



Request for Statement of Qualifications

Design Services

Project Number TT345

Contract No. 2010-040, MC 85: 75th Avenue to 107th Avenue

DATE DUE: June 3, 2010
TIME: 10:00 a.m.

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REQUEST FOR STATEMENT OF QUALIFICATIONS

Design Services for MC85: 75th Avenue to 107th Avenue

Contract No. 2010-040

Maricopa County Department of Transportation (MCDOT) is soliciting Statement of Qualifications from qualified firms to provide design services for Project No. TT345, MC85: 75th Avenue to 107th Avenue.

The contract period is expected to be 365 calendar days from the Notice to Proceed to Final Completion.

SECTION I – SCOPE OF SERVICES

See Exhibit A - Scope of Work.

SECTION II – PRE-SUBMITTAL CONFERENCE

A Pre-submittal Conference will be held on Tuesday, May 18, 2010 at 12:30 p.m.:

Maricopa County Department of Transportation
Maricopa Conference Rooms
2901 West Durango Street
Phoenix, Arizona 85009

At this meeting, County staff will discuss the scope of work, procurement procedures/issues, and respond to questions from attendees.

Please note that this will be the only opportunity for interested firms to ask questions regarding the scope of work covered under this Statement of Qualifications. Contact with MCDOT employees associated with this work, outside of the pre-submittal meeting is not allowed and may be grounds for disqualification from the submittal process.

SECTION III – STATEMENT OF QUALIFICATIONS SELECTION CRITERIA

The consultant will be selected through a qualifications-based selection process. Firms interested in this project must submit a Statement of Qualifications (SOQ) that addresses the following issues:

Firm's Capabilities (10 points)

Provide a general description of the prime firm that is proposing to provide the requested services with the following additional information:

- a. Identify the home office location of key staff proposed for this project
- b. Percent of the work expected to be done locally by personnel within Maricopa County.
- c. Explain if prime firm has personnel with necessary qualifications to complete the project
- d. What staffing and financial resources will be used to undertake the work?
- e. If selected, the firm will be required to furnish a certificate(s) of insurance meeting the County's insurance requirements per the attached sample contract. Please indicate in the SOQ the firm's insurability from a company or companies lawfully authorized to transact

insurance business in the State of Arizona and rated at least B++6 in the company's current A.M. Best Company rating.

Personnel Availability & Experience (20 points)

1. For each key person identified, list two comparable projects in which they have played a primary role.
2. List the current availability of key prime firm personnel for the proposed project time frame
3. List key prime firm personnel length of time with the firm. Include also the proposed location from which they will operate during the project.
4. List the names, qualifications and office location of any sub-consultants which you are proposing for this project.
5. Describe how the sub-consultants services and experience will benefit this project
6. Describe how the sub-consultants work will be integrated with the work of the prime firm.
7. Provide a project organizational chart showing key prime firm personnel and all sub-consultants.
8. Resumes for key personnel may be attached in accordance with the submittal requirements.
9. List any past experience related to overall project requirements possessed by the proposed team member in the areas of making presentations to elected officials and general public.
10. What measures are put in place to ensure effective resource management and dynamic team work?

Firm's Experience on Similar Projects (15 points)

Identify three comparable projects within the last five years in which the project team has completed projects of this type on time and within budget or has comparable ongoing projects. For each comparable project identified, provide the following information: (Note: if the project selected is the same as one selected in response to Section B above, provide just the project name and the role of the key person.)

- a. Description of project and location
- c. Project's original contracted price vs. final contract price with explanation for any variances
- d. Project's original contract time vs. final contract time with explanation for any variances
- f. Firm's partnering efforts and successes
- e. Project Owner reference information (two names with telephone numbers per project)

Project Understanding and Approach (55 points)

1. Discuss the major components of this contract and highlight issues your team has identified on this project.
2. Describe your team's project management approach (planning, scheduling, budget, quality, risks and communications) for all phases of production of the contract deliverables,
3. Explain how conflicting opinions, comments or new project requirements will be effectively and efficiently managed and resolved.
4. Identify project/ contract components that are good candidates for value analysis or value engineering and explain your reasoning.
5. Illustrate with details your forecasted "level of effort" for this contract in man-hours using charts, graphs or tables. Show the man-hours by separate tasks and resource categories. Include sub-consultants work in this illustration too.

SECTION IV - SUBMITTAL REQUIREMENTS

All proposals shall be in PDF format. One (1) PDF file of the proposal shall be submitted with clear identification on the cover as outlined below. No delineated "original" is required. Page size must be no larger than 8.5" x 11", printed on one side only, no smaller than a 12-point font. **The proposal section of the SOQ must be limited to no more than fifteen (15) pages (excluding cover letter, contract acceptance, and resumes). The name, telephone number and e-mail address of the key contact person who is familiar with the submittal shall be included.** Proposing firms must review the draft contract included as Exhibit C to this Request for Qualifications. A Contract Acceptance, Exhibit D, must be signed and returned with the submittal indicating acceptance of the draft contract without any changes. Submittals not complying with the format, page count limitation or contract acceptance will result in the Statement of Qualifications being rejected.

The Proposal structure may be no larger than:

- 1 page cover letter
- 15 pages for Proposal
- 10 pages for Resumes (i.e., 1 page each of key firm individual resumes)
- 1 page Addendum Acknowledgement (only if needed) (use form provided)
- Exhibit D – Contract Acceptance (use form provided)

Proposals must be delivered so as to be actually received by Maricopa County Department of Transportation on or before the day and hour set for receipt of Proposals. An electronic receipt will be delivered via e-mail indicating the time-stamp of the receiving procurement officer.

Proposals shall be marked as follows:

Statement of Qualifications for
Design Services
MC85: 75th Avenue to 107th Avenue
Contract No. 2010-040
Due Date: June 3, 2010
Due Time: 10:00 a.m., Arizona Time

Proposals shall be submitted electronically to CindySlaughter@mail.maricopa.gov with a subject line of MC85: 75th Avenue to 107th Avenue SOQ.

Printed, telephonic or telecopy (FAX) submittals or modifications of submittals or any portion of the submittals will not be considered. Proposals received after the time and date set for submittal will not be considered and will be returned to the sender. Each Proposer is solely responsible for the delivery of its Proposal to the above e-mail by the time and date specified. Maricopa County is not responsible if the submitter fails to make a delivery on time. Failure to obtain a receipt from the procurement officer indicates failure of the procurement officer to receive the Statement of Qualifications.

SECTION V – SELECTION PROCESS

Maricopa County Department of Transportation (MCDOT) will utilize a two-step selection process for selection. **Step One:** An Evaluation Committee will evaluate each Statement of Qualifications (SOQ) according to the Evaluation Criteria in Section III and short list a maximum of three (3) semi-finalists for further participation in the process.

