical Requirements:**

The 144 fiber SMFO will be a continuous cable of sufficient length to permit the associated runs shown on the Project Plans to be made without full cable splices between specified splice locations. Full cable splices will be submitted to City Representatives for approval. The cable will be wound on the reel in such a manner as to provide access to both ends of the cable to enable testing to be performed while the cable is on the reel. Fiber optic cable cuts, splices or cable sheath cuts must only be created as indicated on splicing diagrams, unless otherwise directed by the designated City Representative. If the Contractor violates these cut requirements, the entire length of cable from the previous splice point will be removed from the project and a new cable will be pulled at no additional cost to the project. The City will provide the approved fiber cable diagrams for those splice locations along with the approved splicing diagrams for those locations.

Where cable is pulled through an intermediate pull box, the Contractor will ensure that the cable is protected from sharp edges and excessive bends. The Contractor will not cause the cable to violate the minimum bending radius for which the cable was designed. If the Contractor violates the bending radius, the entire length of cable from the previous splice point will be removed from the project and a new cable will be pulled at no additional cost to the project.

Cables will be pulled in the conduit with a split mesh cable grip designed to provide a firm hold on the exterior covering of the cable. Cable will not drag on the ground or pavement during installation. The Contractor will ensure that the tensile load on the cable does not exceed the allowed maximum by using a system that includes a means of alerting the installer when the pulling tension approaches the limit and displays the actual tension on the cable. The Contractor may supplement this procedure with a breakaway tension limiter set below the recommended tensile limit of the cable being pulled.

During pulling, the cable will be lubricated at each pull box. The Contractor will use a pre-lubrication or continuous lubrication method. The lubricant used will be compatible with the cable jacket as recommended by the cable manufacturer. Liquid detergent will not be used. The Contractor will supply documentation identifying either the manufacturer recommendation or a published standard recommending the maximum pulling tension and speeds and these values will not be exceeded. The Contractor will have this documentation on site during each pull.

If the Contractor fails to continuously lubricate the cable, the work will be stopped until the terms of this specification are being met to the satisfaction of City Representatives. No compensation for the work stoppage will be given.

Where cables are to be installed in conduit with existing cables or wires that will remain, the Contractor will not damage the existing cables or wires. The Contractor will disconnect, remove, reinstall, and reconnect the existing cables and wires as necessary to facilitate the installation of the new cable, only after prior authorization of the designated City Representative, as critical data is often transmitted over these cables. Prior notification of a minimum of two weeks in advance will be necessary. The Contractor will be responsible for any damage to the existing cables or wires caused by this operation. New and existing conductors will be terminated and labeling reconciled. No additional payment will be made as this work will be considered incidental to the associated items. A police officer will be required if the traffic signal is turned off to pull wire.

Cable will not be installed in any conduit until the associated pull boxes are installed prior to cable installation.

**(D) Technical Specifications:**

The SMFO cable furnished and installed by the Contractor will be designed for underground, in-conduit, and building installation applications and will meet the following requirements:

- Fibers per cable: 144 for main trunkline or branch cables
- 48 for building entrance cables
- 12 for traffic signal service cables
- Cladding diameter: 125.0 microns
- Core diameter: 8.3 microns nominal
- Core eccentricity: < 1.0 micron (0.3 typical)
- Temperature range: -34°C to +74°C.
- Coating thickness: 50 ±15 microns
- Cable construction: Loose tube
- Outer jacket: Polyethylene
- Bending radius: 20 x Dia. minimum
- Tensile strength: 600 pounds
- Strength member: Dielectric
- Mode field diameter: 9.3 ±0.5 microns
- Zero dispersion wavelength: 1300 to 1320 nm
- Zero dispersion slope: < 0.092 picosec/nm<sup>2</sup>-km
- Cutoff wavelength: 1260 nm
- Point discontinuities at 1300 nm: < 0.1 dB

The 12-fiber service cable will be installed with the “Gator Patch” patch on the floor of the traffic signal controller cabinet. Jumper cables utilizing ST connectors will be installed from the “Gator Patch” to the required equipment. The cost of the jumper

cables will be incidental to the service cable. The Contractor is required to seal the unused connectors and fibers from moisture and dust particles. The “Gator Patch” patch will not be pulled through conduit at any time.

Attenuation will be less than 0.35 dB per km at 1300 nm. The Contractor will not exceed the fiber optic cable manufacturer's guidelines for receiving signal input level. The Contractor will be responsible for all damages caused by an excessive input signal level. A violation of the power limit may damage equipment.

**Colors:**

The color of the outer jacket will be black, and the cable must be outdoor rated. The single mode trunk cable “buffer tube” outer jackets and fiber jackets will be colored in accordance with EIA-598 and designated as shown on the table below.

