TECHNICAL SPECIFICATIONS

for

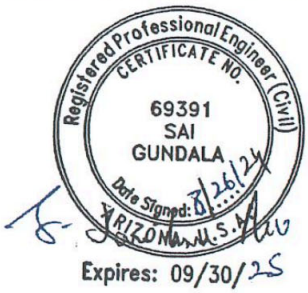
Scottsdale Road Bike Lane Continuation

(Curry to Continental)

Project No. 0000 MA TMP T0260 01C
ADOT TRACS No. T0260 01C
Federal Aid No. TMP-0(254)D
City of Tempe Project No. 6009741

Tempe

NFra, Inc: Roadway & Traffic



Expires: 09/30/25

J2 Engineering & Env. Design: Landscaping

Southwest Traffic Engineering: Traffic Signals

Prepared By:

NFra Inc.
a transportation engineering firm

77 East Thomas Road Phoenix,
Arizona 85012

August 26, 2024

Technical Specifications

Project Name: Scottsdale Road Bike Lane Continuation (Curry to Continental)
Project No.: 0000 MA TMP T0260 01C
ADOT TRACS No.: T0260 01C
Federal Aid No.: TMP-0(254)D

LOCATION OF WORK:

This project is located along Scottdale Road from Curry Road to Continental Drive within City of Tempe's jurisdictional limits. The north limit of the project is the dividing line between the City of Scottsdale and City of Tempe's jurisdictions.

PROPOSED WORK:

This project will provide bicycle lanes in each direction and provide connectivity to the north at Continental Drive. Curbs and medians will be reconstructed to accommodate the bicycle lanes and buffer space in each direction, while maintaining the existing configuration of three lanes in each direction along with left turning pockets. There are five signalized intersections, curb and gutter and sidewalk present throughout the corridor. In addition to the roadway improvements, the scope also includes ramp reconstruction to comply with Americans with Disabilities Act (ADA) requirements, signal and push button modifications, signing and markings, utilities relocation, landscaping and irrigation restoration.

ENVIRONMENTAL MITIGATION MEASURES:

The project mitigation measures are not subject to change without written approval from Arizona Department of Transportation Environmental Planning.

<u>Contractor Responsibilities</u>

- If vegetation clearing will occur during the migratory bird breeding season (March 1 – August 31), the contractor shall avoid any active bird nests. If active bird nests cannot be avoided, the contractor shall notify the Engineer to evaluate the situation. During the non-breeding season (September 1 – February 28) vegetation removal is not subject to this restriction.

- To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment shall be washed prior to entering the construction site and the contractor shall inspect all construction equipment and remove all attached debris, including plant parts, soil and mud, prior to the equipment entering the construction site.

- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction and hauling equipment and remove all debris, including plant parts, soil and mud, prior to leaving the construction site.

- The contractor in coordination with the engineer shall contact the Environmental Planning Hazardous Materials Coordinator at 602.920.3883 or 602.712.7767 at least 10 days prior to the commencement of any construction activity to ensure that an asbestos survey has been conducted within the 60 months prior to the start of the construction (Maricopa County Rule 370), or is there is a need for additional site assessment.

- The contractor shall contact the ADOT Environmental Planning Historic Preservation Team (602.712.7767 or 480.341.3029) at least 10 (ten) business days prior to the start of ground-disturbing activities to arrange for qualified personnel to monitor and be present during construction. ADOT's Environmental Planning - Historic Preservation Team will provide contact information on the qualified archaeological consultant to the Contractor for their records. ADOT's Environmental Planning - Historic Preservation Team will contact the qualified archaeological consultant regarding the project start date and provide Contractor information.

- The Contractor shall coordinate via email or phone with the qualified archaeological consultant (Christopher Garraty – 480.967.1343) and communicate the construction schedule for the duration of ground disturbing work in those areas where monitoring is needed.

- For milling activities, the roadway surface preceding the milling machine shall be kept sufficiently wet so as to prevent the generation of any visible fugitive dust particles, but not so wet as to cause excess runoff from the roadway surface onto the roadway shoulder.

- The Contractor shall ensure that an asbestos survey be conducted no more than 12 months before construction activities are scheduled to occur (Maricopa County Rule 370). This includes, but is not limited to contacting the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) 30 (thirty) days prior to when construction activities are scheduled to occur to determine the need for additional site assessments.

TECHNICAL SPECIFICATIONS AND PLANS:

The Work embraced herein shall be done in accordance with these technical specifications and the following documents.

Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction, latest Edition, herein after referred to as "MAG Standard Specifications". Copies are available on the Internet at http://www.azmag.gov/Newsroom/Publications.

Maricopa County Department of Transportation Supplement to the MAG Uniform

Standard Details and Specifications for Public Works Construction, Latest Edition, herein after referred to as “MCDOT Supplement”. Copies are available on the Internet at https://www.maricopa.gov/.

Tempe Supplement to the MAG Uniform Standard Details and Specifications for Public Works Construction, Latest Edition, and City of Tempe Public Works Department Engineering Division Standard Landscape and Irrigation Details and Specifications, herein after referred to as “City Supplement”. Copies are available on the Internet at http://www.tempe.gov.

In these Technical Specifications, all reference to the words “City” and “Department” shall mean City of Tempe.

All references to “Inspector” shall mean the City’s Inspector.

All references to “Engineer” shall mean the City Engineer or designated representative.

For some items, where required herein or on the project plans, the Work embraced herein shall be done in accordance with the Arizona Department of Transportation, Standard Specifications for Road and Bridge Construction, latest Edition, herein after referred to as “ADOT Standard Specifications”. Copies are available on the Internet at https://www.azdot.gov/.

And for some items, where required herein or on the project plans, the Work embraced herein shall be done in accordance with the Maricopa County Department of Transportation (MCDOT) Supplement to MAG Specifications and Details, latest Edition, herein after referred to as “MCDOT Supplement”.

CONTRACT TIME:

The contractor shall complete all project work within **308** calendar days beginning with the start date specified in the Notice to Proceed.

AVAILABLE INFORMATIONAL MATERIAL:

A Geotechnical Report will be available from the City of Tempe Public Works Department during the project advertisement. This report is for information only and are not part of the contract documents.

METHOD OF MEASUREMENT FOR PAYMENT:

Shall be in accordance with the Bid Schedule and in these Technical Specifications.

When the Standard Specifications uses a unit of measurement that differs from the unit of measurement shown on the Bid Schedule, the units shown on the Bid Schedule shall be controlling.

CONTAINMENT PLAN:

The contractor shall submit the containment plan to the Engineer at the preconstruction meeting. The containment plan and methods for containing debris shall be included in price of other contract items.

FAILURE TO MEET REQUIRED PROTECTION RATES:

Failure by the contractor to timely and adequately respond to the Engineer or designated representative's weekly notice of product requirements shall constitute a material breach of the Contract, whereupon the City may cancel the Contract and pursue any available legal remedy to recover for damages flowing from that breach.

MATERIAL SPECIFICATIONS:

The contractor shall conform to all material specifications defined in the scope of work, Construction Plans, Bid Schedule, and Technical Specifications as referenced in these Technical Specifications. Prior to the use or delivery of any materials, the contractor shall be required to furnish signed and notarized Certificates of Compliance to ensure that the City receives material that adheres to the previously mentioned specifications.

SURPLUS MATERIAL:

The contractor shall immediately remove surplus material from the project site.

ACCESS AND PROTECTION OF PEDESTRIANS:

At all times the contractor shall conduct his work to safeguard pedestrians within the vicinity of the project. Any holes or trenches left open overnight shall be protected with six-foot temporary chain link fence. If required or approved by the Engineer, the contractor shall provide Type II barricades and Type A flashing lights connected by warning tape, ribbon rope, a plywood covering or other protection over the holes. There is no measurement or direct payment for work site protection measures (e.g., temporary chain link fence, plywood or other protection over holes, warning tape, Type II barricades, Type A flashing lights, ribbon rope, etc) as the cost is considered included in price of other contract items. Access to pedestrians shall be maintained at all times.

ADJUSTING FRAMES, COVERS, MANHOLES, VAULTS AND VALVE BOXES:

All items that require adjustment, shall be surveyed and approved prior to start of work. These items shall be resurveyed after paving is complete and approved prior to closeout. If any of these items are required to be lowered to accommodate milling and paving, they shall be surveyed before and after the work is complete and approved prior to closeout. No separate payment will be paid for surveying the adjustment items and the cost is considered included in the price of the respective contract items.

COOPERATION WITH UTILITIES & LOCAL PROPERTIES:

The location of the underground and overhead utilities as shown on the plans is based on the best available information. The contractor shall not assume that this represents an exact location of the line. No guarantee is made to the accuracy of this location shown on the plans. The contractor shall determine for himself the exact location of all utilities. Should the contractor's operations result in damage to any utility, the location of which has been brought to his attention, he shall assume full responsibility for such damage. The contractor shall contact Arizona Blue Stake (telephone number 602-263-1100) a minimum of two (2) working days before beginning any underground work. In addition, the Blue Stake notification(s) shall be maintained on a current basis. Valves covers that are within the pavement that belong to City of Tempe, City of Scottsdale, Lumen and Southwest Gas will require adjustment to grade by the contractor. Coordination with the affected utilities will be required prior to any work.

Utility owners with utilities located in the vicinity of the project are listed below. Copies of existing permits, subject to availability, may be obtained from the City Permit Supervisor as listed below:

Bashir Hassan / Joantha Guthrie
City of Tempe
31 E. Fifth Street,
Tempe, AZ 85281
(480) 350-8520
Bashir_Hassan@tempe.gov
(480) 350-8875
Joantha_Guthrie@tempe.gov

The following utility companies have facilities in the area but are not anticipated to be in conflict:

AT&T
Kevin McGee / Eric Nowicki
1355 West University Drive,
Mesa, AZ 85201
(858) 232-3996
km4510@att.com
(480) 510-8107
En3010@att.com

Crown Castle Solutions
Jose Madrigal / Todd Gillam
2055 South Stearman Drive
Chandler, AZ 85286
(480) 735-6925
jose.madrigal@crowncastle.com
(602) 799-0818
Todd.gillam@crowncastle.com

MCI
Jesus Arrietta
6955 W. Morelos Place
Chandler, AZ 85226
(480) 349-1350
jesus.arrietta@verizon.com

Salt River Project
Christy Baltrus
P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-3112
christy.baltrus@srpnet.com

Southwest Gas
Andy Saks
1600 E. Northern Avenue
Phoenix, AZ 85020-3982
(480) 730-3855
andrew.saks@swgas.com

Zayo Communications
Matt Burke
(480) 257-7714
phoenixmaint@zayo.com

The following utility company has facilities in conflict with the proposed construction and anticipates relocating before construction commences:

Lumen
Theodore Reveles
1550 W. Deer Valley Road,
Phoenix, AZ 85027
(480) 600-2912
Theodore.Reveles@lumen.com

The removal of RT facility and the electric meter at Station 33+89 will be completed by April 5, 2024.