Step Two: MCDOT will invite the short listed firms to participate in a roundtable discussion. Additional information regarding the roundtable discussion will be issued to the short listed firms.

The County shall enter into negotiations for one contract with the highest qualified firm.

Attachments:

Exhibit A – SOW: Project General Requirements

Exhibit B – SOW: Project Specific Requirements

Exhibit C – Draft Contract

Exhibit D – Contract Acceptance

Attachment 1 - Addendum Acknowledgement (only if needed) (use form provided)

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INSTRUCTIONS

This is a general guideline Scope of Work for design projects. The following chart is supplied to assist the PM in refining the scope of work to meet project specific criteria. Coordinate with the Bridge Engineer for additional requirements when bridges or other structures are anticipated for the project.

No.	Section	Page	Instructions	Done?
1	Cover		Insert Project Name and Limits, Project Number, and Date	
2	Footer	1	Insert project number and date prepared	
3	Heading	1	Insert Project Name, Limits and Project Number	
4	1.0, 1 st Paragraph	1	Fill in areas that are capitalized and in red. This includes: • Project Name • Project Limits • Description of project that includes the roadway designation (urban arterial, rural collector, etc.)	
5	1.0, 4 th Paragraph	1	If project is located within other jurisdictions, list them. List the other organizations that COP/ MCDOT is forming IGA's with. List the stage of the IGA process. If the project is wholly in Maricopa County, delete this paragraph.	
6	1.0, 5 th Paragraph	1 & 2	If a report or a study has been prepared, reference it by listing its title, author, and date. When the referenced study has multiple alternatives, list the alternative that to be followed. Provide a description of the recommendations. If no report or study has been prepared, delete this paragraph.	
7	3.1.3	3	For each project roadway list the design roadway classification, ultimate roadway classification, design speed, design year, and pavement design life.	
8	9.1.1	13	PM must choose whether to provide traffic data or have the consultant collect traffic data. If COP/ MCDOT provides traffic data, it must be listed and the alternative second paragraph must be deleted. If the consultant is to provide the data delete the first paragraph. If COP/ MCDOT supplies the data, it is suggested that the PM insert a comment here as to the source of the data, for future reference.	
9	9.2	13	Change the requirements of Section 9.2 only when existing traffic data is sufficient for pavement design. When sufficient existing traffic data for pavement design exists, insert a reference that identifies the data source. If the PM desires the consultant to include a traffic analysis in the CONSULTANT's scope of work, keep this section.	
10	11.10.3	19	If sidewalks are included in the project scope, list their extents. If not, insert "No sidewalks required on this project except as specified in 11.10.1.	
11	11.11.1	20	PM must choose between the two paragraphs and delete the non-applicable paragraph.	
12	11.12.1	20	PM must choose between the two paragraphs and delete the non-applicable paragraph.	
13	11.13.1	20	PM must choose between the two paragraphs and delete the non-applicable paragraph.	

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No.	Section	Page	Instructions	Done?
14	11.13.2	21	PM must list intersections where signals are to be installed. If there are none insert "This project does not include any signalized intersections".	
15	11.13.3	21	PM to verify with TRAFFIC ENGINEERING if traffic signal interconnect conduit is to be installed with this project. DELETE if signal interconnect is not part of the project. If it is part of the project ADD the limits of its installation. If the contractor is to install fiber optic cable, REVISE the wording.	
16	12.2	23	Adjust the number of copies required for each submittal. The adjustment may be made in Table 12.2 or under the specific subsections of Section 12.	
17	13.4.1	28	PM to insert number of calendar days to complete work.	
18	Table of Contents		Table of Contents – Update field after all changes have been made.	

Abbreviations:

Maricopa County Department of Transportation

City of Phoenix

Maricopa Association of Government

American Association of State Highway and Transportation Officials

MCDOT

COP

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EXHIBIT A

PROJECT GENERAL REQUIREMENTS

FOR

THE DESIGN

OF

**BUCKEYE ROAD (MC85)
75th Avenue TO 107th Avenue**

PROJECT NUMBER TT345

April 2010

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EXHIBIT A

PROJECT GENERAL REQUIREMENTS FOR THE DESIGN OF

**BUCKEYE ROAD (MC85)
75th Avenue TO 107th Avenue**

PROJECT NUMBER TT345

1.0 PROJECT DESCRIPTION

COP & MCDOT propose to improve the **Buckeye Road (MC85)** alignment between the **75th Avenue** and **107th Avenue**. The improvements generally will consist of **providing a continuous median, a fully improved signalized intersection at 83rd Avenue, and an infrastructure for ITS applications.**

The CONSULTANT shall provide, in U. S. customary units (English), all engineering services that are required to prepare construction documents for the bidding of this project. This shall include, but not be limited to the preparation of construction plans, specifications, special provisions, drainage reports, field surveys, geotechnical reports, calculation of construction quantities, including earthwork, construction cost estimates, calculations, utility considerations and the preparation of all bid documents to complete the project, as required by COP/ MCDOT and as detailed in this Scope of Services. The CONSULTANT shall attend project meetings, public meetings and provide project coordination and administration as described herein and as required to complete the project according to COP/ MCDOT Standards.

The CONSULTANT shall provide technical criteria, written descriptions, and design data for COP/ MCDOT's use in filing applications for permits from or approvals of other governmental authorities having jurisdiction to review or approve the final design of the Project and assist COP/ MCDOT in consultations with appropriate authorities.

The project is located within the jurisdiction of Maricopa County, City of Phoenix, City of Tolleson, and City of Avondale. The CONSULTANT shall be aware of the issues surrounding this project and coordinate with all parties involved to minimize adverse impact to all affected parties.

The CONSULTANT shall optimize the use of the design information found in the latest submittal of prefinal plans and specifications produced by **Jacobs and DMJM** as a guide for the general parameters to be used in design of this project. This does not relieve the CONSULTANT from responsibility to adhere to the design requirements identified in this scope of work.

An Environmental Determination has been or will be prepared by COP/ MCDOT Planning Division for this project.

The CONSULTANT shall be aware of and produce design documents that comply with all NEPA, state, and local requirements and regulations. The CONSULTANT's design documents will support enforcement of all such regulations.

2.0 GENERAL

2.1 Safety Program

2.1.1 When performing any fieldwork, the CONSULTANT shall be responsible for maintaining a safety program for its employees and subcontractors on the jobsite(s) designated under this AGREEMENT. The CONSULTANT's safety program shall comply with applicable local, state and public laws for the safety and health of its employees and subconsultants. The CONSULTANT shall be responsible for compliance with applicable local, state and federal laws for employees of the CONSULTANT and its subconsultants.