Sub cable (Buffer Tube) Jacket Cover Assignments for Trunk Cables:

| <u>Fiber Buffer Tube</u> | <u>System Corridor Application</u>            |
|--------------------------|---|
| Blue                     | As directed by designated City Representative |
| Orange                   | As directed by designated City Representative |
| Green                    | As directed by designated City Representative |
| Brown                    | As directed by designated City Representative |
| Slate                    | As directed by designated City Representative |
| White                    | As directed by designated City Representative |
| Red                      | As directed by designated City Representative |
| Black                    | As directed by designated City Representative |
| Yellow                   | As directed by designated City Representative |
| Violet                   | As directed by designated City Representative |
| Rose                     | As directed by designated City Representative |
| Aqua                     | As directed by designated City Representative |

Typical Fiber Color Assignments:

| <u>Fiber</u> | <u>Fiber color</u> | <u>System Application</u> | <u>Mode</u> | <u>Fiber</u> |
|--------------|--------------------|---------------------------|-------------|--------------|
| 1            | Blue               | Traffic Signal Data       | SM          | 9/125um      |
| 2            | Orange             | Traffic Signal Data       | SM          | 9/125um      |
| 3            | Green              | Future T.S., CCTV, VMS    | SM          | 9/125um      |
| 4            | Brown              | Future T.S., CCTV, VMS    | SM          | 9/125um      |
| 5            | Slate              | Future T.S., CCTV, VMS    | SM          | 9/125um      |
| 6            | White              | Future T.S., CCTV, VMS    | SM          | 9/125um      |

Each fiber optic cable will be coiled at a minimum radius of 20 times the outer diameter of the fiber cable in pull boxes. For example, if the cable has a diameter of .5 inches, the minimum radius will be no less than 10 inches. At no time will any fiber optic cable be direct buried throughout the project limits.

### **(E) Splice Closure:**

Fiber optic splice closures will be either shell design or cylindrical, butt-end style corrosion resistant, watertight, and meet the requirements of GR-771-CORE. Underground splice closures will seal, bond, anchor, and provide efficient routing, storage, organization, and protection for fiber optic cable and splices. The splice closure will provide an internal configuration and end cap with a minimum of two express ports for entry and exit of backbone cable and a minimum of three additional ports for additional fiber cables.

Splice closures will be designed to accommodate heat-shrink fusion splice trays in sufficient quantities to perform the required number of splices. At a minimum, the splice closure will accommodate 144 splices. Each splice closure will be supplied with at least one spare heat shrink fusion splice tray and the hardware to terminate at least one additional 12-fiber service cable.

Splice closures will have a reliable dual seal design with both the cable jackets and core tubes sealed, without the use of water-blocking material. The splice closures will be capable of being opened and completely resealed without loss of performance. Splice closures will be of a type that allows for existing fiber cables to be removed without having to cut the fibers to allow for future replacement of the splice enclosure without a loss of service.

The splice closure minimum dimensions will be at least 29 inches long by 11 inches wide, unless otherwise directed by the designated City Representative.

### **Construction Requirements:**

#### **(A) Installation Procedure:**

Fiber optic cable installation will be allowed to begin only after the fiber conduit infrastructure installation has passed inspection and the approved fiber splicing diagrams have been provided to the Contractor by the designated City Representative.

Each City of Chandler No. 9 pull box will have 100 feet of slack cable and 50 feet of slack cable in a No. 7E pull box loosely looped.

All fiber optic cable will be pulled in innerduct except as specified on the Project Plans. Care will be exercised during cable pulls through conduit bends, poles and cabinets, and looping in junction boxes. In the event the minimum fiber optic radius cannot be maintained during the installation, the Contractor will submit alternative resolutions to City Representatives for review.

To reduce the possibility of damage to the outer jacket of the fiber optic cable,

protective measures will be used when the cable is installed. The requirements, herein, will be followed but do not limit the installation to only those identified. The purpose of the installation specifications is to ensure protection of the fiber optic cable when it is installed. Other protective measures, not specified herein, may be taken during installation if it will ensure protection of the cable.

Repair of cable jacket will not be permitted. Jacket damage will require a new cable run.

A cable feeder guide will be used between the cable reel and the face of the duct and conduit to protect the cable and guide it off the reel and into the duct. The cable will be carefully inspected for jacket defects as it is removed from the reel. If defects are noticed, the pulling operation will be stopped immediately and City Representatives notified.

Precautions will be taken during installation to prevent the cable from being kinked or crushed.

A pulling eye will be attached to the cable end and be used to pull the cable through the duct and conduit system.

As the cable is pulled off the reel and into the cable feeder guide, it will be sufficiently lubricated with a lubricant that will be of the water-based type and approved by the cable manufacturer.