The following utility companies have facilities in conflict with the proposed construction and anticipates relocating during project construction:

Cox Communications
Matthew Sarceda / Jason Jensen
1550 W. Deer Valley Road,
Phoenix, AZ 85027
(602) 694-1616
matthew.sarceda@cox.com

(801) 735-2464
jjensen@terratechllc.net

Pedestal relocation at Weber Drive and Scottsdale Road has been completed. However, the vault on the northwest corner of Fillmore Street and Scottsdale Road will require adjustment during the construction of the sidewalk.

Salt River Project – Water and Irrigation
Christy Baltrus
P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-3112
christy.baltrus@srpnet.com

The irrigation delivery turnout structure located on the northeast corner of Scottsdale Road and Mckellips Road will be relocated to the east. The 24" irrigation line that extends north from this turnout structure will be rehabilitated by adding cure-in-place inside lining.

The following utility companies have facilities that require adjustments by the contractor during construction. The contractor shall reset manholes and valve covers as part of this project, and in accordance with the Technical Specifications and the plans.

City of Tempe
Joantha Guthrie
31 E. Fifth Street,
Tempe, AZ 85281
(480) 350-8875
Joantha_Guthrie@tempe.gov

City of Scottsdale
Jack Pence
7447 East Indian School Road,
Scottsdale, AZ 85251
(480) 312-5771
jpence@scottsdaleaz.gov

Lumen
Theodore Reveles / Tosha Fries
1550 W. Deer Valley Road,
Phoenix, AZ 85027
(480) 600-2912
Theodore.Reveles@lumen.com
(480) 735-8362
tfries@terratechllc.net

The following utility companies are the service providers to facilities within the project limits. The contractor shall secure service connections as part of the project construction and in accordance with the specifications and the plans. There will be no separate payment for coordination, grading or installing new J-boxes provided by the utility companies, the cost for which is considered included on other contract items.

Arizona Public Service (APS)
Ronnie Gandara
P.O. Box 53933,
Phoenix, AZ 85072-3933, M.S. 3277
(602) 320-7069
ronnie.gandara@aps.com

Salt River Project (SRP)
Christy Baltrus
P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-3112
christy.baltrus@srpnet.com

PROTECTION OF EXISTING PAVEMENT, SIDEWALK, CURB and GUTTER:

All existing pavement, sidewalk, curb and gutter not identified to be removed in the project plans shall be protected in place by the contractor. Damage as a result of the contractor's activities to any existing pavement not identified to be removed shall be repaired or replaced to match the existing pavement structure by the contractor at no additional cost to the City.

SAW CUTTING AND PAVEMENT MATCHING:

Saw cuts at the points of abutting existing pavements will be required. This shall include existing bituminous pavement, Portland cement concrete pavement, sidewalks, driveways and parking lots where new construction shall match the grade of existing surfaces that are to remain where called for on the Project Plans or where designated by the Engineer.

Existing pavements, which are to be matched, shall be trimmed to a neat true line with straight vertical edges free from irregularities with a saw specifically designed for this purpose. No wheel cutting will be allowed. Saw cuts shall be made to a minimum depth of 1½ inches and in all cases deep enough to insure a neat vertical joint.

Trimmed edges shall be painted with a light coat of asphalt cement or emulsified asphalt immediately prior to constructing the new abutting asphalt concrete pavements.

No measurement or direct payment will be made for saw cutting, the cost being considered included in the price of other contract items.

SECTION 301 – SUBGRADE PREPARATION:

301.3 RELATIVE COMPACTION: Section 301.3(A) of the MAG Standard Specifications is revised to read:

(A) Below pavement, curb and gutter, sidewalk, driveway, roadway shoulders, and other areas within right-of-way 95 percent

301.4 RELATIVE COMPACTION: Section 301.3(B) of the MAG Standard Specifications is hereby deleted.

SECTION 324 – PORTLAND CEMENT CONCRETE PAVEMENT (PCCP):

324.3.3 SUBGRADE AND BASE PREPARATION: the first sentence of the first paragraph of the MAG Standard Specifications is revised to read:

Subgrade and base shall conform to the applicable compaction requirements of Section 301 of the MAG Standard Specifications and elevation tolerances specified for the material involved, shall be kept smooth and compacted, and shall be free of all loose and extraneous material when concrete is placed.

FINAL CLEANING UP:

The contractor, at its own cost, shall restore the site to its pre-construction conditions. Before final acceptance, all private or public property and grounds occupied by the contractor in connection with the Work shall be cleaned of all rubbish; excess materials, temporary structures and equipment, and all parts of the work area shall be left in a condition acceptable to the Engineer. Costs for this item are considered to be included in the mobilization/demobilization bid price and no separate payment shall be made.

PAY ITEMS:

All pay items relating to the work indicated on the project plans and/or specifications are listed in the Bid Schedule. The contractor shall include all costs necessary to complete the project within these items. Any work necessary to complete the project as represented in the plans and/or specifications, which is not specifically noted to as a pay item on the Bid Schedule, shall be included in the total project bid cost and no separate payment shall be made. The following pay items correspond to the bid item numbers as shown on the Bid Schedule.

ITEM 1: CONSTRUCTION SURVEYING

Description:
The contractor shall be responsible to provide all survey work including, but not limited to, the establishment of horizontal and vertical controls, all construction staking, structures, alignment and elevation. Any monuments disturbed during the construction process shall be replaced by the contractor at the contractor's expense under the direction of a Registered Land Surveyor, registered in the State of Arizona. No work shall begin until the control data has been verified. Any differences in control data shall be

corrected and approved by the Engineer prior to proceeding with any construction activities including fabrication of materials. All grade breaks noted on the plans shall also be staked accordingly.

Method of Measurement:
This item will be measured for payment by the lump sum for the project.

Basis of Payment:
Payment for this item will be made at the contract lump sum price for all work complete and in place. No payment will be made for the resetting of stakes, references, benchmarks and other survey control.

ITEM 2: CONSTRUCTION SURVEYING AS-BUILTS

Description:
The contractor shall maintain a record set of plans at the job site. These shall be kept legible and current and shall show all changes or work added in a contrasting, reproducible color. The Registered Land Surveyor for this project shall certify As-Built drawings for this project and submit said As-Built drawings to the Engineer within 30 calendar days from the completion date for this project.

Method of Measurement:
This item will be measured for payment by the lump sum for the project.

Basis of Payment:
Payment for this item will be made at the contract lump sum price for final preparation and submittal of As-Built drawings complete and in place. The Engineer shall be the sole judge as to the acceptability of the record plans and receipt of an acceptable set is a pre-requisite for final payment.

ITEM 3: PERMITS AND FEES

Description:
The contractor shall obtain any necessary permits required to complete this project.

Method of Measurement:
This item will be measured for payment by the lump sum for the project.

Basis of Payment:
Payment for this item will be made at the contract lump sum price for all required permits and their associated fees with no mark up.

ITEM 4: MOBILIZATION/DEMOBILIZATION

Description:
City will compensate the contractor for one-time, round trip mobilization/demobilization of the contractor's personnel, equipment, supplies and incidentals, establishment of other facilities required for the performance of all work for the project site as part of this

project, as well as preparatory work and operations prior to the commencement of the work on the project sites. Demobilization will include all clean-up of the project site to pre-existing conditions prior to the contract close out. The contractor will take and provide a pre-construction video of the existing conditions prior to commencing construction.

Method of Measurement:
This item will be measured for payment by the lump sum for the project as a single complete unit of work.

Basis of Payment:
Payment will be made at the contract lump sum price. Payment shall be made in equal one-third portions. The first payment will be paid with contractor's initial billing. The second payment will be made when the total payments to the contractor for the pay items, exclusive of payments for mobilization/demobilization, equals one-half of the initial contacted amount, exclusive of mobilization, demobilization. The remaining one-third will be paid as part of the final payment due contractor.

When other contract items are adjusted as provided in MAG Standard Specification Section 109, and if the costs applicable to such items of work include mobilization costs, such mobilization costs will be considered as recovered by contractor in the lump sum price paid for mobilization, and will be excluded from consideration in determining compensation under Section 109.

If, at the Engineer's express written consent, the contractor performs additional mobilization/demobilization of personnel, material and/or equipment, the City will compensate the contractor for such expenses at the contractor's actual costs. The contractor shall provide all documentation for these costs at the request of the Engineer.

ITEM 5: CLEARING & GRUBBING

All work under this item shall be performed per the requirements of Section 201 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured for payment by the lump sum for the project site as a single complete unit of work.

Basis of Payment:
Payment for this item will be made at the contract lump sum price for all work complete and in place.

ITEM 6: REMOVAL OF TREES

Description:
The work under this item shall include the removal of existing trees that are 12" diameter to 36 " in diameter measured 1 foot off the existing undisturbed finish grade. All work shall be completed according to MAG Standard Specification Section 201 and the project plans.

Method of Measurement:
This item will be measured per Section 201.6 (B) of the MAG Standard Specifications.

Basis of Payment:
Payment for this item shall be per Section 201.7 of the MAG Standard Specifications.

ITEM 7: REMOVAL OF CONCRETE CURB

Description:
Existing concrete curb shall be removed at locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing concrete shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in linear feet rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 8: REMOVAL OF CONCRETE CURB AND GUTTER

Description:
Existing concrete curb and gutter shall be removed at locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing concrete curb and gutter shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in linear feet rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 9: REMOVAL OF CONCRETE SIDEWALKS, DRIVEWAYS AND SLABS

Description:
Existing concrete sidewalk, driveways and slabs shall be removed at various locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing concrete shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in square feet rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 10: REMOVAL OF ASPHALTIC CONCRETE PAVEMENT

Description:
The work under this item shall consist of furnishing all materials, equipment and labor necessary to remove existing Asphaltic Concrete (AC) pavement to the limits shown on the project plans and replace the removed pavement with new AC pavement in accordance with the details shown on the project plans.

Materials:
All materials shall conform to the requirements of the appropriate MAG specification and as detailed on the project plans, except as modified by these Specifications.

Construction Requirements:
All work shall conform to the requirements of the MAG Standard Specification 350 and as detailed on the project plans, except as modified by these Specifications.

Method of Measurement:
This item will be measured per square yard to the limits shown on the plans or as directed by the Engineer.

Basis of Payment:
Payment for this item will be made at the contract unit price per square yard, which shall be considered full compensation for the item, complete in place.

ITEM 11: REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT

Description:
Existing concrete Portland Cement Concrete Pavement shall be removed at various locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing improvements shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in square yards rounded to the nearest square yard.

Basis of Payment:
Payment for this item will be made per square yard at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 12: REMOVAL OF SIGNS

Description:
Existing signs shall be removed in accordance with MAG Standard Specification 350 and the project plans.

Method of Measurement:
This item will be measured by each.

Basis of Payment:
Payment for this item will be made at the contract unit price per each sign removed and related appurtenances, work complete and removed from the project site.

ITEM 13: REMOVAL OF PIPE (BACKFILL AND COMPACT)

Description:
Existing pipe shall be removed at locations within the project limits in accordance with MAG Standard Specification 350. Removal of pipe shall also include, backfilling and compaction, grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in linear feet rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price for all removal work, inclusive of backfilling, compaction, minor grading and restoration work for the impacted areas.