2.2 Access and Permits

2.2.1 The CONSULTANT shall arrange for access, make all provisions and secure any permits required to enter upon public and private property, as required for CONSULTANT to perform services required for this Project.

2.3 Hazardous Materials

2.3.1 The CONSULTANT shall identify if the design requires the use of any materials which may either be brought to the site or produced on the site and which are regulated under the Hazardous Material Transportation Act, the Toxic Substance Control Act, the Resources Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. These acts will be provided to the Consultant on request. This identification shall be included on all affected drawings and within the Construction Specifications. In the case of discovery by the CONSULTANT of any environmentally hazardous material on the project site during design or construction, the CONSULTANT shall immediately notify COP/ MCDOT.

2.4 Archaeological Sites

2.4.1 In the event that the CONSULTANT discovers the existence of any archaeological site, it is the Duty of the CONSULTANT to report the discoveries, or the disposition of the discovery as stated in ARS 41-844.

- 2.4.2 COP/ MCDOT Planning Division will serve as lead administrative manager for all collateral issues in the COP/ MCDOT Cultural Resource Management Process (CRMP).

3.0 DESIGN STANDARDS

- 3.1.1 The COP/ MCDOT Roadway Design Manual (Revised April 2004) shall be used as the primary document to define design standards. COP/ MCDOT, acting through the project manager, may authorize or require changes that deviate from the Roadway Design Manual. Such changes shall be clearly documented in writing as design exceptions.
- 3.1.2 In case of conflict between this scope of work, the COP/ MCDOT Roadway Design Manual or publications referenced for design guidance, the CONSULTANT shall request clarification from the COP/ MCDOT Project Manager.
- 3.1.3 The following design criteria shall be used by the CONSULTANT in developing the project:

Buckeye Road (MC85):

Design Roadway Classification: **Major Urban Arterial**

Ultimate Roadway Classification: **Major Urban Arterial**

Design Speed: **55 MPH**

Design Year: 20 to 25 years from start of Design rounded off to nearest 5-year increment that coincides with ADT projections

Pavement Design Life: 20 years

4.0 QUALITY ASSURANCE/CONTROL

- 4.1.1 Within five days following notice to proceed, the CONSULTANT shall provide to COP/ MCDOT a written quality assurance/quality control plan. The QA/QC plan shall include, at a minimum, such elements as checklists of items to be reviewed prior to each County submittal, the procedures for conducting QA/QC activities, and the person(s) responsible for QA/QC activities.
- 4.1.2 The CONSULTANT's work and his subconsultant's work shall be checked prior to submittal. Any submittal exhibiting poor design detail, poor drafting efforts, spelling errors, etc., may be rejected. Corrections to the rejected design packages shall be made prior to re-submittal. No additional fee shall be paid for resubmittal of design packages that do not meet COP/ MCDOT design standards for submittal criteria.
- 4.1.3 All design drawings and calculations whether performed by the CONSULTANT or his subconsultants shall be independently checked in the Consultant's office and each drawing and calculation sheet shall be initialed and dated by both the designer and checker for each and every submittal of design drawings and calculations. The CONSULTANT shall verify the completeness of the check before submitting drawings or calculations to COP/ MCDOT.

- 4.1.4 All engineering calculations submitted to COP/ MCDOT shall be complete in detail and shall be checked. The person checking the calculations shall not be the originator, and shall be equally or better qualified than the originator, documented with appropriate references on the calculation sheets.
- 4.1.5 Computer generated calculations for structures, pavement thickness design or soils can be used for either the design or check, but are not to be used for both.
- 4.1.6 The work of each sub-consultant shall be performed in accordance with this scope of work and these specifications. The sub-consultant's work shall be checked prior to submittal to COP/ MCDOT and in particular, all calculation sheets, and all drawings shall be initialed and dated by both the designer and the checker.
- 4.1.7 Any sub-consultant's work that is used (i.e., soils reports, survey data, civil, hydrology, hydraulics, and structural design) shall be reviewed by the prime CONSULTANT for compliance with this scope of work, prior to submittal for review by COP/ MCDOT.

5.0 SURVEY

5.1 General

- 5.1.1 Survey and data acquisition shall comply with Section 4.5 of the COP/ MCDOT Roadway Design Manual and this Scope of Services.
- 5.1.2 The Consultant shall verify all data, documentation and information provided by the County and other sources.
- 5.1.3 The Consultant shall perform a field survey of topographic features and provide data collection to define the existing conditions; the collected information shall provide a basis for the project design.
- 5.1.4 The survey data and construction plan base map sheets shall be in a format compatible with COP/ MCDOT MicroStation standards.

5.2 Survey Control and Right of Way Data

- 5.2.1 The Consultant shall provide a survey that meets the Arizona Boundary Survey Minimum Standards (Requirements per Arizona Board of Technical Registration).
- 5.2.2 Survey data shall be in ground coordinates that are tied to state plane coordinates in North American Datum of 1983(92) NAD83 (92) state plane, Arizona, Central Zone scaled to ground from zero (0) northing and zero (0) easting. The scale factor shall be derived from the center of the project and the mean elevation. In addition, there shall be a (-550,000) ft translation in the northing component. COP/ MCDOT GDACS points shall be used for control. Aerial mapping and Global Positioning

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System (GPS) surveying procedures are acceptable provided accuracy requirements are adhered to.

- 5.2.3 The Consultant shall identify and locate by survey measurement all pertinent section corners, quarter section corners, and any other existing monuments necessary to delineate the right-of-way and easements required for the project. Full sections bounding the project shall be surveyed. All monuments within the project limits are to be located and identified. The Consultant shall provide survey ties to appropriate section and quarter section corners. Digital images shall be obtained for all found survey control points and to supplement field identification of miscellaneous items. The images shall be georeferenced by survey point number and annotated with the cardinal direction.
- 5.2.4 The Consultant shall provide at no additional cost to COP/ MCDOT supplemental survey data as required by COP/ MCDOT to prepare right-of-way plans and to determine correct right-of-way and easement descriptions and areas.

5.3 Aerial Mapping

- 5.3.1 The Consultant may use aerial mapping techniques and provide mapping in a digital format for use in project base maps. Identify aerial targets with a relative positional tolerance of not more than 0.25 feet, plus 100 parts per million (PPM) with the accuracy given at the 95 per cent confidence level.
- 5.3.2 The Consultant shall coordinate with the aerial company in setting the targets for aerial control and provide to the County a copy of the aerial control survey sealed by a registered land surveyor.
- 5.3.3 The general area to be included when aerial mapping is used shall extend a minimum of 1320 feet beyond the limits of the proposed project including 500 feet left and right of the proposed project roadways.