Dynamometers or break away pulling swings will be used to ensure the pulling-line tension does not exceed the installation tension values specified by the cable manufacturer. The mechanical stress placed upon the cable during installation will not be such that the cable is twisted and stretched.

The pulling of the cable will be hand-assisted at each pull box or splice vault. The cable will not be crushed, kinked or forced around sharp corners.

At each pull box and at each cabinet the cable will be visibly marked as follows:

**“CAUTION - FIBER OPTIC CABLE”**

The markings will be affixed with nylon ties and will be a warning label that will never fade or rub off.

The length of cable being pulled will not exceed the maximum cable tension as specified by the cable manufacturer.

The supplier of the fiber optic cable will provide assistance and/or supervision in the installation process unless the installing company meets the requirements of the supplier.

Where applicable each cable should be labeled and attached to the cable racks with Ty-Raps immediately upon entering the box. Cables should be looped independently of one another. Ty-Raps will contain the cable loops of one cable.



Ty-Raps should be tightened so that they prevent cable slippage but do not deform or damage the cable sheath. Ty-Raps will be used as necessary to neatly and independently rack the cables.

Splicing of the SMFO cable will be done only at splice vaults as shown on the Project Plans or approved fiber splicing diagrams by fusion splicing technique. Should a discrepancy exist between the Project Plans and the approved fiber splicing diagrams in regard to splice locations, the approved fiber splicing diagrams take priority, unless otherwise directed by the designated City Representative. The City will provide fiber cable diagrams for those splice locations along with the approved splicing diagrams for those locations. All splices and connectors will be prepared in accordance with the cable manufacturer's, splice manufacturer's, or connector manufacturer's recommendations. Splices will introduce less than 0.2 dB attenuation and connectors will introduce less than 0.5 dB attenuation. Contractor will submit to City Representatives, all full cable splice locations for approval.

#### **Cable Marking:**

The completed (trunk, branch and service) cables will have sequential length markers in a contrasting color to the cable jacket, at regular intervals of three (3') feet, (in English units) along the outside of the jacket. Printed on the jacket will be the cable code to identify the number and type of fibers, the manufacturer's name, manufacturer's part number, the year of manufacture and the sequential length markings. The marking will be readable and proportionate in height to the cable and must be permanent and weatherproof.

#### **(B) Splicing:**

At the locations shown in the Project Plans or in the fiber splicing diagrams, the Contractor will perform all required fusion splicing. Should a discrepancy exist between the Project Plans and the fiber splicing diagrams in regard to splice locations, the approved fiber splicing diagrams take priority, unless otherwise directed by the designated City Representative. The Contractor will install the splice closure in a manner proposed to and approved by the designated City Representative, such that the trunk cable entries are on the same side of the end cap so if additional fiber optic cables are installed at a later date, the two existing seals remain undisturbed.

All splices will be prepared in accordance with the manufacturer's recommendations. Each splice between two new fibers will introduce less than 0.1 dB attenuation. For splices between one new and one existing, or reconnection of two existing fibers, the maximum allowable attenuation will be 0.3 dB.

## **(C) Test Requirements:**

### **General Requirements:**

Installation and testing of all equipment will be accomplished by the Contractor in conformance with these technical specifications.

### **Test Requirements for Fiber Optic Cable:**

The SMFO cable will be tested after installation to verify the integrity of the fiber optic cable plant and its performance. The Contractor will test all terminated fibers of each SMFO cable using an Optical Time Domain Reflectometer (OTDR) in accordance with EIA/TIA-455. Splices testing  $-0.1$  dB or greater or connectors testing  $-0.5$  dB or greater will be remade. If any fibers are out of specification, the entire SMFO cable run will be replaced at no additional cost to the project. Records of all fiber installation attenuation measurements will be logged and supplied to the City prior to final acceptance. These records will be used as a future reference.

### **Measurement:**

The communication cable will be measured by the linear foot for each size cable furnished and installed; it will be measured horizontally along the route between center of pull boxes and center of pull box to center of cabinet.

No payment will be made for cable that is below ground in vertical conduit stub-ups or for slack cable in pull boxes, or field equipment cabinets. No measurement will be made for splicing and terminating cables, testing, tracer wire, pull tape, or for lubricant. All materials required to complete the system will be incidental to the cable.

No measurement or payment will be made for removal or installation of existing cable as required by the Project plans, specification, or direction by City Representatives.

Fiber optic splice closures will be measured as a unit for each splice closure unit furnished, and installed, complete in place, including the fusion splicing of the fibers in new splice closures.