ITEM 14: REMOVAL OF EXISTING CONDUCTORS

Description:
The work under this item shall be per the requirements of Section 732 of the ADOT Standard Specifications.

Method of Measurement:
This item will be measured in linear feet rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 15: REMOVE (BUS STOP, AMENITIES AND CONCRETE SLAB)

Description:
Existing bus stop, concrete slab and associated amenities shall be removed at various locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing improvements shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured per each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price for all removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 16: REMOVE TRAFFIC SIGNAL POLES:

Description:
The work under this item shall consist of removing traffic signal poles (including associated foundations, mast arms, luminaire mast arms, and traffic signal faces) at the locations shown on the plans or as directed by the Engineer. Temporary signals will be required during removal and replacement of traffic signals.

Construction Requirements:
The contractor shall be responsible for removing traffic signal at the locations indicated in the project plans.

The existing pole foundations shall be removed in accordance with the requirements of Section 202 and section 737 of the ADOT Standard Specifications. Removed traffic signal foundations shall be completely removed, become the property of the contractor, and be legally disposed of offsite. The holes after removal of the foundations shall be backfilled, sealed and compacted.

Method of Measurement:
Remove Traffic Signal Poles will be measured as a unit for each pole removed.

Basis of Payment:
The accepted quantities of this item will be paid for at the contract unit price each, which price shall be full compensation, complete in place, as described herein and shown project plans, including providing temporary traffic signals until the replacement with new traffic signals and backfilling and compacting foundation holes.

ITEM 17: REMOVE BLOCK WALL

Description:
Existing block wall including footing shall be removed at locations within the project

limits in accordance with MAG Standard Specification 350. Removal of existing wall shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in linear feet rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price for all concrete removal work, including footing and any minor grading and restoration work for the impacted areas.

ITEM 18: REMOVE BITUMINOUS PAVEMENT (MILLING) (2")

Description:

This item shall consist of cold planning of existing asphalt at 2.00 inches below the lip of gutter at a maximum cross slope of 0.025. The milling machine shall have electronic grade controls.

The contractor shall not mill existing pavement until the Engineer approves the asphalt concrete mix design.

Contractor is responsible for locating all milling hazards on and below the surface within the areas to be milled including areas requiring special milling. Special milling is not a separate pay item and shall be paid for as Asphalt Milling. Existing asphalt concrete pavement shall be removed in accordance with these special provisions, using equipment specifically designed to remove such material by means of grinding or chipping, to a controlled line and grade. The equipment shall be capable of removing the existing pavement within one-eighth inch (1/8”) of the specified removal depth. The removal shall be accomplished in a manner which does not destroy the integrity of the remaining pavement, and which does not result in a contamination of the milled asphalt concrete with the underlying base material. Only equipment capable of removing material in the above stated manner shall be used.

The contractor shall remove the milled material and sweep the roadway clean with a power pick-up broom to the satisfaction of the Engineer, prior to the application of the tack coat. The Contractor shall always have a power pick-up broom available on the job site during the overlay operation to assure clean joints and to maintain a clean street prior to overlay operations, or other work. Regular power brooms (non pick-up) are not approved for use on this project.

The contractor shall be responsible for continually checking the milling operation to determine that the proper depth of milling has been achieved, that the proper profile and cross slope are achieved, and that the surface texture is (a) free from longitudinal ridges, and (b) has a uniform pattern. The Contractor must be alert of any locations where the mill height is leaving ½” or less of a previous asphalt lift. The Contractor shall immediately notify the Engineer when (a) the existing pavement thickness is found to be

less than anticipated and breaking of the underlying material occurs and/or (b) delamination of underlying material occurs.

The contractor may mill and place asphalt concrete pavement in separate operations, provided the milled area is filled with asphalt concrete within seven (7) calendar days. Any damage done to the exposed milling surface by traffic or other circumstances prior to the placement of asphaltic concrete, shall be repaired by Contractor as specified by the Engineer at no additional cost to the City.

The contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather.

Areas where the construction operation results in a transverse joint between a milled surface and a surface to be milled as part of the project scope of work, the Contractor must construct a transition via feathering of the milled surface. For any areas where the construction operation results in a longitudinal joint between the milled and non-milled surface, the Contractor must place W8-11 Uneven Lane signs in these areas per the MUTCD.

The contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. Dust control measures the Contractor plans to utilize must be submitted to the City Construction Manager prior to hauling material.

The work shall result in a clean milled surface to the specified depth for the area indicated by the construction documents including the areas immediately around and next to any individual hazard within the area to be milled. The edge of milled area shall form a straight clean-cut line.

A fog spray for dust control is required for all streets identified to be milled per MAG Section 329. Application rate shall be 0.04 gallon per square yard. The tack coat shall be applied after sweeping and prior to allowing traffic on the milled surface. The Contractor shall be responsible for clean-up of any tack coat tracking that occurs.

Construction Requirements:
All work shall conform to the requirements of the MAG Standard Specification 317 specification and as detailed on the project plans, except as modified by these Specifications.

The removal shall be accomplished in a manner which does not destroy the integrity of the remaining pavement and which does not result in a contamination of the milled asphalt concrete with the underlying base material. Only equipment capable of removing material in the above stated manner shall be used.

Asphalt concrete pavement adjacent to small radius curbs and other fixed objects that produce confined areas shall be removed with milling equipment specifically designed to operate in restricted areas. The equipment must be capable of removing asphalt

concrete of the specified thickness without damage to or displacement of the adjacent object(s). Roadway without intersecting roads, curb and gutter, etc. will not require asphalt milling unless requested by the Engineer.

The contractor must be alert of any locations where the mill height is leaving ½" or less of an underlying asphalt lift. If the asphalt is brittle and shows sign of breaking up the mill depth must be increased to remove the existing previous lift entirely and scarify the lift below.

The contractor shall be responsible for maintaining and protecting all work in progress and shall schedule removals and construction in a manner that minimizes inconvenience to the public and exposure of partially completed work to damage and weather.

The Contractor will apply only enough water to achieve compaction and maintain dust control. Surplus material shall be hauled from the job site and disposed of in accordance with Section 205 of the MAG Specifications. Dust control measures the Contractor plans to utilize must be submitted to Tempe prior to hauling material.

Method of Measurement:
This item will be measured per square yard to the limits shown on the plans or as directed by the Engineer.

Basis of Payment:
Payment for this item will be made at the contract unit price per square yard. Payment for Asphalt Milling at the contract unit price shall be full compensation for the work, complete-in-place, including all asphalt milling, milling around structures, removal, and disposal of milled materials, and sweeping. No additional payment for the application of dust control tack coat shall be made.

ITEM 19: REMOVE (PED PUSH BUTTON ASSEMBLY AND PEDESTRIAN SIGNS)

Description:
The work under this item shall consist of removing all pedestrian push button assemblies and pedestrian signs on existing signal poles and furnishing and installing caps to close the holes, at the locations shown in the plans and per the requirements of these specifications.

Construction Requirements:
The existing pedestrian push button assemblies and signs shall be removed from the existing poles, as shown on the project plans. The contractor shall cover all holes resulting from removing the existing pedestrian push button assembly. For every traffic signal pole where an assembly is removed from, a cap shall completely cover any exposed hole in a manner that will prevent moisture or water from getting into the area where the assemblies are removed. Covering the hole may require welding, grinding and refinishing to match the surface of the existing pole.

Method of Measurement:
This item will be measured as a unit to include all pedestrian push buttons and signs removed from a single traffic signal pole. No additional payment will be made for any hardware, equipment or any other necessary items to remove a complete assembly.

Basis of Payment:
The accepted quantities for this item, 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, as described and specified herein and shown on the plans including capping the hole.

ITEM 20: REMOVE EXST CONCRETE VALLEY GUTTER

Description:
Existing concrete valley gutter shall be removed at various locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing concrete shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in square feet rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 21: REMOVE (FIRE HYDRANT)

Description:
Existing Fire Hydrant shall be removed in accordance with MAG Standard Specification 350 and the project plans.

Method of Measurement:
This item will be measured by each.

Basis of Payment:
Payment for this item will be made at the contract unit price per each fire hydrant removed and related appurtenances, work complete and removed from the project site.

ITEM 22: REMOVE (CATCH BASIN)

Description:
Existing Catch Basin shall be removed in accordance with MAG Standard Specification 350 and the project plans.

Method of Measurement:
This item will be measured by each.

Basis of Payment:
Payment for this item will be made at the contract unit price per each catch basin removed and related appurtenances, work complete and removed from the project site.

ITEM 23: REMOVE BRICK PAVERS

Description:
Existing brick pavers shall be removed at various locations within the project limits in accordance with MAG Standard Specification 350. Removal of existing pavers shall also include minor grading and restoration of the removed area to the grades shown on the project plans prior to placement of proposed materials.

Method of Measurement:
This item will be measured in square feet rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price for all concrete removal work, inclusive of any minor grading and restoration work for the impacted areas.

ITEM 24: SUBGRADE PREPARATION

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 301 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square yards rounded to the nearest square yard.

Basis of Payment:
Payment for this item will be made per square yard at the contract unit price for all Subgrade Preparation, complete and in place as described above. Payment shall be compensation in full for stripping, scarifying, grading, excavating, hauling, filling, compacting and disposing of excess or unsuitable materials, together with all costs incidental thereto.

ITEM 25: AGGREGATE BASE COURSE, 12" THICK

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 310 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square yards rounded to the nearest square yard.

Basis of Payment:
Payment for this item will be made per square yard at the contract unit price for all Aggregate Base Course, complete and in place as described above.

ITEM 26: AGGREGATE BASE COURSE, 4" THICK

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 310 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square yards rounded to the nearest square yard.

Basis of Payment:
Payment for this item will be made per square yard at the contract unit price for all Aggregate Base Course, complete and in place as described above.

ITEM 27: REPAIR PORTLAND CEMENT CONCRETE PAVEMENT (PSS#5)

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 324 of the MAG Standard Specifications and the project plans. The work shall consist of removing the PCCP at locations shown in the plans and reconstructing per pavement structural section #5 and in accordance to the plans and these specifications.

Method of Measurement:
This item will be measured in square foot rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price for all repair work of PCCP, complete and in place as described above.

ITEM 28: BITUMINOUS TACK COAT

Description:
All work under this item shall be performed, measured and paid per the requirement of Section 329, Section 330 and Section 713 of the MAG standard Specifications, the project plans, and as modified herein this bid item. The work shall consist of furnishing all labor, equipment, and materials for the application of bituminous tack coat at locations shown on plans and/or as directed by the Engineer.

Method of Measurement:
These items will be measured in tons. It will include all associated items including tack coat, emulsified asphalt required per Section 329 of the MAG Standard Specifications.

Basis of Payment:
Payment for these items will be made per ton at the contract unit price for all

Bituminous tack coat, complete and in place as described above.