5.4 Elevation Control

- 5.4.1 North American Vertical Datum of 1988 (NAVD 88) datum shall be used.
- 5.4.2 Project datum shall be tied to adjacent city datum and to any datum used by utilities within the project area.
- 5.4.3 Construction benchmarks shall be established prior to collecting the topographic data and all topographic data will be derived from these benchmarks.

5.5 Survey Data for Construction Staking

5.5.1 The CONSULTANT shall provide survey data for construction staking based on the final (100%) design. The data shall include survey COGO staking coordinate file data with all significant staking points, as follows (but not limited to):

1. All horizontal and vertical alignment in Inroads format.
2. Section corners, significant property corners, curb return radius points, curb and gutter or single curb control points. Additional points to be included are horizontal and vertical angle points, curb return points, center of signal pole foundations, center of pull boxes, pipe ends, pipe angle points, center line of drainage system alignments, fence or wall control points, center of manholes, center of catch basins and corners of structures.
3. Right-of-way control points, such as angle points, right-of-way triangle points and right-of-way monuments.

5.6 Utilities

- 5.6.1 The CONSULTANT shall provide mapping for all utilities within the project limits. This may require coordination with all utility companies as necessary to obtain utility facility maps and the arranging for utility design Blue Stake when facility maps are unavailable or incomplete. The Consultant shall locate by survey the Blue Stake markings for all utility locations when the locations are not otherwise discernible.
- 5.6.2 The CONSULTANT shall take top of operating nut elevations for all water valves on the project. The top of operating nut elevations shall be shown on the plan view. The CONSULTANT shall also show the top of operating nut elevations in profile view.
- 5.6.3 The CONSULTANT shall show in plan view the rim and invert elevations for all existing sanitary sewer and storm sewer manholes, together with associated pipe diameters, pipe material and pipe directions.

5.7 Irrigation Facilities

- 5.7.1 Survey for irrigation district including Salt River Valley Water Users Association (SRVWUA) facilities shall begin and end at the nearest delivery structure and/or headwall outside the project limits. All facilities within the project limits shall be located.
- 5.7.2 Bench Marks: Tie irrigation bench marks (location and elevation) to COP/ MCDOT project datum and construction centerline. State the relationship or equation between Project datum and the irrigation datum.

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- 5.7.3 Delivery Structures: Provide station, offset and elevation of all corners of delivery structures, pipe sizes and invert elevations.
- 5.7.4 Headwalls: Survey data for headwalls shall completely describe the item and all attachments. The data shall include the following: station, offset distance, elevations at top, bottom (flow line), all corners, pipe sizes and invert elevations, and crest elevations (where the ditch ties into the headwall).
- 5.7.5 Manholes: Obtain station, offset distance from centerline or section line, and rim elevation. When required obtain pipe sizes, invert elevations, and direction of flow (SRVWUA will open the top of manholes due to safety considerations).
- 5.7.6 Dirt and Slipform Ditches: Cross sections shall be obtained at ditch grade breaks or at 100-foot intervals (whichever comes first). Elevations shall be at the top of bank, the top of bank lining, toe of slipform lining, and toe of dirt ditches (on both sides of the canal or ditch).
- 5.7.7 Open Lateral Structures: Obtain station, offset distance and elevations of all corners, flow line elevation, gate sizes (measured from outside of frames).
- 5.7.8 Drains: Obtain station, offset distance, pipe size, pipe material, invert elevation and flow direction.

6.0 UTILITIES

6.1 Utility Identification

- 6.1.1 The CONSULTANT shall include the horizontal location of each utility, within the project limits, on the roadway plans. This includes all above ground and underground utilities and their appurtenances. This may require coordination with all utility companies as necessary to obtain utility facility maps and the arranging for utility design Blue Stake when facility maps are unavailable or incomplete. The Consultant shall locate by survey the Blue Stake markings for all utility locations when locations are not otherwise discernible. When circumstances warrant, as determined by the COP/ MCDOT Utility Coordinator, COP/ MCDOT on-call locators may be used to determine the horizontal location of any utility facility within the project limits. The Locating Contractor, as referenced in this document will identify each utility, acquire their as-built records, verify the horizontal locations in the field by electronic or other means, and survey the horizontal location of the utility facilities. The Consultant shall add the information to the roadway plans per COP/ MCDOT standards.
- 6.1.2 The CONSULTANT shall provide the ownership of each utility within the project limits to the COP/ MCDOT Utility Coordinator. The ownership of each utility shall be identified within the construction documents.

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- 6.1.3 The CONSULTANT shall use utility information obtained during previous studies to verify completeness of utility mapping.
- 6.1.4 The horizontal location of all utilities within the project limits shall be shown on the 40% plans.
- 6.1.5 After the COP/ MCDOT Utility Coordinator has obtained utility company Prior Rights documentation, the CONSULTANT shall verify that the documents represent the correct area.
- 6.1.6 The CONSULTANT shall indicate existing utilities by name, size, and type in plan view. If existing and/or new pipelines are 18 inches or greater in diameter, the CONSULTANT shall show the pipe edge limits in plan views. The pipe wall thickness shall be shown in profile and section views.
- 6.1.7 The CONSULTANT shall for all water valves on the project show the top of valve box elevations and top of operating nut elevations on the plan view with a leader pointing to the water valve.
- 6.1.8 The CONSULTANT shall show the rim and invert elevations for all existing storm and sanitary sewer manholes on the plan view with a leader pointing to the manhole.
- 6.1.9 Existing utility crossings shall be shown at the location and elevation as obtained from Record Drawings (As-Builts), interpolated from actual survey data, or as determined from test hole explorations. CONSULTANT shall indicate on the plans the data source by the notation "Record Drawing" or "test hole". All elevations shall be converted to and shown using the roadway project datum.
- 6.1.10 Where elevations are necessary for the determination of conflicts, the CONSULTANT shall prepare a list of specific locations where an accurate vertical and horizontal location of the utility is needed. The requested test hole locations are to be circled on the preliminary plans with station and offsets along with Survey control points (horizontal and vertical control points as used in the design). All test hole requests are to be made prior to or with the 70% plan submittal. Request verification of the record drawing location of any underground utility that appears to be in close proximity or conflict with any proposed project improvements to determine actual locations and resolve potential conflicts prior to construction. COP/ MCDOT shall be responsible for obtaining test hole data that COP/ MCDOT approves as being necessary and will provide this information to the CONSULTANT for use in the design.

6.2 Relocation of Utilities

- 6.2.1 Relocation of existing utilities shall be avoided, except where necessary due to construction or hydraulic requirements, and with prior approval of COP/ MCDOT.

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Design of culverts, irrigation facilities or storm drain systems shall avoid or minimize any disruption of utility service.