### **Payment:**

The communication cables will be paid as measured per linear foot. Contract unit price will be full compensation for the cable described and specified herein and on the Plans, complete in place and tested. Use of equipment required to remove or install cable, including equipment to limit pull-tension and speed, and racks and hooks for pre-existing pull boxes will be incidental to these items and will not be measured or paid. This installation equipment will remain the property of the Contractor.

The accepted quantities of fiber optic splice closures, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place and as specified herein and on plans.

## **ITEM NO. 63      FIBER OPTIC PATCH PANEL (12 PORT)**

### **Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary for installing and testing Fiber Optic Patch Panel (12-Port), including but not limited to, termination panel, cabling, and miscellaneous materials required to provide a complete and operational fiber connection.

### **Materials:**

Termination panels (a.k.a. patch panels) shall be furnished and installed per the plans and these special provisions. Termination panels for branch fiber provided shall support 12 strands of fiber and SC connections. Termination panels shall be incorporated on a mounting plate with other CCTV cabinet equipment (if applicable) and mounted on the side of the cabinet.

### **Construction Requirements:**

All splices and connectors shall be prepared in accordance with the cable manufacturer's, splice manufacturer's, and connector manufacturer's recommendations. Each splice shall introduce less than 0.1 dB attenuation except where new cable is spliced to existing the maximum attenuation is 0.3 dB, and each connector shall introduce less than 0.5 dB attenuation. All splicing shall be done in a splice van or enclosure to protect fibers from excess dust. No open-air splicing is allowed.

All connectors for termination shall be factory assembled. No hot melt or mechanical connectors will be accepted.

### **Measurement:**

The Fiber Optic Patch Panel (12-Port) will be measured as a unit for each item, furnished and installed, complete in place.

### **Payment:**

The accepted quantity of Fiber Optic Patch Panel (12-Port), measured as provided above, will be paid for at the contract unit price each, complete in place and successfully tested.

## ITEM NO. 64      CCTV CAMERA SYSTEM

### Description:

The work under this item shall consist of furnishing all materials, labor, and equipment necessary for installing and testing the CCTV cameras system including, but not limited to, cameras, camera housings, pan/tilt/zoom assemblies, mounting hardware, power/communications/video cabling and miscellaneous materials required to provide a complete and operational CCTV system at the locations shown on the plans and in accordance to these specifications.

### Materials:

The CCTV cameras will be the following:

| Manufacturer        | Model Number                 |
|---------------------|------------------------------|
| Axis Communications |                              |
| Camera:             | P5655-E                      |
| Midspan POE:        | T8134 60W                    |
| Pole Mount: Cable:  | T91L61<br>Belden 7929A CAT5E |

Refer to the plans and City's Approved Product List for specific CCTV requirements. All materials provided will be from new un-depreciated stock. Refurbished materials are not acceptable. All materials provided will be currently supported by the manufacturer and not scheduled for end-of- life.

The contractor will furnish mounting arms and required mounting hardware to install the CCTV assembly on the poles as shown on the plans. The contractor will supply all grommets, connectors, cabling, nipples, and incidental hardware required to install the power and network cabling from the CCTV cabinet to the CCTV Assembly.

The contractor will coordinate with the City TMC to obtain IP addressing, and program IP and other communications parameters into the CCTV camera.

### Construction Requirements:

The contractor will mount the CCTV assembly which includes the camera mount, camera housing, camera, zoom lens, tilt/pan drive, and receiver/driver on traffic signal poles per the requirements of the CCTV camera supplier. The contractor will work with the TMC for approval of the CCTV mounting location.

No wire, cables, or conductors will be exposed from the base of the tilt/pan drive to the ground. All conductors will be routed inside the support structure.

The surge suppression rack will be installed in the traffic signal cabinet and all surge suppressors connected per the supplier/manufacturer's instructions. All surge protector leads will be as straight and short as possible. The mounting bolts for the chassis and terminal strips will not protrude from the outside of the enclosure. All cabling, connectors, and hardware required to interconnect the various CCTV field and fiber optic communications equipment will be furnished and installed by the Contractor.

## **(A) Test Requirements**

### **(1) General:**

All CCTV components will be subject to testing and monitoring to determine conformance with all applicable specifications and to ensure proper operation of the equipment and system.

### **(2) Stand-Alone Tests:**

The test will exercise all stand-alone (non-network) functional operations of the CCTV. The tests will verify the following:

- Control of focus, zoom, digital zoom, white balance, iris, tilt/pan, and power on/off
- Response to automatic preset positioning commands
- Display of Camera ID information and directional indicators
- Video “blacked out” when in a privacy zone
- Presence and quality of video signal during bright sunlight and night conditions
- Retention of non-volatile RAM data (i.e., sector text, preset positions)

### **Measurement:**

The CCTV Camera System will be measured as unit for each system, furnished and installed, complete in place.