ITEM 29: ASPHALTIC CONCRETE SURFACE COURSE (2" OF A-12.5)
ITEM 31: ASPHALTIC CONCRETE SURFACE COURSE (3" OF A-12.5)

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 321 and 710 of the MAG Standard Specifications, City of Tempe Supplements and the project plans and as modified herein for Asphaltic Rubberized Asphalt Concrete Pavement, Terminal Blend.

The work shall consist of furnishing all labor, equipment, and materials for the placement and construction of Asphalt Concrete Pavement upon a previously prepared base or subbase at locations shown on plans and or as directed by the Engineer. Immediately preceding the placement of the pavement, the density of the base material shall comply with requirements of Table 601-2 of the MAG Specifications.

The asphalt concrete pavement for the surface course shall be an East Valley Asphalt Committee (EVAC) PG 76-22 PMTR.

Materials:
Prior to beginning work for these bid items, the Contractor shall submit the mix design for to the Engineer for approval.

1.0 The asphalt concrete mix should be a Superpave Gyratory Compactor (SGC) Mix of 0.5-inch nominal size aggregate. The mix design shall be in accordance with Section 710 and AI MS-2 current edition, except for the binder content range. The design binder content shall be a minimum of 6.2% for all street classifications. Production tolerances shall be -0.2% to +0.7% as shown in TABLE 321-4 below. The design pavement thickness is 2.0 inches unless otherwise noted. No RAP mix will be allowed.

2.0 The asphalt binder shall be polymer modified terminal blend rubber Performance Graded PG 76-22 PMTR in accordance with the requirements of AASHTO M320, Table 1 except as modified in the Tables below. The use of Poly Phosphoric Acid (PPA) shall not exceed 0.5% for any PG76-22 PMTR asphalt binder. Air blown asphalt, recycled oil and/or other modifiers will not be permitted. Crosslinking agents used to stabilize polymer in asphalt binder shall be allowed and that they be considered part of the polymer.

PERFORMANCE GRADED PG 76-22 PMTR SPECIFICATIONS (HOT CLIMATE)		
Property	**Test Method**	**Requirement**
Original Physical Properties		
Whole Scrap Ground Tire Rubber (percentage of weight of total asphalt cement)	Certificate of Compliance	10 percent (min.)
SBS Polymer	Certificate of Compliance	3 percent (min.)
COC Flash Point, ^{O}F	ASTM D-92	450 (min.)

Solubility, percent	ASTM D-2042	98 (min.)
Elastic Recovery @ 10^{O} C, percent	ASTM D-6084	75 (min.)
Specific Gravity @ 60^{O} F	--------	Report
Weight per Gallon @ 60^{O} F	--------	Report
Original		
G*/ Sin δ @ 76^{O} C @ 10 rad/sec, kPa	AASHTO T-315	1.0 (min.)
δ, Phase Angle, Degrees	AASHTO T-315	75 (max.)
RTFO Aging		
MSCR $J_{nr3.2}$ at 70°C	AASHTO T350	1.0 kPA^{-1} (max.)
Max Loss, %	AASHTO T240	1.00 (max)
PAV Aging AASHTO R28 (110 ^{O}C)		
G*/ Sin δ @ 31^{O} C @ 10 rad/sec kPa	AASHTO T315	5,000 (max.)
Creep Stiffness, TP1 S, -12^{O} C @ 60 sec, MPA	AASHTO T313	300 (max.)
M-Value, -12^{O} C @ 60 sec	AASHTO T313	0.300 (min.)

3.0 The following tables are adapted from MAG and edited in accordance with EVAC mix design criteria and Performance Analysis Report (8/10/20) as referenced. A copy of the Performance Analysis Report is available at City of Mesa Engineering's website. For non-modified, Conventional Asphalt mixes, use the appropriate MAG Tolerances tables, for the applicable Production test results. For Modified Asphalt mixes, the following acceptance and penalties shall be use:

TABLE 321-4		
ASPHALT BINDER CONTENT ACCEPTANCE AND PENALTIES		
Deviation from that permitted	When the contracting agency is the owner: Corrective Action	When the contracting agency is not the owner (i.e. permits): Corrective Action
Over 0.7% <u>above</u> optimum binder content	Removal*	Removal*
Within permitted range of optimum binder content	Full Payment	No Corrective Action
Over 0.2% <u>below</u> optimum binder content	Removal*	Removal*

*The contractor shall remove and replace the entire sublot that is deficient. In addition, it is at the discretion of the Engineer to determine if removal or a penalty option maybe levied as the Engineer dictates for non-permit work.

EVAC has elected to waive penalties associated with Laboratory Voids in production provided the mix design has met EVAC design criteria. Delete the table (MAG 321-5) and associating paragraphs related to the table. Penalties for Laboratory Voids shall still apply for unmodified conventional Asphalt Mixes, as specified in MAG, or as directed by the Engineer.

MAG Table 321-7 shall be edited for asphalt design thickness less than 1.5 inch.

TABLE 321-8.1		
PAVEMENT DENSITY PENALTIES – ARTERIAL/COLLECTOR STREETS		
Limits of in-place air voids for design lift thicknesses 1.5 inches and greater	When the contracting agency is the owner: Payment Reduction ($ per ton of asphalt concrete)	When the contracting agency is not the owner (i.e. permits): Corrective Action
Below 3.0%	Removal*	Removal*
3.0% to 8.0%	Full Payment	No Corrective Action
Greater than 8.0% to less than 9.0%	$6.00	No Corrective Action
9.0% to 10.0%	$10.00	No Corrective Action
Greater than 10.0%	Removal*	Removal*
TABLE 321-8.		
PAVEMENT DENSITY PENALTIES – LOCAL STREETS		
Limits of in-place air voids for design lift thicknesses 1.5 inches and greater	When the contracting agency is the owner: Payment Reduction ($ per ton of asphalt concrete)	When the contracting agency is not the owner (i.e. permits): Corrective Action
Below 4.0%	Removal*	Removal*
4.0% to 9.0%	Full Payment	No Corrective Action
9.0% to 10.0%	$10.00	No Corrective Action
Greater than 10.0%	Removal*	Removal*

*The contractor shall remove and replace the entire sublot that is deficient. In addition, it is at the discretion of the Engineer to determine if removal, penalty or other option maybe levied as the Engineer dictates for non-permit work.

Mixture Spreading:

Paving shall be accomplished with self-propelled mechanical spreading and finishing equipment per M.A.G. Section 321.5.2(A). The screed or strike-off assembly shall be

equipped with a heating unit that maintains the temperature needed to prevent tearing of the pavement mixture during spreading. The spreading temperatures shall be in accordance with the approved job mix formula. The mixture shall not be placed on any wet surface or when weather conditions will otherwise prevent its proper handling or finishing. Mixtures shall be placed only when the ambient temperature is above 50° F. A ski not less than 30 feet must be used at all times on the through lane paving. A longer ski is preferred, if available. On the outside lanes the 30-foot ski must be placed in the gutter. Paving shall halt immediately if the auto screed controls fail and may not proceed without approval of the Construction Manager.

All asphalt hauled to the project by truck shall be deposited directly into the hopper of the paving machine. Direct deposit from the truck to the street surface will not be permitted.

Compaction and Rolling:

A minimum of two self-propelled two-axle steel-wheel rollers shall be furnished for each spreader and finisher. Rollers shall have a minimum roller weight of eight tons and maximum roller weight of 12 tons.

All rollers shall be equipped with pads and a watering system to prevent sticking of the paving mixture to the steel wheeled drums.

Initial or break down compaction shall commence immediately after mixture spreading and shall consist of three (3) full coverages before the pavement temperature reaches 200° F unless otherwise directed by the City of Tempe Construction Manager. A coverage shall be as many passes as are necessary to cover the entire width being paved with a pass being one movement of a roller in either direction.

Each coverage shall be complete before subsequent coverages are started. Final rolling, consisting of not less than one complete coverage, shall be used to smooth the surface of the mat. All rolling shall be accomplished without excessive aggregate fracturing or mixture shoving. Rolling shall be continuous until pavement temperature reaches 200° F.

Construction Procedures:

Immediately prior to applying the ARAC, the surface shall be cleaned by sweeping, flushing, or other means necessary to remove all loose particles of paving, all dirt, and all other extraneous material. The surfaces shall be cleaned with a self-propelled pick-up broom. When necessary, cleaning shall be supplemented by hand brooms. This also includes the removal of grass or weeds that are growing in the joint between the street and the concrete gutter.

Pavements impregnated with grease, oil, or fuel shall be thoroughly cleaned. No hot lap transverse jointing will be allowed in the paving of the through lanes. When stopping the paving for the shift or for any reason the resulting transverse joint shall be formed on an angle of approximately 15 degrees from a line perpendicular to the centerline of the road.

The Contractor shall construct one-half of the street at a time. The Contractor will not be allowed to construct the remaining one-half of the street until traffic is allowed on the newly constructed one-half. The new pavement shall not be used for vehicular traffic of any kind until the asphalt has cooled to 180°F, or less, after final rolling. Traffic shall be prohibited from using the new pavement by utilization of flagging or ribbons placed between barricades. The Contractor, at his own expense, shall be responsible for repairing the new asphalt if damaged by vehicular traffic prior to cooling and curing.

Areas where the construction operation results in a transverse joint between the paved and milled surface, the Contractor must construct a transition at the joint utilizing cold or hot mix. The joint transition must extend 4 inches horizontally for every 1.5 inches vertically. For any areas where the construction operation results in a longitudinal joint between the milled and newly paved surface, the Contractor must place W8-11 Uneven Lane signs in these areas per the MUTCD

Surface Protection and Traffic Control:
The Contractor will be responsible for centerline barricades until centerline stripes are placed.

Vehicular access to residences and businesses will not be permitted across the wearing course until dry. It will be the Contractor's responsibility to control traffic and not allow traffic on or across wearing course until it is dry. Contractor is responsible for any damage that occurs due to failure by Contractor to control traffic.

Traffic control shall be provided by the Contractor in accordance with the Tempe Barricade Manual or as directed by the City of Tempe Traffic Division, Traffic Engineer. Permit applications and traffic control plans shall be submitted to Tempe Traffic Engineering via e-mail at epermits.tempe.gov. See Maintenance and Protection of Traffic bid item for more information and requirements on traffic control.

Construction shall not commence without an approved Traffic Control Plan.

During construction it may be necessary to alter traffic control. Alterations shall be in accordance with the aforementioned specifications and approved by Traffic Engineering Division.

Lime Water:

An application of lime water may be applied by the Contractor to the compacted rubberized asphalt concrete surface after final compaction, prior to opening the roadway to traffic as directed by the Engineer or field representative to cool the pavement to prevent tracking and pick-up. If the roadway is not to be opened to traffic that day, then no lime water shall be used.

The lime water solution shall be applied at the rate of approximately ½ gallon/square yard. The lime shall be mixed using a maximum of (1) one, 50-pound bag per 3,000 gallons of water. One (1) and only one (1) application will be permitted per day for that day's production.

Product Submittals:
Prior to beginning work for this bid item, the Contractor shall submit to the Engineer for approval the Polymer Modified Asphalt Rubber Asphalt Concrete (Terminal Blend) mix design. The mix design must be located on the City of Tempe / Mesa Approved Product List at the time of bid opening.