- 6.2.2 The CONSULTANT shall determine utility conflicts, which require relocation or adjustment of utility facilities and shall give a written description of the conflict and required adjustment or relocation to the COP/ MCDOT Utility Coordinator.
- 6.2.3 The COP/ MCDOT Utility coordinator will determine by examination of easements, permits and/or other evidence, the utility's rights to occupy the area of conflict and who will bear the burden of relocation costs. The COP/ MCDOT Utility Coordinator will verify prior rights and request any necessary cost estimates and relocation plans, and authorize the utility company to relocate its facilities.
- 6.2.4 The CONSULTANT shall be responsible for reviewing relocation plans produced by the Utility companies to assure that the utility conflicts are eliminated.
- 6.2.5 The COP/ MCDOT Utility Coordinator shall arrange and conduct utility coordination meetings to facilitate identification and resolution of utility conflicts. The CONSULTANT shall attend the meetings and be responsible for producing meeting minutes.
- 6.2.6 All existing and new underground facility locations shall be shown on plan, profile, and cross section drawings.
- 6.2.7 All above ground utilities shall be located between the back of sidewalk (or its future location) and the right-of-way line.

6.3 Utility Contacts and Utility Review Submittals

- 6.3.1 Direct contact with utility company engineers for design coordination and conflict resolution may be initiated through COP/ MCDOT and all subsequent coordination shall be the responsibility of the CONSULTANT. The CONSULTANT shall provide to COP/ MCDOT a list of all effected utilities with the name and phone number of the contact person. The CONSULTANT shall provide monthly status reports to COP/ MCDOT with copies of all correspondence and meeting minutes. The CONSULTANT shall advise COP/ MCDOT of any utility company coordination problems including delayed responses.
- 6.3.2 The CONSULTANT shall furnish review copies of the 40%, 70%, 90% and 100% submittal plans to the COP/ MCDOT Utility Coordinator and each utility company having facilities in the project area. The size (1/2 or full) and number of the plans shall be as requested by the utility. The CONSULTANT shall provide electronic files on CD disks to Utility Companies when requested. One (1) plan set shall be provided to the COP/ MCDOT Utility Coordinator with each submittal.

- 6.3.3 The Consultant shall provide the COP/ MCDOT Utility Coordinator with copies of all correspondence from the utility companies.

6.4 Irrigation Facilities Relocation

- 6.4.1 Private irrigation and irrigation district facilities other than those belonging to the Salt River Valley Water Users Association (Salt River Project - Irrigation) shall be designed, with the approval of the irrigation owner, and incorporated into the project construction drawings. Unless otherwise requested all private irrigation facilities, including irrigation and field maintenance roads, shall be designed on a replace-in-kind basis and shall be relocated outside of the new right-of-way and to accommodate future roadway improvements for public facilities.
- 6.4.2 The initial contact with irrigation facility owners shall be made through COP/ MCDOT with all necessary engineering and subsequent coordination by the CONSULTANT.
- 6.4.3 Design of irrigation district facility relocations shall take into account the ultimate roadway width and improvements.

6.5 Salt River Valley Water Users Association (SRVWUA) Irrigation Facilities (where applicable)

- 6.5.1 The design of SRVWUA irrigation facilities (if any) will be by Salt River Project (SRP) forces or the SRVWUA consultant. The CONSULTANT shall assist in coordinating the SRVWUA plans with roadway and private irrigation requirements. Typically a majority of the SRVWUA irrigation construction will be accomplished in advance of roadway construction by SRVWUA forces. SRVWUA plans shall be included for reference in plan sets for the roadway project.
- 6.5.2 The CONSULTANT shall show the preferred SRVWUA irrigation relocation alignment on initial submittal and on subsequent plans. Whenever possible the design of irrigation district facility relocations shall take into account the ultimate future roadway to eliminate future relocations.
- 6.5.3 The SRVWUA construction shall be referenced and shown in plan view, wherever applicable, beginning with the preliminary submittal. The final paving plans shall be in accordance with the SRVWUA final plans.

7.0 RIGHT-OF-WAY AND EASEMENTS

7.1 Determination of New Right-of-Way and Easement Requirements

- 7.1.1 The COP/ MCDOT Roadway Design Manual, along with the roadway classification information of this Scope of Services shall be used by the CONSULTANT to determine minimum right-of-way requirements for the project. During design, the

CONSULTANT shall identify requirements for easements (construction, drainage, etc.) and additional right-of-way. Unless specifically permitted by the COP/ MCDOT project manager, all roadway slopes shall be contained in permanent right-of-way. The location and configuration of permanent right-of-way, including sight triangles at intersections, and the location and configuration of drainage, slope and temporary construction easements, including any required for detours, shall be identified. All right-of-way and easement requirements shall be defined and submitted at the 40% submittal. The plans shall show and clearly identify both existing and proposed right-of-way. Final plans shall show existing right-of-way, new right-of-way and easement configurations. The COP/ MCDOT Right of Way Division shall be notified immediately if any changes, alterations or corrections are made to the submitted proposed RW after the 40% submittal.

7.2 Right-of-Way Mapping

- 7.2.1 The CONSULTANT shall clearly draw and identify the city limits and any other jurisdictional limits on all drawings.
- 7.2.2 The CONSULTANT shall provide an electronic file in MicroStation format for the project alignment containing section and quarter corners, bearing and distance references for: new R/W, drainage easement, TCE requirements and construction centerline. When the construction centerline differs from the section line, the construction centerline location shall be referenced by bearings and distances from section monuments. The file shall contain full notation of section line bearings, distances, monument identification/descriptions and R/W width call outs.
- 7.2.3 The CONSULTANT shall obtain existing R/W, property lines and record ownership information from the Maricopa County Assessor's Office. This data shall be shown on the initial (40%) submittal of the construction plans. The CONSULTANT will be provided a list of ownership reference numbers from the COP/ MCDOT RW Section to add to project plans.
- 7.2.4 Title reports, legal descriptions, final project right-of-way strip maps, property exhibits and delineation packages will be prepared by COP/ MCDOT. The CONSULTANT shall provide all new right-of-way and new easement requirements. The CONSULTANT shall coordinate with COP/ MCDOT's RW staff to define specific right-of-way and easement requirements.

8.0 DRAINAGE

8.1 Design Standards

- 8.1.1 Drainage design shall conform to the requirements of the COP/ MCDOT Roadway Design Manual and the Flood Control District of Maricopa County Drainage Design Manual (Volumes I, II, and III).

8.2 Drainage Reports and Calculations

Drainage maps and calculations shall be prepared that quantify existing conditions and demonstrate compliance with all drainage design criteria. Calculations shall include but not be limited to identifying quantities, direction and spread of runoff flows to culverts and channels within and adjacent to the project for both existing and proposed conditions.