### **Payment:**

The accepted quantities for the CCTV Camera System, measured as above, will be paid for at the contract unit price each, complete in place, which shall be in full compensation for the work described and specified herein and, on the plans, including cameras, camera housings, pan/tilt/zoom assemblies, mounting hardware, power/communications/video cabling, testing, and other components necessary to provide a complete functional CCTV Camera system.

## **ITEM NO. 65      FIELD HARDENED ETHERNET SWITCH**

### **Description:**

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install Field Hardened Ethernet Switches, capable of providing 8-port managed Ethernet communications and network-managed Layer 2 functionality.

### **Materials:**

The supplied Ethernet Switches will be EtherWAN, Model No. EX78934E-0VB. The ethernet switch will include the following:

- One (1) Power Supply – Model No. EPOW-54-600 600W
- SFP Transceivers – Model No. EX-1250TSP-MB5L-AS (Four per Traffic Signal Cabinet)
- Four-foot CAT6 Cables (Seven per Traffic Signal Cabinet)

### **General Requirements:**

The Ethernet switch will provide a minimum of four 1000Base-Tx and four gigabit combo ports. The four combo ports are 10/100/1000Mbps configurable for single mode optical fiber by the use of Comnet compatible SFP modules. One SFP module will be provided for each combo port (3 total) and will have a maximum path length of 10km at 1310nm Wavelength. Fiber optic jumper cables will be duplex LC (on SFP end) and ST (on termination panel end). The Contractor will provide a complete and operational communication system.

#### **(A) Documentation:**

Submittals and documentation will conform to Subsection 103 Submittal Requirements as amended by these Technical Specifications.

#### **(B) Warranties:**

All work will be guaranteed for a minimum of one year, after City Representatives and the City of Chandler have issued final system acceptance.

#### **(C) Physical:**

The Ethernet switch will conform to standard mounting shelf mounting provisions within the controller cabinet. No printed circuit board (PCB) will be openly exposed in the construction of the Ethernet modem. All connectors, indicators, and replaceable components will be permanently marked and traceable to the supplied documentation, including schematics and parts lists. The Ethernet switch's external markings will include the product name, model number, part number, serial number, manufacturer's name, and manufacturer's address.

**(D) Environmental:**

The Ethernet switch will be designed to operate in –20 to +70 degrees Celsius with no cooling air flow required.

**(E) Maintenance Interface:**

The Ethernet switch will include at least the following visual signal indicators:

- Transmit Data for each port or channel
- Receive Data for each port or channel
- Optic signal status
- Power (PWR)

**(F) Electrical:**

(1) Power:

The power supply will operate from 115 VAC  $\pm 15\%$ , 60 Hz  $\pm 10\%$ , single phase power. The power supply will include at least a 6' power cable with a male power connector compatible with standard UL requirements.

(2) Grounding Provisions:

Provisions to prevent damage to Ethernet Switch's electronics from lightning via any metallic cable interconnect with the transceiver will be included in the design.

**(G) Communications Interface:**

(1) Electrical Data Interface:

The Ethernet switch will connect to the Serial Server by a CAT-5e cable via RJ-45 ports.

(2) Optical Interface:

The optical interface to the Ethernet switch's will be single mode fiber, via ST connectors. Mode fields of either depressed cladding or matched cladding will be accommodated by the connector. Female connectors will be provided on the Fiber Optic Transceiver's as follows:

- Transmit
- Receive

**Construction Requirements:**

**Installation Requirements:**

The Ethernet switch will be free of sharp edges. Power input requirements (i.e., voltage and current) will be marked on the case. All power connections will be protected against inadvertent contact by maintenance personnel.

### **Testing Requirements:**

The Contractor will verify proper operation of the communications between each of the traffic signal controllers and the City's traffic signal control system in the TMC.

### **Measurement:**

Field Hardened Ethernet Switch installation will be measured as a unit for each Ethernet switch, complete in place, to include, but not limited to power supply, CAT6 cabling, jumper cabling, SFP modules, and port connections, in accordance with the Project Plans and these Technical Specifications.

### **Payment:**

The accepted quantity of Field Hardened Ethernet Switch, measured as provided above, will be paid for at the contract unit price per each, which will be compensation for the work, complete in place, as specified in the Project Plans and herein.

## **PERMITS**

The Contractor will comply with the requirements of MAG Standard Specifications Sections 107.2 except as modified herein.

The Contractor will obtain all permit(s) required to construct the project, including but not limited to:

### **City Water Meter Permit**

The Contractor will obtain City permit(s) required for fire hydrant water trucks (Contractor submits and pays for this permit, no separate payment will be made for this permit; the cost being considered as included in the price of other contract items) and new landscape water meters (City pays for the permit but Contractor must sign and pick up the permit).