Method of Measurement:
These items will be measured in square yards. It will include all associated items including tack coat, mineral aggregates, asphalt binder and mineral admixture and other incidentals required per Section 321 of the MAG Standard Specifications or as specified herein.

Basis of Payment:
Payment for these items will be made per square yard at the contract unit price for all placement and construction of asphaltic concrete pavement (surface courses), complete and in place as described above. The price shall be full compensation for furnishing mixing and applying all materials, and for all labor, equipment, tools, design tests, all other surface preparation and incidentals necessary that are not covered by other contract items and to complete the job as specified herein.

ITEM 30: ASPHALTIC CONCRETE BASE COURSE (4" OF A-19)

Description:
All work under this item shall be performed, measured and paid per the requirements of Section 321 of the MAG Standard Specifications, City of Tempe Supplements and the project plans. The work shall consist of furnishing all labor, equipment, and materials for the placement and construction of Asphalt Concrete Pavement upon a previously prepared base or subbase at locations shown on plans and or as directed by the Engineer. Immediately preceding the placement of the pavement, the density of the base material shall comply with requirements of Table 601-2 of the MAG Specifications. Asphalt concrete pavement shall be compacted to the same density specified in Section 321 of the MAG Specifications.

The asphalt concrete pavement for the base course shall be an East Valley Asphalt Committee (EVAC) ¾ PG 70-10 conventional mix or approved equal.

Prior to beginning work for this bid item, the Contractor shall submit the mix design for EVAC ¾ PG 70-10 conventional mix or equal to the Engineer for approval.

Method of Measurement:
These items will be measured in square yards. It will include all associated items including tack coat, mineral aggregates, asphalt binder and mineral admixture and other incidents required per Section 321 of the MAG Standard Specifications.

Basis of Payment:
Payment for these items will be made per square yard at the contract unit price for all placement and construction of asphaltic concrete pavement (base and surface courses), complete and in place as described above. The price shall be full compensation for

furnishing mixing and applying all materials, and for all labor, equipment, tools, design tests, all other surface preparation and incidentals necessary that are not covered by other contract items and to complete the job as specified herein and in Section 321 of the MAG Standard Specification.

ITEM 32: PIPE, CORRUGATED METAL, SLOTTED, 15", COT DET. T-354
ITEM 33: PIPE, REINFORCED CONCRETE, CLASS V, 18"
ITEM 34: PIPE, REINFORCED CONCRETE, CLASS V, 24"

Description:

This work shall consist of furnishing and installing new 15" corrugated metal slotted pipe per City of Tempe Detail No. T-354 and 18" and 24" Class V, RGRCP and complete in place at the locations identified in the project plans. All work under this item shall be performed per the requirements of MAG Sections 618, 621 and other respective MAG Standard Specifications and the project plans.

Method of Measurement:

The installation of 15" CMP Slotted pipe, 18" and 24" RGRCP will be measured per lineal foot complete in place as identified in the project plans.

Basis of Payment:

Payment for the 15" CMP Slotted pipe, 18" and 24" RGRCP and shall be as measured above, complete and in place in accordance with the Bid Schedule.

ITEM 35: CATCH BASIN, TYPE B, (MAG DET. 531)
ITEM 36: CATCH BASIN, TYPE C, (MAG DET. 532)

Description:

All work under this item shall be performed per the requirements of MAG Standard Details 531 and 532 and the Sections 505, 618 and other respective MAG Standard Specifications and the project plans.

Method of Measurement:

This item will be measured per each Catch Basin.

Basis of Payment:

Payment for this item will be made per each Catch Basin at the contract unit price, complete and in place as described above including all incidentals required to construct catch basins and items that are not covered by other contract items.

ITEM 37: MANHOLE (MAG DET. 520 & 522)

Description:

All work under this item shall be performed per the requirements of MAG Standard Details 520 and 522 and the Sections 505, 618 and other respective MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per each Manhole.

Basis of Payment:
Payment for this item will be made per each Manhole at the contract unit price, complete and in place as described above including all incidentals required to construct catch basins and items that are not covered by other contract items.

ITEM 38: RESET FRAME AND COVER FOR MANHOLE

Description:
All work under this item shall be performed per the requirements of Section 345 of the MAG Standard Specifications, MAG Standard Details and as shown in the project plans.

Method of Measurement:
This item will be measured per each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above including all incidentals required to reset frame and cover for manhole and items that are not covered by other contract items.

ITEM 39: METAL PEDESTRIAN FENCE

Description:

This work shall consist of furnishing and installing a metal pedestrian fence complete in place per the project plans and these specifications and in conformance with Section 505, 515 and 520 of the MAG Standard Specifications.

Materials:

The contactor shall submit fence samples and product cut sheets for review and approval by the Engineer. The steel components for the fence shall be shot blasted or iron phosphate cleaned steel with powder coated finish using a zinc primer and TGIC polyester. The color finish is to be Black or as required by the Engineer.

Method of Measurement:
The installation of the new metal pedestrian fence, fence post, fence footing, metal panel connections, will be measured per linear foot for all work complete in place at the designated location shown in the plans complete in place.

Basis of Payment:

Payment for the metal pedestrian fence, fence post, fence footing, metal panel connections shall be as measured above, complete and in place in accordance with the Bid Schedule.

ITEM 40: RELOCATE EXISTING SIGN

Description:
The work under this item shall consist of removing and salvaging existing sign panels. The work shall include the removal and disposal of existing sign posts and foundations. The existing salvaged signs shall be installed on new posts and foundations, which are to be paid for separately.

Construction Requirements:
Existing sign panels, posts and foundations shall be removed and salvaged in accordance with the requirements MAG Section 350. Installation of the sign panels on new posts shall be in accordance with the requirements of ADOT Subsection 608-3.

Method of Measurement:
Relocate Existing Sign will be measured by the unit for each sign panel removed and reinstalled, excluding new posts and foundations, which will be measured separately.

Basis of Payment:
The accepted quantity of Relocate existing sign, measured as provided above, will be paid at the contract unit price per each sign completely removed and reinstalled.

ITEM 41: SIGN POST, 2", MAG DET. 131 TYPE C

Materials:
This work shall consist of furnishing and installing new perforated sign posts complete in place in accordance with MAG Detail 131 and the project plans.

Method of Measurement:

Perforated sign posts shall be measured by unit price per linear feet installed, complete in place.

Basis of Payment:

Payment shall be made per linear feet perforated sign post installed in accordance with the Bid Schedule for all work complete in place inclusive of all materials, hardware and labor necessary to install sign posts at locations depicted on the project plans.

ITEM 42: SIGN POST FOUNDATION, MAG DET. 131, TYPE C

Description:

This work shall consist of furnishing and installing new sign post foundations in accordance with MAG Standard Detail 131 Type C, complete in place.

Method of Measurement:

The installation of new sign post foundations will be measured on each basis for all work complete and in place at each designated location.

Basis of Payment:

Payment shall be made per each sign post foundation installed in accordance with the Bid Schedule for all work complete in place inclusive of all materials, hardware and labor necessary to install sign posts and foundations at locations depicted on the project plans.

ITEM 43: REGULATORY WARNING OR MARKER SIGN PANEL

All work under this item shall be performed per the requirements of Section 465 of the MCDOT Supplement and the project plans.

Method of Measurement:
This item will be measured in square feet.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 44: METAL HANDRAIL (MAG DETAIL 145, TYPE 1)

This work shall consist of furnishing and installing metal handrail in accordance with MAG Standard Detail 145, Type 1, complete in place.

Method of Measurement:
This item will be measured in linear feet installed.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price, complete and in place as described above.

ITEM 45: MAINTENANCE AND PROTECTION OF TRAFFIC

Description:
Traffic control (vehicular and/or pedestrian) shall be provided by the contractor in accordance with the City of Tempe Traffic Barricade Manual, the Manual on Uniform Traffic Control Devices, and MAG Section 401, as directed by the Transportation Division representative. Allowable hours for restrictions on arterial and collector streets are noted in the Tempe Traffic Barricade Manual. Requests for night work must be approved by Traffic Engineering and Neighborhood Services. Permit applications and traffic control plans shall be submitted to Traffic Engineering via email at trafficbarricade@tempe.gov.

No work shall begin prior to Engineer's approval of a prepared Traffic Control Plan(s) from the contractor.

At the time of the Pre-Construction Meeting, the contractor shall designate an American Traffic Safety Services Association (ATSSA) certified individual to be responsible for implementing, monitoring, and altering traffic control measures as necessary to ensure

that all traffic (vehicle, bicycle, and pedestrian) is carried through the work area in a safe and effective manner.

The contractor shall ensure that all sidewalks on this project remain in compliance with the Americans with Disabilities Act (ADA) Standards. All open pedestrian walkway areas, paved or unpaved, shall be maintained and safely useable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. The contractor shall provide a detour of the existing pathways that are obstructed or otherwise non-traversable. If the detour utilizes private property, the contractor shall coordinate the use of the property with the property owner.

The contractor shall notify residents and businesses within the project area. These actions shall occur a minimum of 14 calendar days prior to the start of construction to notify the public of construction-related restrictions.

Construction signs shall not be displayed to traffic for more than 24 hours prior to the actual start of construction. Signs shall be removed within 24 hours after completion of the construction. Plan preparation, signing, and public notification shall be considered incidental to other items of work and no specific measurement or payment will be made.

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

All Type II Barricades, Type III Barricades, and vertical panels shall be equipped with steady burning lights. All orange construction signs shall use high reflectivity sheeting. All signs to be used on the job during periods of darkness shall be reflectorized.

The contractor shall maintain a minimum of two lanes of traffic lane at all times. The contractor shall maintain access to all driveways, businesses and intersecting roadways within the project limits at all times. The contractor cannot work on two driveways simultaneously of any business entity. Work shall be phased to avoid inconvenience and provide access to driveways at all times. Work shall occur during daytime hours only, unless otherwise approved by the Engineer. Work during nights, weekends and holidays will not be allowed, unless otherwise directed by the Engineer.

No closures or traffic restrictions will be allowed during recognized holidays or weekends unless otherwise directed by the Engineer.

Method of Measurement:

Traffic Control will be measured on a lump sum basis.

Basis of Payment:

Traffic Control will be paid as measured above. The contract lump sum price will be paid upon complete submittal to and approval by the City and shall be full compensation for the item, completed as defined and described above.

ITEM 46: WHITE THERMOPLASTIC TRAFFIC MARKINGS (4" EQUIVALENT)
ITEM 47: YELLOW THERMOPLASTIC TRAFFIC MARKINGS (4" EQUIVALENT)
ITEM 48: BIKE SYMBOL WITH ARROW (MIPPT OR THERMOPLASTIC)
ITEM 49: PAVEMENT MARKING SYMBOL (MIPPT OR THERMOPLASTIC)
ITEM 50: PAVEMENT MARKING FOR BIKE LANE (GREEN THERMOPLASTIC)
ITEM 57: PERMANENT PAVEMENT MARKING (PAINTED) (WHITE)
ITEM 58: PERMANENT PAVEMENT MARKING (PAINTED) (YELLOW)

Description:

All work under this item shall be performed per the requirements of Section 461 and 462 of the MCDOT Supplement and the project plans. The work under this section shall consist of cleaning and preparing pavement surfaces and furnishing and applying either white or yellow hot-sprayed thermoplastic reflectorized stripes or pavement markings to the prepared pavement at the locations and in accordance with the details shown on the project plans and the requirements of these specifications. The Contractor shall furnish all materials, supervision, labor, equipment, tools, transportation and supplies required to complete the work according to the striping plans, these specifications.