8.2.1 Drainage reports shall contain an executive summary, narrative, drainage area map and appropriate calculations. Reference tables, calculations, computer printout and electronic files shall be in an appendix or appendices. The initial report with calculations to define the existing drainage conditions including runoff volumes from off-site flows and sizing of culverts shall be included with the 40% submittal. The preliminary drainage report addressing both on-site and off-site flows shall be submitted with the 70% submittal. A pre-final drainage report shall be submitted with the 90% submittal. The final drainage report shall be revised to agree with the final construction documents and submitted with the final construction documents. The final drainage report shall be submitted as a bound report and in electronic format.

8.3 Drainage Design

8.3.1 The roadway shall be designed so that drainage follows historic flow paths. Off-site flows shall be accommodated to maintain or improve existing drainage conditions and in no case adversely impact the improvements of this project or adjacent properties.

8.3.2 The CONSULTANT shall coordinate design of drainage facilities with current and on-going drainage studies and roadway design projects. The CONSULTANT shall contact FCDMC and adjacent cities and towns to determine what studies and roadway design projects have been completed or are on going and obtain copies of reports and plans for incorporation into the design.

8.3.3 Drainage and grading must be designed to prevent unnecessary ponding; any ponding that occurs is to remain within right of way or designated drainage easements. Drainage pattern flow arrows shall be appropriately shown on the paving plans for pavement and ditch drainage, including irrigation ditches.

8.3.4 Roadway pavement drainage shall be designed to ensure that one lane of traffic remains dry in each direction during a 10-year storm frequency.

8.3.5 Curb opening catch basins shall be used within arterial and collector streets. The exception is to use combination catch basins along streets that have steep grades. Runoff from proposed project related improvements shall be captured via a combination of swales and pipes and directed either to an underground storm drain system or to an approved alternative final disposal point.

- 8.3.6 Minimum pipe diameter for storm drains shall be 18-inches. Catch basins and inlets draining paved surfaces may use connector pipes with a minimum diameter of 15 inches.

9.0 TRAFFIC DATA (By Allowance Only)

9.1 Traffic Volumes

The CONSULTANT shall collect average daily weekday traffic volumes for roadways within the project limits to develop design parameters for configuration of intersections, pavement design, and the determination of warrants for traffic signals.

- 9.1.1 The CONSULTANT shall prepare a traffic analysis in memorandum format that describes the existing and future ADT and DHV volumes on the roadway, and at all major intersecting roadways. The traffic analysis will also assess the need for and storage lengths for turn lanes and whether signals are or will be warranted at major intersections.
- 9.1.2 Adjustment to design year ADT volumes needed in anticipation of major land developments or changes in nearby roadway networks shall be done by the CONSULTANT.
- 9.1.3 The Design Hour Volume (DHV) shall be derived from the formula $DHV = ADT \times K$. See the COP/ MCDOT Roadway Design Manual for values of K.
- 9.1.4 The CONSULTANT shall review available Traffic Impact Studies, Corridor Studies and Traffic Surveys in the area when determining ADT and DHV volumes.

9.2 Pavement Design Data (By Allowance Only)

- 9.2.1 The CONSULTANT shall collect directional 24-hour traffic counts and vehicle classifications to establish directional distribution of traffic and to determine the percent of traffic volume composed of heavy trucks for use in pavement design. Heavy trucks for pavement design shall consist of all vehicles in class 4 and above as defined in the Traffic Equivalency Factors of the COP/ MCDOT Roadway Design Manuals.
- 9.2.2 The CONSULTANT shall determine the annual traffic volume growth rates for use in pavement design.

9.3 Intelligent Transportation Systems (ITS) Infrastructure Assessment

- 9.3.1 The Consultant shall review the project to determine the feasibility of implementing ITS infrastructure elements. The COP/ MCDOT ITS infrastructure assessment

criteria will be used to determine which ITS infrastructure elements, if any, are feasible for implementation. The ITS infrastructure assessment criteria is found in the *Mainstreaming ITS Into COP/ MCDOT Projects* notebook. ITS infrastructure elements will either be recommended for implementation, not recommended, or not applicable for the project. If an assessment report was previously completed for the project, the Consultant shall review the results of the ITS infrastructure assessment performed and further evaluate any ITS infrastructure recommendations that were made.

- 9.3.2 The Consultant shall prepare a brief description of the results of the ITS infrastructure assessment, which will include an explanation of the reasons for selecting the recommended ITS infrastructure elements, requirements for implementation of the infrastructure such as communications or power, and operational considerations for the ITS infrastructure elements. Schematic drawings indicating the potential locations of the ITS infrastructure elements shall also be included.
- 9.3.3 The Consultant shall prepare a table summarizing the recommended ITS infrastructure elements, estimate of implementation cost, estimate of 5-year operations and maintenance cost, and a description of the benefits of each recommended ITS infrastructure element.

10.0 GEOTECHNICAL REQUIREMENTS (By Allowance Only)

10.1 General

- 10.1.1 Geotechnical field explorations, testing, analysis, and reports shall comply with requirements of the COP/ MCDOT Roadway Design Manual. General requirements are identified in the Pavement Design Guide, of the COP/ MCDOT Roadway Design Manuals.
- 10.1.2 CONSULTANT in consultation with COP/ MCDOT shall determine appropriate boring locations, field and laboratory tests, and other similar items, in compliance with the CONSULTANT's practice of due care.

10.2 Report Data

- 10.2.1 Geotechnical soil boring log data requirements including related plan preparation and submittal requirements for irrigation lines and storm drain lines: Provide soil boring logs at intervals not to exceed 1320 feet for all projects involving trenches in excess of 10 foot total depth. The soil borings shall have a diameter sufficient for obtaining adequate samples for testing and analysis and shall be carried to a depth of 2 feet below the invert of the pipe. Boring locations may be selected at any point within the right of way or easement in which the pipe is to be located. Except in unusual situations, borings need not be located in paved street areas, but may be located outside the edge of pavement or behind the curb. Borings must be located

within the existing right-of-way, or if none exists, within the proposed right-of-way. The location of the test borings shall be shown by symbols on the plan portion of the "Plan and Profile Sheets." The logs of the borings shall be printed on 8 ½" x 11" sheets and included in the soils report.

10.2.2 Boring log data shall include only the following information:

1. The name of the company that produced the report.
2. The date the test boring was made.
3. The type of equipment used to drill the hole and take the samples.
4. The size of the auger used.
5. A description of caving that occurred during the excavations, if any.
6. Horizons of each type of soil encountered.
7. Description of the soil.
8. Classification by AASHTO Designation M145 or the Unified Soil Classification System.
9. Plasticity index.
10. Percent passing No. 200 sieve.
11. Water encountered.

10.2.3 Each sheet on which soil boring logs are shown shall also carry the following notation: "Information contained on this soil boring data sheet was obtained for design purposes. It is the Contractor's responsibility to establish soil information for their bid and construction purposes."