### **City Encroachment, Civil and Building Permits**

The Contractor will obtain City permit(s) required for encroachment, civil and structures. The City pays for the permits but Contractor must sign and pick up the permit.

### **City Administrative Use Permits**

The Contractor will pay and obtain City permit(s) required for construction trailer and temporary facilities. No separate payment will be made for this permit, the cost being considered as included in the price of other contract items.



### **Town of Gilbert Permits**

The Contractor will pay and obtain Town of Gilbert permit(s) required for traffic control within their jurisdiction. No separate payment will be made for this permit, the cost being considered as included in the price of other contract items.

### **Air Quality Permit**

The Contractor will obtain a Maricopa County Air Quality Permit for this project. The Contractor will be required to prepare a comprehensive fugitive dust control plan, in accordance with the guidelines established in Rule 310 of Maricopa County Regulation III, Control of Air Contaminants. The Contractor will complete and submit the control plan with the permit application and obtain approval from the County prior to any activities which may produce dust pollutants.

No separate payment will be made for the preparation, implementation of the fugitive dust control plan, or permit fees, the costs being considered as included in the price of contract items.

### **Erosion Control Permit**

The Contractor will submit the Arizona Pollutant Discharge Elimination System Notice of Intent (NOI) and the Notice of Termination (NOT) to the Arizona Department of Environmental Quality. The Contractor and the City Representatives will jointly review the Stormwater Pollution Prevention Plan (SWPPP) prior to submission of the NOI and prior to the start of work. The SWPPP will be maintained throughout the duration of the project in accordance with the APDES requirements and a current version will be available at all times at the project site.

No separate payment will be made for the preparation, implementation of the SWPPP, or permit fees, the costs being considered as included in the price of contract items.

### **Salt River Project (SRP) Construction License**

This project requires the Contractor to remove existing SRP facilities in some locations and install new SRP facilities in other locations. As such, SRP requires the Contractor obtain a Construction License for a nominal fee. No separate payment will be made for the preparation of the construction license or license fees, the costs being considered as included in the price of contract items.

### **COOPERATION WITH UTILITIES**

The Contractor shall comply with the requirements of MAG Standard Specifications Sections 105.6 and ADOT Standard Specifications Section 107.15 except as modified

herein.

The locations of existing underground utilities have been shown on the Project Plans to the best of the Design Engineer’s knowledge and information provided by each utility company; however, it shall be the Contractor’s responsibility to notify Arizona 811 at 602-263-1100 (1-800-STAKE-IT), field verify all utility locations and to coordinate in a timely manner with pertinent utility companies so that any obstructing utility installation may be adjusted without delay to the Contractor’s project schedule.

For new utilities (water, sanitary sewer, power, signal, fiber optic, electrical, drainage, etc.) that are installed as part of this contract, the Contractor shall act as the interim locator of the new utility until As-Builts are completed by the Contractor and Final Acceptance for the project is granted by the City of Chandler. The Contractor shall be responsible for locating all underground existing facilities by vacuum exploration (potholing) to determine depth, alignment, and clearance in a timely manner; the cost for potholing new or existing utilities shall be included in the cost for other items of work.

Coordination with the pertinent utility companies has been a part of the development of this project. Construction activities shall be coordinated and scheduled to incorporate the following applicable utility construction activities:

- SRP Streetlighting Removals
- SPR Streetlighting Relocations
- SRP New Service for Traffic Signal

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

| <b>UTILITY COMPANY</b>                | <b>CONTACT</b>   | <b>PHONE</b> |
|---------------------------------------|------------------|--------------|
| MCI Verizon                           | Jeremy Slaughter | 602-793-8105 |
| Cox                                   | Jeff Krause      | 520-867-7526 |
| Lumen/Terra Technologies              | Kevin Wagner     | 815-245-9640 |
| Roosevelt Water Conservation District | Tabatha Langland | 480-988-9581 |
| Southwest Gas                         | Gene Florez      | 480-730-3841 |
| Salt River Project – Distribution     | Michael Larance  | 602-236-2065 |
| Salt River Project – Transmission     | Paul Grant       | 602-236-6310 |
| Salt River Project – Land Agent       | Jessica Miles    | 602-236-8189 |

Regardless of the means and methods utilized during the construction of the work, the Contractor shall protect all existing utilities during construction. Any damages to the existing utilities resulting from the scope of work, shall be the repaired and paid for by the Contractor. The Contractor shall follow all blue stake and state laws regarding the protection of utilities during construction.

It shall be the Contractor's responsibility to determine the exact location of the utilities prior to any construction operations and to notify the above-mentioned utility companies at least two working days prior to commencing any work on the project.