Method of Measurement:

Thermoplastic pavement markings, longitudinal and transverse lines, such as edge lines, lane lines, gore lines, cross-walks and stop bars, and permanent pavement markings will be measured by the linear foot along the center line of the pavement stripe and will be based on a 4 inch wide stripe. Measurement for striping with a plan width greater or less than the basic 4 inches as shown on the plans or requested by the Engineer will be made by the following method:

$$\frac{\text{Plan Width of Striping (inches)} \times \text{Linear Feet}}{\text{4(inches)}}$$

No measurement will be made of the number of linear feet of skips in the dashed line. Double marking lines, consisting of two 4-inch wide stripes will be measured as two individual marking lines. Crosswalk lines, stop bars, stop lines, cross hatch lines, will be measured for centerline length and adjusted for widths other than 4 inches as defined above. Thermoplastic pavement symbols and legends will be measured by each unit applied. Each pavement symbol and each legend, as shown on the Plans, will be considered a unit. Markings for bike lane symbols will be measured by square feet. No separate measurement will be made for cleaning and preparing the pavement surface, including abrasive sweeping and high-pressure air spray. The cost of disposal of excess material, cleaning fluids, and empty material containers will be considered as included in the contract items. Removal of curing compound and the application of primer- sealer, which is to be applied to both old and new pavement, prior to application of thermoplastic striping or marking, shall be measured by the linear foot or unit each, respectively, depending on the nature of the work to be done, and in accordance with the items of work established in the contract fee schedule. No separate measurement or payment will be made for application and removal of curing compound. Arrows, symbols and legends will be measured by each.

Basis of Payment:

The accepted quantities of thermoplastic pavement markings and permanent pavement marking of the type specified, measured as provided above, will be paid for at the contract unit price, complete in place, including pavement surface preparation and glass beads. Pavement marking stripes, including surface preparation, will be paid for at the contract unit price complete in place for the total length of painted lines applied rounded to the nearest foot. If the Engineer determines that additional striping beyond the project limits is required to tie into and meet the existing striping, then this striping will be paid for at the contract unit price for the total length of lines applied. Payment for arrows, symbols and legends, will be made at the contract price per each arrow, symbol or legend. Payment for bike lane symbol will be made at the contract price per square feet, complete in place.

ITEM 51: CURB MARKING FOR RAISED MEDIAN BULL NOSE

Description:

All work under this item shall be performed per the requirements of ADOT Standard Drawing No. M-1. The work under this section shall consist of cleaning and preparing median bull noses and furnishing and applying markings and raised pavement markers at the locations and in accordance with the details shown on the project plans and the requirements of these specifications. The contractor shall furnish all materials, supervision, labor, equipment, tools, transportation and supplies required to complete the work according to the striping plans and these specifications.

Method of Measurement:

Median bull nose curb marking will be measured as a unit for each.

Basis of Payment:

The accepted quantities of markings, measured as provided above, will be paid for the contract unit price for the type designated, complete in place, including adhesive and surface preparation.

ITEM 52: PAVEMENT MARKER, RAISED, TYPE BB, COS DET 2363

Description:

All work under this item shall be performed per the requirements of City of Scottsdale Detail 2363 and the project plans. The work under this section shall consist of cleaning and preparing pavement surfaces and furnishing and applying raised pavement markers to the prepared pavement at the locations and in accordance with the details shown on the project plans and the requirements of these specifications. The contractor shall furnish all materials, supervision, labor, equipment, tools, transportation and supplies required to complete the work according to the striping plans, these specifications.

Method of Measurement:

Pavement markers will be measured as a unit for each marker furnished and placed.

Basis of Payment:
The accepted quantities of pavement markers, measured as provided above, will be paid for the contract unit price for the type designated, complete in place, including adhesive and surface preparation.

ITEM 53: PAVEMENT MARKER, RAISED, TYPE D
ITEM 54: PAVEMENT MARKER, RAISED, TYPE G
ITEM 55: PAVEMENT MARKER, RAISED, TYPE H

Description:

All work under this item shall be performed per the requirements of Section 463 of the MCDOT Supplement and the project plans. The work under this section shall consist of cleaning and preparing pavement surfaces and furnishing and applying raised pavement markers to the prepared pavement at the locations and in accordance with the details shown on the project plans and the requirements of these specifications. The contractor shall furnish all materials, supervision, labor, equipment, tools, transportation and supplies required to complete the work according to the striping plans, these specifications.

Method of Measurement:
Pavement markers will be measured as a unit for each marker furnished and placed.

Basis of Payment:
The accepted quantities of pavement markers, measured as provided above, will be paid for the contract unit price for the type designated, complete in place, including adhesive and surface preparation.

ITEM 56: 40" LONG RAISED, PLASTIC CURB

Description:
The work under this item shall include installation of a white color, durable, high-visibility traffic separator curb that is compatible with flexible posts and panels. The product shall be integrally colored, highly visible and resistant to UV damage and fading. The product shall be constructed from a highly durable polyethylene / molder plastic that is resistant to ultraviolet lights, ozone and hydrocarbons. The product shall be designed to transfer the load to the road, thereby reducing stress on the mounting hardware. It shall be MASH compliant.

Method of Measurement:
These items shall be measured per each curb installed, including bolts, anchors and adhesive.

Basis of Payment:

The accepted quantities of this item will be paid for at the contract unit price each, which price shall be full compensation, complete in place, as described herein and shown project plans including all hardware, bolts and adhesive.

ITEM 59: TRAFFIC SIGNAL (COT A-POLE)
ITEM 60: TRAFFIC SIGNAL (COT Q-POLE)

Description:
The work under this item shall be completed per the requirements of Section 731 of the ADOT Standard Specifications and COT DTL T-540 through T-562.

Method of Measurement:
These items shall be measured per each complete traffic signal pole installed, including mast arms.

Basis of Payment:

The accepted quantities of this item will be paid for at the contract unit price each, which price shall be full compensation, complete in place, as described herein and shown project plans.

ITEM 61: PEDESTRIAN PUSH BUTTON POLE

Description:
The work under this item shall be per the requirements of Section 731 of the ADOT Standard Specifications and COT DTL-577.

Shop drawings shall be submitted before the purchase of any equipment.

Method of Measurement:
This item shall be measured per Section 731 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 731 of the ADOT Standard Specifications.

ITEM 62: TRAFFIC SIGNAL FOUNDATION (COT A-POLE)
ITEM 63: TRAFFIC SIGNAL FOUNDATION (COT Q-POLE)
ITEM 64: PEDESTRIAN PUSH BUTTON POLE FOUNDATION

Description:
The work under these items shall consist of providing traffic signal pole foundations per the requirements of Section 731 of the ADOT Standard Specifications and COT DTL T-570 through T-573. The sidewalk thickness shall be increased to a minimum of 7" at push button locations to accommodate installing anchor bolts for the push button pole.

Method of Measurement:
These items shall be measured per Section 731 of the ADOT Standard Specifications.

Basis of Payment:
These items shall be paid per Section 731 of the ADOT Standard Specifications. No separate payment will be made for the thickened sidewalk to accommodate installing anchor bolts, which shall be considered included in the cost to construct the respective pole foundation.

ITEM 65: NEW ARCHITECTURAL STREET LIGHT (MAST POLE, LUMINAIRE & FOUNDATION) (COT DET. T-652)

Description:
The work under this item includes installing new light poles, with new foundations per COT DET T-652 and restoring power to the new light poles. The luminaires identified in COT DET T-652 are outdated and instead shall use EVOLVE's ERL2018C540ADKBZIL or approved equal with Ripley (6390TF) or other compatible infrared-filtering photocontrols for continuity. Coordination with APS (Curry Road to Weber Drive) and SRP (Lilac Drive to McKellips Road) will be required during restoration of power to the light poles. Installation of light poles, conduit, wiring, APS/SRP provided J-boxes and other associated items will be the responsibility of the contractor. APS and SRP will be require notification a minimum of one month before the anticipated relocation schedule.

Construction Requirements:
Light Poles shall be kept operational at all times. Temporary lighting will need to be provided during relocation and installation of the new light poles. Each light pole shall be installed with new foundation as a complete unit. Contractor shall submit to APS and SRP the luminaire cut sheet of the items that will be procured and installed. Light Poles damaged as a result of the contractor's operation shall be replaced by the contractor at no cost to the City.

Method of Measurement:
This item will be measured by the unit each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above, which price shall be full compensation, for the work, complete in place, including foundations, temporary lighting, coordination with APS and SRP, and incidentals such as conductors, luminaires and other appurtenances required for the new light poles.

ITEM 66: REMOVAL OF LIGHT POLES AND BASES

Description:
All work under this item shall be performed, measured and paid per the requirements of outlined in Section 350 of the MAG Standard Specifications and the project plans. The work under this item includes removing existing light poles, fixtures, and conduit, conductor and foundations.

Construction Requirements:
The contractor shall remove the light poles and foundations and dispose of outside project limits and at approved locations.

The holes resulting from removal of pole foundations shall be backfilled with suitable material and compacted to a density of not less than 95 percent of the maximum density, as determined in accordance with the requirements of the applicable test methods of the MAG Standard Specifications or as directed and approved by the Engineer.

Method of Measurement:
This item will be measured by the unit each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above, which price shall be full compensation, for the work, complete in place, including filling and compaction of the resulting hole.

ITEM 67: ELECTRICAL CONDUIT (2½") (PVC)
ITEM 68: ELECTRICAL CONDUIT (3") (PVC)

Description:
The work under this item shall be per the requirements of Section 732 of the ADOT Standard Specifications.

Method of Measurement:
This item shall be measured per Section 732 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 732 of the ADOT Standard Specifications, including coordination with APS and SRP.

ITEM 69: PULL BOX (NO. 7)
ITEM 71: REPLACE BROKEN PULL BOX LID

Description:
The work under this item shall be per the requirements of Section 732 of the ADOT Standard Specifications.

Method of Measurement:
This item shall be measured per Section 732 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 732 of the ADOT Standard Specifications.

ITEM 70: REMOVE PULL BOX

Description:
The work under this item shall consist of removing existing pull boxes per the requirements of Section 350 of the MAG Standard Specifications.

Method of Measurement:
This item shall be measured per Section 350.4 of the MAG Standard Specifications.

Basis of Payment:
This item shall be paid per Section 350.4 of the MAG Standard Specifications.

ITEM 72: ADJUST PULL BOX TO GRADE

Description:
The work under this item shall consist of raising or lowering existing pull boxes to grade per the requirements of Section 345 of the MAG Standard Specifications.