10.2.4 The soils report and the boring logs shall contain only a description of the investigation made and the results of the laboratory tests performed. They shall not include predictions of trench wall stability, recommendations for trench bracing or shoring, speculation as to the ease or difficulty of excavation or other such advice to the design engineer or contractor.

10.2.5 The soils report shall discuss and recommended values for earthwork shrink/swell and ground compaction factors.

10.2.6 For projects on which the proposed pipe or pipe options use pipes 16-inches in diameter or larger, that do not have a concrete or cement mortar coating, vitrified clay pipe excepted, resistivity readings by the "in-place 4-terminal" method shall be made at intervals of not more than 1320-feet. In the event such readings fall below 2,000 ohms per cubic centimeter, additional readings shall be made at intervals of not less than 25 feet or more than 100 feet until the area of low resistance soil is fully defined.

11.0 PLAN PREPARATION

11.1 General

11.1.1 Plans shall be prepared in accordance with requirements of the COP/ MCDOT Roadway Design Manual.

11.1.2 This project shall be designed using U.S. Customary (English) units.

11.1.3 Plan sets shall include geometric control that identifies the relationship between proposed construction geometrics and existing section and quarter section corners, property monuments, and right of way monuments. Construction control lines shall be located by distance and bearings from existing section and quarter section corners. Geometric control data shall include the description of found and accepted section and quarter section corners and other found or set monuments. At each section and quarter corner along roadway alignments, the plans shall include turned angles to the next section or quarter corner in each direction.

11.2 Drafting Standards

11.2.1 Plans shall be prepared using computer-aided design and drafting (CADD) in MicroStation format and conform to the Maricopa County Department of Transportation Drafting Guidelines.

11.2.2 The plan base map sheets are to show all topographic features and elevations within 25 feet beyond the anticipated new right of way. The plan base map sheets are to include topographical files produced by aerial survey when aerial survey is used.

11.2.3 The CONSULTANT shall use plan symbols shown in the MAG Standard Details, the COP/ MCDOT Supplement to the MAG Standard Details, and as shown on the COP/ MCDOT General Notes sheet unless otherwise directed.

11.2.4 Drawing sheet size shall be 22" by 36".

11.3 Plan, Profile, and Cross Section Sheets

11.3.1 Typical roadway sections shall be drawn to scale using a vertical to horizontal exaggeration of 10:1.

11.3.2 All new construction shall be shown on the paving plan sheets. This includes all new pipelines, traffic installations, and other work that may be defined or detailed on other sheets.

11.3.3 Projects with curb and gutter shall have profiles for the curb and gutter lines.

11.3.4 When combined plan profile sheets are not used, the profile sheet shall be synchronized with the plan sheet and immediately follow the plan sheet.

11.3.5 Elevation tic marks shall be plotted in the profile along each final right-of-way line, at 100' intervals. Tic mark elevations shall be representative of natural ground (that is not in holes, on mounds, etc) at the final right-of-way line.

11.4 Engineering Calculations

11.4.1 The CONSULTANT shall submit to COP/ MCDOT all engineering calculations. All engineering judgments and assumptions made during the design, other than standard engineering, shall be documented and submitted.

11.4.2 The CONSULTANT shall submit calculation sheets used to determine estimated quantities.

11.4.3 Calculations can be either hand calculations or computer-generated calculations. Computer generated calculations can be used for either the design or check, but cannot be used for both. All hand calculations and computer-generated calculations shall be sealed prior to submittal to COP/ MCDOT.

11.5 Special Provisions

11.5.1 The CONSULTANT shall prepare Special Provisions for items, details and procedures not adequately covered by MAG Uniform Standard Specifications and the COP/ MCDOT Supplement. Special provisions shall also incorporate applicable sections of the current version of COP/ MCDOT's General Special Provisions.

11.6 Cost Estimates

11.6.1 The CONSULTANT shall prepare a cost estimate for each submittal. The estimate will list the COP/ MCDOT bid item number, the description, the unit of measurement, the total quantity, and the total cost of the item. Items that are anticipated but not yet defined on the plans shall also be included in the estimate. At each submittal, the cost estimate will be revised as additional construction items are added and quantities are refined. Example: Traffic markings and signage may be shown as lump sum on the 40% submittal and as a mixture of individual items and estimated lump sum items on the 70% submittal. All items shall be itemized by the 90% submittal.

11.6.2 Construction cost estimates shall not contain a contingency line item. All expenses shall be listed by description with an associated estimated cost.

11.6.3 In accordance with project related IGA's between COP/ MCDOT and other entities, the CONSULTANT shall identify the construction items and quantities that are

specifically attributed to the County or any other entity. Any areas of right of way acquisition or itemized utility relocation costs attributed to or allocated to a particular jurisdiction or entity shall also be identified.

11.7 Driveways

11.7.1 Construction plans shall include driveway modifications to appropriately maintain ingress and egress. Driveway design shall be submitted for each driveway. The worksheets or plan sheets shall clearly indicate the existing ground elevations and proposed driveway grades. The grades shown shall start on the roadway pavement and extend beyond the driveway match point, showing the continuing driveway grade. Elevations and distances are to be given for all proposed grade breaks and match points. The Consultant shall provide sufficient survey data to extend the driveway design beyond the right-of-way to provide drivable grades for vehicles or farm equipment. The CONSULTANT shall accomplish design for any extension of driveways needed. In cases where the driveway extends past the new right-of-way line, the distance to and elevation of the match point shall be given. Required slopes and construction easements shall be shown on the plans together with all necessary details.

11.7.2 Driveway entrances and turnouts shall be designed to appropriately maintain ingress and egress. Driveway entrances shall be designed to provide a width that is equal to the existing driveway width provided the driveway width is at least equal to the minimum standard width and does not exceed the maximum allowable width. The entrances shall be in accordance with the COP/ MCDOT Roadway Design Manual and Standard Details, unless otherwise directed.

11.8 Intersections

11.8.1 Arterial intersection legs shall be designed with appropriate edge tapers to match the existing pavement. Project limits may need to be adjusted to accommodate Intersection traffic detection loops. Intersections shall be designed to meet future roadway width requirements, as defined by COP/ MCDOT and as indicated in the preliminary design and independently verified by the CONSULTANT. Sight distances shall be checked and designed to comply with AASHTO criteria. Stopping sight distance along improved or impacted roadways shall be based on the design speed.

11.8.2 The CONSULTANT shall consider the Final Access Control & Corridor Improvement recommendations in the design of proposed intersection improvements.

11.8.3 The use of concrete valley gutters, such as MAG Standard Detail 240, is not desirable at intersecting streets. The use of concrete valley gutters shall be required for projects that do not have an underground drainage system and surface flows across intersections are to be perpetuated.