**The following utility companies have facilities needing adjustment during construction:**

**Salt River Project – Distribution**

SRP – Power Distribution has facilities that are in conflict within the project limits including streetlight and electrical box at approximately Sta 47+22, 70' Right and at Sta 47+39, 86' Right.

New traffic signal service to the Queen Creek Road and Layton Lake Boulevard traffic signal is also necessary.

The street lighting improvements are identified per SRP Work Order No. T3503492. The Contractor will be required provide and install new SRP conduit and trench connection between the City's traffic signal meter and the new SRP single phase transformer and from the new single-phase transformer to the SRP switching cabinet. The Contractor will be required to provide a 4' x 4' pit in front of the SRP transformer so SRP can connect the conduit to the transformer. SRP will complete the connections between the Contractor installed trench and conduit and the SRP transformer. SRP will also be responsible for installing the service conductors from the city traffic signal meter to the SRP transformer (traffic signal point of delivery).

**The following utility companies have facilities in the area, but are not anticipated to be in conflict:**

**Salt River Project – Transmission**

If questions arise before or during construction related to overhead clearance requirements, please contact SRP Safety Services for assistance, at 602-236-8117. SRP Safety Services shall be contacted for a pre-con meeting to review the work plan and clearance requirements for a heavy equipment or any construction activities in the proximity of the OH electrical lines.

**Roosevelt Water Conservation District (RWCD)**

RWCD has a 42" irrigation pipe throughout the project limits. The 42" pipe is located on the north side of Queen Creek Road and runs east/west through the project limits. There are no conflicts anticipated with the RWCD facilities.

**COOPERATION BETWEEN CONTRACTORS AND OTHER AGENCY PROJECTS**

Contractor will conform to the requirements of MAG Section 105.7 except as modified herein.

The Contractor is advised that there will be construction activity by others adjacent to the project site. The Contractor will coordinate the work to accommodate the construction activities.

The Contractor will contact the City of Chandler, Town of Gilbert, RWCD, SRP, Chandler Public School District, Gilbert Public School District, and adjacent private development contractors to verify other nearby projects in the vicinity of this project.

The Contractor is advised to schedule and coordinate all work activities and regional transit so as not to adversely conflict with this work. This includes coordinating with schools regarding the relocation of school bus stops during construction. The Contractor will be expected to attend any monthly coordination meetings set up by other agencies or other prime contractors working on adjacent projects to discuss coordination.

#### **NOTIFICATION TO PROPERTY OWNERS**

The Contractor will provide advance notice (at least 30 days) to residential and local business property owners along Queen Creek Rd when constructing improvements adjacent to their property that may require action by a property owner to remove, relocate, etc. existing features that impede construction by the Contractor.

No separate payment will be made for providing advance notice, the costs being considered as included in the price of other contract items. Any claims resulting due to delay in providing sufficient notice by the Contractor will not be approved.

#### **TRAFFIC CONTROL**

##### **Access Requirements for Pedestrians:**

The Contractor will maintain ADA accessible passable walkway along Queen Creek Road at all times during construction.

##### **Traffic-Related Work Restrictions:**

No lane restrictions or intersection closures will be allowed during special events or holiday times as determined by the City.

No trenches will be left open overnight in areas that are not fenced in to prohibit access to vehicles and pedestrians. All trenches within the roadway will be plated or backfilled and paved prior to allowing vehicles to travel on the section of roadway.

## **PART B: GENERAL INFORMATION**

### **TRAFFIC SIGNAL CONSTRUCTION MEASURES**

The contractor shall comply with the following measures for installing traffic signal equipment. The cost of complying with the Traffic Signal Construction Measures will be considered incidental to the other project bid items.

1. **Compliance with Specifications:** All work must be accomplished in accordance with City Standards, Specifications, and Supplements, ADOT Standard Specifications and Drawings, MAG Standards and Specifications, or as directed by the Engineer.
2. **Certified Technicians and Equipment Requirement:** The City of Chandler mandates at least two International Municipal Signal Association (IMSA) certified traffic signal technicians on site during all phases of any traffic signal work. One technician must be at least a Level II. The contractor must provide verification of certification. If a certified technician is not on site, a stop work order will be issued. Temporary and contract employees do not satisfy this requirement. The contractor shall furnish at a minimum one bucket truck and one IMSA certified technician for the installation of traffic signal equipment requiring a lift within the existing roadway.
3. **Personnel List Submission:** Prior to starting any type of construction, the contractor shall submit a list containing names and qualified status of personnel that will be on the immediate job site to the Engineer, the City CIP Construction Manager, or City CIP Inspector. Any changes in this list require immediate notification to the Engineer, the City CIP Construction Manager, or City CIP Inspector.
4. **Reporting Damage:** Any traffic signal equipment damage must be reported immediately to the City CIP Inspector. Damage to traffic signal equipment caused by the contractor's work must be repaired or replaced by the contractor at their expense as required by the City. A City of Chandler traffic signal technician must inspect these repairs.
5. **Operational Requirements:**
  - o Traffic signals cannot be dark or in flash mode for more than two hours.
  - o Loss of communication must be repaired within 24 hours.
  - o Unused or inactive signal heads must be properly covered with approved traffic signal head covers; trash bags, burlap, and tape are not acceptable.
6. **Electrical Compliance:** Grounding and bonding of all electrical systems must be maintained according to National Electrical Code (NEC) Article 250 during all phases of installation, maintenance, or repair.
7. **Repair Response:** If the contractor cannot respond or make repairs within the specified time frames, the City Traffic Operations Division will make the necessary repairs and charge the contractor. The repair charge will be \$350.00 or the actual accumulated charge for the employees' time, materials, and equipment, whichever is greater.
8. **Cost Responsibility:** The contractor is responsible for any costs related to the repair or replacement of damaged traffic signal equipment caused by their work.