Method of Measurement:
This item shall be measured per Section 345.6 of the MAG Standard Specifications.

Basis of Payment:
This item shall be paid per Section 345.7 of the MAG Standard Specifications.

ITEM 73: CONDUCTORS

Description:
The work under this item shall be per Section 732 of the ADOT Standard Specifications.

Method of Measurement:
This item shall be measured per Section 732 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 732 of the ADOT Standard Specifications.

ITEM 74: REMOVE AND REPLACE TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)

Description:
The work under this item shall include removing existing pedestrian traffic signal faces and replacing them with new traffic signal faces at the same location on the same pole per Section 733 of the ADOT Standard Specifications.

The existing mounting hardware and conductors may be utilized for the installation of the new signal face, provided they are in working order and free from defects.

New traffic signal faces shall be ADA compliant. Shop drawings shall be submitted before the purchase of any materials.

Method of Measurement:
This item shall be measured per Section 733 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 733 of the ADOT Standard Specifications.

ITEM 75: TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND)

Description:
The work under this item shall be per Section 733 of the ADOT Standard Specifications.

Method of Measurement:
This item shall be measured per Section 733 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 733 of the ADOT Standard Specifications.

ITEM 76: PEDESTRIAN PUSH BUTTON W/SIGN

Description:
The work under this item shall be per the requirements of Section 733 of the ADOT Standard Specifications and COT DTL-577.

Shop drawings shall be submitted before the purchase of any equipment.

Method of Measurement:
This item shall be measured per Section 733 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 733 of the ADOT Standard Specifications.

ITEM 77: RELOCATE TRAFFIC SIGNAL (COT A-POLE)
ITEM 78: RELOCATE TRAFFIC SIGNAL (COT Q-POLE)

Description:
The work under this item shall consist of removing a traffic signal pole per the requirements of Section 350 of the MAG Standard Specifications and reinstalling that pole on a new foundation per the requirements of Section 731 of the ADOT Standard Specifications and COT DTL T-540 through T-562.

Method of Measurement:
This item shall be measured per Section 731 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 731 of the ADOT Standard Specifications.

ITEM 79: RELOCATE EXISTING TRAFFIC SIGNAL EQUIPMENT (LUMINAIRE, VD, EVP, CCTV)

Description:
The work under this item consists of providing all labor and materials to remove existing equipment (luminaire, video detection camera, emergency vehicle preemption detector, and CCTV camera) from existing to be removed pole F and reinstall on new pole N at the intersection of McKellips Road/Scottsdale Road. This will include testing to ensure the equipment is operating as intended by the manufacturer and the City of Tempe on the new pole.

Materials:
The Contractor shall provide all wires, mounts, and ancillary items needed to ensure the relocated equipment is installed and operating as required by the manufacturer and the City of Tempe. Existing items may be used if in satisfactory condition as determined by the City of Tempe. Shop drawings shall be submitted and approved prior to the ordering of any materials.

Construction Requirements:
All equipment shall be installed and setup by factory certified installers of the equipment, per the manufacturer's recommendations or City of Tempe requirements.

Method of Measurement:
All work under this item shall be measured by the unit each.

Basis of Payment:
The accepted quantities, measured as provided above, will be paid for at the contract unit price, which shall be full compensation for the work, complete in place.

ITEM 80: LOOP DETECTOR FOR TRAFFIC SIGNALS (6'X40') (QUAD)
ITEM 81: LOOP DETECTOR FOR TRAFFIC SIGNALS (6'X40')

Description:
The work under these items shall consist of installing loop detection in accordance with City of Scottsdale Detail 2137 and per Section 735 of the ADOT Standard Specifications.

Method of Measurement:
This item shall be measured per Section 735 of the ADOT Standard Specifications.

Basis of Payment:
This item shall be paid per Section 735 of the ADOT Standard Specifications.

ITEM 82: TREE (36" BOX) (PISTACHE)
ITEM 83: TREE (MEXICAN FAN PALM (10' HIGH)
ITEM 84: LANDSCAPE AND IRRIGATION RESTORATION

Description:
The work under this item shall consist of restoring landscaping and irrigation disturbed by construction as identified in the plans. The restoration shall be completed per the requirements of City of Tempe Standard Landscape and Irrigation Details and Specifications, Section 440.4 and of the MAG Standard Specifications, and the project plans.

The work under this item shall consist of restoring landscaping and irrigation disturbed by construction as identified in the plans. Existing trees within the thirteen (13) new landscape medians along Scottsdale Road will be individually evaluated by City Representatives, contractor, and Designers due to the new improvements to the landscape medians. Impacts to the existing trees shall be avoided where possible. If an existing tree is unavoidable, it shall be removed and replaced with a similar tree within the new landscape median. New trees that are replacing removed trees shall be a 36" Box tree in size. Any existing boulders within the existing landscape medians that are obstructing construction efforts shall be permanently removed and salvaged back to the City. Existing boulders are only to be removed if they are in the way of the new landscape median improvements. Any areas that the existing landscape cannot be restored with this project, those areas will be restored by the City of Tempe in the future. The restoration shall be completed per the requirements of City of Tempe Standard Landscape and Irrigation Details and Specifications, Section 440.4 and of the MAG Standard Specifications, and the project plans.

Method of Measurement:
This item will be measured per Section 440.12 of the MAG Standard Specifications.

Basis of Payment:
Payment for this item shall be per Section 440.12 of the MAG Standard Specifications. Payment shall include all costs, materials, equipment, labor, and operations necessary for full restoration decomposed granite, concrete header, irrigation, plant material, record drawings, and other miscellaneous items to the satisfaction of the Engineer.

ITEM 85: BACKFLOW PREVENTION UNIT (RELOCATE, DET. T-213)

All relocation under this item including new pads shall be performed, measured and paid per the requirements of Section 610 of the MAG Standard Specifications, the City of Tempe Standard Detail T- 213, MAG Standard Detail 320 and the project plans. Any existing improvements that are not required including the pad shall be removed and disposed of. No separate measurement or payment will be made for removal and disposal of the existing unused improvements.

ITEM 86: RELOCATE WATER METER

All work including relocation under this item shall be performed, measured and paid per the requirements of Section 610 of the MAG Standard Specifications, the City of Tempe

Standard Detail T- 212, MAG Standard Detail 320 and the project plans. Any existing improvements that are not required shall be removed and disposed of. No separate measurement or payment will be made for removal and disposal of the existing unused improvements.

ITEM 87: RESET FRAME AND COVER FOR VALVE BOX

Description:
All work under this item shall be performed per the requirements of Section 345 of the MAG Standard Specifications, MAG Standard Details and as shown in the project plans.

Method of Measurement:
This item will be measured per each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above including all incidentals required to reset frame and cover for valve box and items that are not covered by other contract items.

ITEM 88: FIRE HYDRANT

Description:
The work under this item consists of installing a new fire hydrant as shown on the project plans and as specified in these special provisions.

The construction of fire hydrant shall be in accordance with the Section 610 and Section 756 of the MAG Standard Specification and the respective MAG details.

Method of Measurement:
Fire Hydrant, will be measured by each fire hydrant.

Basis of Payment:
The accepted quantity of Fire Hydrant, 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 procuring, trenching and backfill, concrete, and incidentals necessary to install each fire hydrant and all ductile iron pipe and fittings required between the hydrant valve and the hydrant.

ITEM 89: RELOCATE FIRE HYDRANT

Description:
The work under this item consists of relocating an existing fire hydrant to the back of new sidewalk as shown on the project plans and as specified in these special provisions.

Construction Requirements:
The relocation of fire hydrants shall be in accordance with the Section 610.9 and section 756 of the MAG Standard Specification and the respective MAG details.

The contractor shall exercise caution in removing the existing hydrant and appurtenances to prevent damage. Any materials damaged during removal shall be replaced in kind by the contractor at no additional cost to the Department.

Method of Measurement:
Relocate Fire Hydrant, will be measured by each fire hydrant relocated.

Basis of Payment:
The accepted quantity of Relocate Fire Hydrant, 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 trenching and backfill, concrete, and incidentals necessary to relocate each fire hydrant including installation of hydrant and all ductile iron pipe and fittings required between the hydrant valve and the hydrant.

ITEM 90: REMOVE AND REPLACE UTILITY VAULT

Description:
The work under this item shall consist of removing existing City of Tempe vault (pull box) and replacing with a new vault at the new location as shown in the plans or as directed by the Engineer. The work under this item shall be per Section 733 of the ADOT Standard Specifications.

Construction Requirements:
Vault (Pull Box) cover shall have the message “City of Tempe ITS” cast in one inch letters.

Method of Measurement:
Remove and Replace will be measured by the unit for each utility vault removed and replaced.

Basis of Payment:
The accepted quantity of Remove and Replace Utility Vault measured as provided above, will be paid at the contract unit price per each vault (pull box) completely removed and reinstalled. The removal area shall be backfilled, compacted and grading restored. No additional payment will be made for backfilling, compaction and restoration.

ITEM 91: CONCRETE PIPE COLLAR (MAG DET. 505)

Description:
All work under this item shall be performed per the requirements of MAG Standard Detail 505 and the Section 605 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per each Concrete Pipe Collar.

Basis of Payment:
Payment for this item will be made per each Concrete Pipe Collar at the contract unit

price, complete and in place as described above including all incidentals required to construct concrete pipe collar and items that are not covered by other contract items.

ITEM 92: STORM WATER POLLUTION PREVENTION PLAN

General requirements:

The contractor shall prepare and finalize the SWPPP before submitting a Notice of Intent (NOI) to ADEQ. Except for the NOI, all signatures required of the contractor by the AZPDES Construction General Permit (CGP), including those required for the NOT, SWPPP, and inspection reports, shall be provided by a duly authorized representative of the contractor, as defined in Part VIII.J.2 of said permit. Signature of the NOI shall be by a responsible corporate officer, as defined in Part VIII.J.1 of the CGP.

The contractor may elect to apply for an Erosivity Waiver using ADEQ's Smart NOI system. The contractor is responsible for all associated costs with the waiver unless otherwise noted in the contract documents. If the project qualifies for an Erosivity Waiver, proof must be provided to the contract administrator, and filing an NOI and development of a SWPPP is not required, however, the contractor shall manage the construction site in a manner that minimizes pollutants in discharges including implementing control measures that are protective of water quality in accordance with the requirements of the CGP.

If the project does not qualify for an Erosivity Waiver, or the contractor elects to acquire coverage under the CGP, all requirements of the CGP and these Special Provisions shall apply.

Submittals:

The contractor shall submit two copies of the SWPPP, including all information specified herein, to the Construction Coordinator at the pre-construction conference, if possible, for approval. The SWPPP shall contain an executed letter of delegation which delegates the responsibilities for compliance with the Arizona Construction General Permit and Site Storm Water Pollution Prevention Plan to the contractor.

Submission of the contractor's NOI shall certify that the contractor and its subcontractors have read and will comply with all provisions of the project specific SWPPP and the (current) ADEQ Arizona Pollutant Discharge Elimination System Construction General Permit (CGP).

Within 10 calendar days from the SWPPP submittal, the Construction Coordinator will review the contractor's SWPPP; the contractor will include any additional revisions directed by the Construction Coordinator. The finalized SWPPP shall meet the terms and conditions of the CGP and be compatible with construction. Upon approval of the SWPPP, the contractor shall file an NOI.

The Contract Administrator shall withhold the Notice to Proceed until an Authorization to Discharge from ADEQ has been issued to the contractor, and a copy has been provided to the Contract Administrator.

Contractor's Responsibilities:

The contractor shall review the preliminary information, including erosion control features and phasing, evaluate all SWPPP requirements for adequacy in addressing pollution prevention during construction, and prepare a SWPPP for review by the Construction Coordinator.

The contractor shall designate the erosion control coordinator as an authorized representative of the contractor in accordance with Part VIII.J.2 of the CGP. The erosion control coordinator shall be responsible for finalization and implementation of the SWPPP as well as all other applicable requirements of the CGP.

The SWPPP shall include all information required in the CGP, including, but not limited to, a site map; identification of receiving waters and wetlands impacted by the project; a list of potential pollutant sources; inspection schedule; inspection form; any onsite or off-site material storage sites; additional or modified stormwater, erosion, and sediment controls; procedures for maintaining temporary and permanent erosion control measures; a list of the contractor's "good housekeeping practices"; and other permit requirements as stipulated in the CGP as well as other applicable state or local programs.

The contractor shall give installation of permanent erosion control measures priority over reliance on temporary measures. Permanent erosion control measures and drainage structures shall be installed as soon as possible in the construction sequencing of the project, preferably concurrent with construction of the related sub- area or drainage device. However, except as specified in Part IV, Section B.2 of the CGP and approved by the Engineer, erosion control measures shall be installed no later than 14 calendar days after construction activity has temporarily or permanently ceased for the affected sub-area.

The SWPPP shall identify and address erosion and pollution control at on-site fueling operations, waste piles, material storage sites, concrete washout areas, and off-site dedicated asphalt and concrete plants, contractor-use areas, storage areas, and support activity locations which are used solely for the project and are covered by the CGP and as applicable to the project. The SWPPP shall accommodate all requirements for the contractor's "good housekeeping" procedures. In addition, the SWPPP shall specifically identify the erosion control measures proposed by the contractor during any vegetation removal and salvaging phases (if required) of the project.

The SWPPP shall specify the mechanism whereby revisions may be proposed throughout the project and incorporated into the plan, including review and approval procedure. The Construction Coordinator and contractor shall jointly approve and sign each revision to the SWPPP before implementation. Any subsequent submittals required by the contractor to revise or update the SWPPP may require at least 48 hours for review.

Contractors and subcontractors responsible for implementing all or portions of the

SWPPP shall be identified, with contact information, in the SWPPP, along with the measures for which they are responsible.

No clearing, grubbing, earthwork, or other work elements affected by the erosion control requirements in the SWPPP, shall be started until the SWPPP has been approved, the NOI completed and filed, copies of the NOI and Authorization to Discharge from ADEQ provided to the Contract Administrator, and the SWPPP implemented. The contractor shall post the ADEQ Authorization Number in a conspicuous location, near the construction entrance or construction yard, whichever is more visible to the public.

The contractor shall give attention to the effect of the contractor's operations upon the landscape and shall take care to maintain natural surroundings undamaged and keep all operations within the project limits as defined on the plans.

The contractor shall maintain all related erosion control elements in proper working order throughout the project. Work under this section also includes inspections, record-keeping, and implementation of "good housekeeping". If existing erosion and sediment control measures (BMPs) need to be repaired, modified or increased, implementation shall be completed within 7 calendar days or before the next rain event (whichever is sooner).

The approved SWPPP shall be updated whenever a change in design, construction method, operation, maintenance procedure, or other activity may cause a significant effect on the discharge of pollutants to surface waters, or when a change is proposed to the personnel responsible for implementing any portion of the SWPPP. The SWPPP shall also be amended if inspections indicate that the SWPPP is ineffective in eliminating or significantly reducing pollutants in the discharges from the construction site. All necessary modifications to the SWPPP shall be made within seven calendar days following the inspection that revealed the deficiency.

The contractor’s erosion control coordinator shall maintain two copies of the SWPPP, in two separate binders, including amendments, completed inspection records, and all data used to complete the NOI, Notice of Termination (NOT) and any other AZPDES records in a three-ring binder. The SWPPP shall remain at the job site, or at the location identified in the SWPPP, from the time construction begins until completion of the project. The SWPPP shall be available for public inspection, and to all City representatives upon demand.

Upon acceptance of the project, and after the contractor has filed their NOT, the contractor shall submit one complete copy of the SWPPP binder along with the as-built plans to the Construction Coordinator and retain its own records for a period of at least three years from the filing of the contractor’s NOT.

No condition of the CGP or the SWPPP shall release the contractor from any responsibilities or requirements under other environmental statutes or regulations.

Method of Measurement and Basis of Payment:

The allowance for Stormwater Pollution Prevention Plan shall not exceed $16,000 with no mark up.

ITEM 93: CONCRETE CURB AND GUTTER, TYPE A (MAG DET. 220)

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per linear foot along the gutter flow line rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price, complete and in place as described above. The cost for curb and gutter transitions shall be included in this item.

ITEM 94: CONCRETE SINGLE CURB (MAG DET. 222, TYPE A)

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per linear foot along the gutter flow line rounded to the nearest foot.

Basis of Payment:
Payment for this item will be made per linear foot at the contract unit price, complete and in place as described above. The cost for curb and gutter transitions shall be included in this item.

ITEM 95: CONCRETE VALLEY GUTTER AND APRON

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above. The cost of apron shall be included in this item.

ITEM 96: CONCRETE SIDEWALK (MAG DET. 230)

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square feet and rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above and as required per Section340 of the MAG Standard Specifications.

ITEM 97: DIRECTIONAL CONCRETE SIDEWALK RAMP (MAG DET. 237-1)
ITEM 98: DIRECTIONAL CONCRETE SIDEWALK RAMP (SPECIAL DETAIL)

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured per each sidewalk ramp.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above and as required per Section 340 of the MAG Standard Specifications.

ITEM 99: CONCRETE SIDEWALK RAMP (DETECTABLE WARNING STRIP)

Description:
All work under this item shall be performed per the requirements of Section 340 of the MAG Standard Specifications, COT DET. T-329 and the project plans, except for the method of measurement and basis of payment. Except for all truncated domes warming surface shall be terracotta in color.

Method of Measurement:
This item will be measured per square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 100: CONCRETE DRIVEWAY (TEMPE DET. T-320)

Description:
All work under this item shall be performed per the requirements of Section 340 of the

MAG Standard Specifications and Tempe Detail T-320 and the project plans.

Method of Measurement:
This item will be measured in square feet and rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 101: CONCRETE DRIVEWAY (MAG DET. 250)

Description:
All work under this item shall be performed per the requirements of MAG Detail 250 and Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square foot and rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 102: WING TYPE ALLEY ENTRANCE (MAG DET. 260)

Description:
All work under this item shall be performed per the requirements of MAG Detail 260 and Section 340 of the MAG Standard Specifications and the project plans.

Method of Measurement:
This item will be measured in square foot and rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 103: CONCRETE BUS SHELTER PAD (TEMPE DET. T-654)

Description:
All work under this item shall be performed per the requirements Tempe Detail T-654 and the project plans.

Method of Measurement:
This item will be measured in square feet and rounded to the nearest square foot.

Basis of Payment:
Payment for this item will be made per square foot at the contract unit price, complete and in place as described above.

ITEM 104: SURVEY MARKER, TYPE A (MAG DET. 120-1)

Description:
The work under this item shall consist of furnishing all material and installing concrete monuments, including cast iron frames and covers, brass caps, galvanized pipe, and concrete at the locations shown of the project plans and in accordance with the MAG detail 120-1 and shown on the plans and requirements of these specifications.

Method of Measurement:
This item will be measured as a unit for each survey marker, including frame and cover.

Basis of Payment:
The accepted quantities of survey marker, measured as provided above, will be paid at the contract unit price each, which price shall be full compensation for the work, complete in place, including furnishing and placing embankment material, excavating, removing unstable material, backfill and compacting.

ITEM 105: RELOCATE BUSINESS SIGN AND FLAG POLE

Description:
The work under this item shall consist of removing and salvaging existing sign panels. The work shall include the removal and disposal of existing sign posts and foundations. The existing salvaged signs shall be installed on new posts and foundations, which are to be paid for separately.

Construction Requirements:
Existing sign panels, posts and foundations shall be removed and salvaged in accordance with the requirements MAG Section 350. Installation of the sign panels on new posts shall be in accordance with the requirements of ADOT Subsection 608-3.

Method of Measurement:
Relocate Existing Sign will be measured by the unit for each sign panel removed and reinstalled, excluding new posts and foundations, which will be measured separately.

Basis of Payment:
The accepted quantity of Relocate Business sign and Flag Pole, measured as provided above, will be paid at the contract unit price per each sign completely removed and reinstalled.

ITEM 106: BUS SHELTER (RELOCATE)

Description:
The work under this item includes removing and relocating existing bus shelter to new locations, with new foundations. Removals shall be performed per the requirements of outlined in Section 350 of the MAG Standard Specifications and the project plans.

Construction Requirements:
The contractor shall remove the bus shelter and foundations and relocate them to the

locations shown on the plans. Each bus shelter shall be installed with new foundation as a complete unit. The completed relocation shall meet the requirements of Tempe Detail T-654. Bus shelter damaged as a result of the contractor's operation during the removal and relocation process shall be replaced by the contractor at no cost to the City.

The holes resulting from removal of foundations shall be backfilled with suitable material and compacted to a density of not less than 95 percent of the maximum density, as determined in accordance with the requirements of the applicable test methods of the MAG Standard Specifications or as directed and approved by the Engineer.

Method of Measurement:
This item will be measured by the unit each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above, which price shall be full compensation, for the work, complete in place, including filling and compaction of the excavated area.

ITEM 107: BUS SHELTER (SMALL, COT DET. T-654, 2020 REVISION)

Description:
The work under this item includes constructing new small bus shelter per COT Detail No. T-654, 2020 Revision at new locations identified in the plans.

Construction Requirements:
Each bus shelter shall be installed with new foundation as a complete unit. The completed relocation shall meet the requirements of Tempe Detail T-654, 2020 Revision.

Method of Measurement:
This item will be measured by the unit each.

Basis of Payment:
Payment for this item will be made per each at the contract unit price, complete and in place as described above, which price shall be full compensation, for the work, complete in place, including filling and compaction of the excavated area.

ITEM 108: RECONSTRUCT MASONRY BLOCK WALL

Description:
All work under this item shall be performed per the requirements of Section 914 of the ADOT Standard Specifications and the project plans.

Method of Measurement:
Measurement of this work will be made by the linear foot of wall constructed and will be measured along the front face of the wall.

Basis of Payment:
Payment for this work will be made at the contract price per linear foot, which price shall be full compensation for the item complete, including necessary excavation, footings, backfilling, color coating as described herein and on the project plans.