9. **Incident Reporting:** If a traffic signal problem occurs (e.g., indication outage, knockdowns, utility power outages) not directly resulting from the contractor's work, a City traffic signal technician should be called to respond. If it is determined that the contractor's or subcontractor's work caused the malfunction, the contractor must pay all repair costs.
10. **Fiber Optic Cable Damage:** If traffic signal fiber optic cable is damaged due to the project, it must be replaced in the increment for which it was originally installed, as directed by the Telecommunications & Utility Franchise Manager. No new splice points will be introduced into the system.
11. **Professional Workmanship:** The contractor is responsible for ensuring the quality of work, which must be performed in a professional, neat, and workmanlike manner. The City CIP inspector will determine if the work meets these criteria and may request rework if necessary.
12. **Workmanship Warranty:** The contractor must warranty workmanship for a period of 12 months from the date of acceptance.
13. **Equipment Warranties:** Equipment warranties must be provided to the City CIP Construction Manager, and City Traffic Operations and Transportation Division upon project acceptance.
14. **Coordination with Inspectors:** The contractor must work with City CIP Inspectors for inspections and coordinate with Traffic Operations and Transportation Division for materials and other job-related issues.
15. **Inspection Requests:** Inspection and material requests must be submitted 24 hours prior to the inspection or material pickup.
16. **Inspection Requirements:**
  - Before starting a project
  - Before backfilling trenches and bore pits, and before covering the conduit
  - Before filling pull box holes
  - Before pulling traffic signal and/or fiber optic cable
  - When pole foundations are ready for concrete pouring
  - During concrete pouring for foundations
  - Upon project completion
17. **Signal Head Inspection:** All traffic signal head assemblies must be inspected by the City CIP Inspector and Traffic Operations Division prior to installation by the contractor.
18. **Traffic Control Compliance:** The contractor must comply with the City's Traffic Barricade requirements per the Engineering and Designs Standards Manual for any work within City limits and acquire necessary temporary traffic control permits for the project.
19. **Public Safety:** Approved worksite barricading, and other safety measures must be provided by the contractor to protect the public from trenches and other worksite hazards during working and non-working hours.
20. **Construction Material Management:** Construction materials must not be left in roadways, on sidewalks, or in any location that may impede safe vehicle and pedestrian movement.

21. **Site Security:** The contractor must ensure a secure and safe construction site at the end of each workday.
22. **Employee Safety Procedures:** Employees must follow reasonable safety procedures, including the use of safety hats, gloves, goggles, reflective vests, and safety harnesses when working in a bucket truck.

### **TRAFFIC SIGNAL ACTIVATION REQUIREMENTS**

The Contractor shall comply with the following requirements for installing Traffic Signal Activation. The cost of complying with the Traffic Signal Activation will be considered incidental to the other project bid items.

The purpose of these requirements is to minimize any delay and potential issues on the day of activation. The City Traffic Operations and Transportation Divisions reserve the right to cancel at any time.

1. **Scheduling Activation:** Traffic signal activation must be scheduled two weeks in advance and should occur on a Tuesday or Thursday.
2. **Completion Requirements:** The following items must be 100% complete before requesting traffic signal activation:
  - Utility power
  - ITS communications, including CCTV.
  - Signal head plumb and properly aligned.
  - Wire terminations (including field indications)
  - Electrical grounding
  - Vehicle and pedestrian detection
  - Uninterruptible power supply
3. **Associated Striping:** All related striping, including stop bars and crosswalks, must be installed concurrently with signal activation.

**EXHIBIT D**

**GIS / GPS DATA DELIVERY REQUIREMENTS**

**N/A**



**EXHIBIT E**

**FEDERAL PROVISIONS**

**N/A**