11.8.4 Intersection work sheets are required for all street intersections within the project limits. Intersection worksheets shall extend to the start of each return for all intersection legs or to where a normal cross slope occurs, whichever is further. Crown line warping and other significant grade breaks and control lines shall be identified. Spot elevations shall be shown for each crossing point where a centerline or edge of through travel lanes crosses another centerline or edge of a through travel lanes. The cross slope and longitudinal slope between each adjacent spot elevation shall be calculated and shown. The cross slope and longitudinal slope along each intersection leg shall be shown at 25 foot increments beginning at the curb returns and extending to where the normal cross slope occurs.

11.9 Alignment

11.9.1 Horizontal and vertical alignments shall be defined and included on the 40% plans submittal.

11.9.2 Special Authorization must be obtained from COP/ MCDOT when the development of a horizontal alignment introduces curvature, superelevation, or super transition carried onto or through a structure.

11.10 Sidewalks

11.10.1 Sidewalks shall be provided at intersection curb returns and to replace sidewalks removed as part of this project.

11.10.2 All newly constructed sidewalks shall be in compliance with current Americans with Disabilities Act (ADA) requirements. Handicap ramps shall be provided at curb returns. Handicap ramps shall comply with current ADA accessibility guidelines.

11.10.3 No new sidewalks are planned to be provided, however the new geometric design may require replacement sidewalks at few locations.

11.11 Signing Plans

11.11.1 Signing plans shall be prepared by the CONSULTANT in accordance with COP/ MCDOT Traffic Engineering Division Signing Manual and the latest edition of the USDOT/FHWA Manual on Uniform Traffic Control Devices (MUTCD). Existing signing shall be shown by the CONSULTANT for a minimum of 800 feet beyond pavement matching locations, together with pertinent dimensions being shown. The CONSULTANT shall incorporate the signing plans and quantities into the project plans.

11.12 Pavement Marking Plans

11.12.1 Pavement marking plans shall be prepared by the CONSULTANT in accordance with the COP/ MCDOT Pavement Marking Manual. Existing striping shall be shown by the CONSULTANT for a minimum of 800 feet beyond pavement matching locations, together with pertinent dimensions being shown. The CONSULTANT shall incorporate the striping plans and quantities into the project plans.

11.13 Traffic Signal Plans

11.13.1 Traffic signal layout plans shall be designed by the CONSULTANT in accordance with COP/ MCDOT Traffic Signal Design Guidelines and specifications or the requirements of the owning jurisdiction. The Consultant shall add the underground conduits and traffic signal installations to the project paving plan sheets and any other affected sheets; the traffic signal plan sheets shall be referenced for construction details. The CONSULTANT shall incorporate the traffic signal plans and quantities into the project plans.

11.13.2 Traffic signals shall be installed at the following locations: 83rd/ MC85

11.13.3 Traffic signal interconnect conduit and pull boxes shall be designed and installed for future fiber optic cable installation.

11.14 Pipe Profiles

11.14.1 The CONSULTANT shall provide pipe profiles for all cross culverts, storm sewer pipes, and pipe sleeves.

11.15 Sequence of Construction and Maintenance of Traffic

11.15.1 The CONSULTANT shall prepare Sequence of Construction and Maintenance of Traffic special provisions that define special construction constraints, if any, to be imposed on the construction Contractor.

11.15.2 The CONSULTANT shall prepare an estimated construction schedule and recommend a duration for project construction. The project construction duration is the number of calendar days from the notice to proceed date to completion of construction. The recommended construction duration shall be identified in the special provisions and shall be based on the estimated construction schedule or sequence of construction prepared by the CONSULTANT. The estimated construction schedule used to determine the construction duration shall not be an accelerated construction schedule; it shall include consideration of lead time requirements for delivery of materials and sufficient float time to accommodate normally encountered weather delays. The estimated construction schedule shall be submitted for review as part of the project engineering calculations.

12.0 SUBMITTAL REQUIREMENTS

12.1 General

- 12.1.1 At each submittal, the CONSULTANT shall return any prior review check prints along with prior review comment annotated with CONSULTANT responses. The CONSULTANT shall also submit quality assurance documentation that proposed procedures have been implemented.
- 12.1.2 The CONSULTANT shall be required to resubmit any scheduled submittal deemed by COP/ MCDOT to be incomplete or lacking in sufficient detail.
- 12.1.3 Survey notes and digital data shall be provided to COP/ MCDOT with the initial submittal and updated as revised.
- 12.1.4 Special Provisions shall be submitted electronically (Microsoft Word) along with the specified number of hard copies.
- 12.1.5 Final sealed reports such as drainage reports, soils reports and other prepared reports and data shall be submitted electronically in addition to the specified number of hard copies. Each report including cover with signed professional seal, text, photos, engineering and other drawings, tables, maps, all appendices, and hand calculations shall be provided to COP/ MCDOT as one Acrobat Reader (.PDF) formatted file on a compact disk, suitable for publishing on the COP/ MCDOT website.
- 12.1.6 Cost estimates and other data prepared on spreadsheets shall be submitted electronically (Microsoft Excel) along with the specified number of hard copies.
- 12.1.7 The CONSULTANT shall send review plans to each utility company.
- 12.1.8 The CONSULTANT shall transmit copies of minutes of all meetings, telephone conversations, and correspondence to the COP/ MCDOT Project Manager.
- 12.1.9 The following table (12.2 Table of Deliverables Due At Each Submittal) relates the general deliverables required for each submittal.

12.2 Table of Deliverables Due at Each Submittal

Item	Pre-40%	40% Plans	70% Plans	90% Plans	100% Plans
Plan Submittal – Number of Sets		6 + utilities	6 + utilities	6 + utilities	6 + utilities
QA/QC Plan	x				
Schedule	x				
ITS Infrastructure Assessment		x			
Cover Sheet & General Notes Sheet		x	x	x	x
Quantity Summary Sheet			x	x	x
Typical Section Sheets		x	x	x	x
Plan & Profile Sheets		x	x	x	x
Drainage Design Sheets		x	x	x	x
Signing Plans*			x	x	x
Pavement Marking Plans*			x	x	x
Traffic Signal Plans*			x	x	x
Special Detail Sheets				x	x
Intersection Worksheets			x	x	x
Culvert & Cross Pipe Profile Sheets			x	x	x
Mass Diagram		x	x	x	x
Cross Sections		x	x	x	x
Driveway Design		x	x	x	x
Special Provisions			x	x	x
Cost Estimate		x	x	x	x
Electronic Plan Set		1	1	1	1
Survey Control Data	x	x			
Topographic Survey Data	x	x			
Engineering Calculations		x	x	x	x
Drainage Report		Initial	Preliminary	Pre-Final	Final
Geotechnical Report & Pavement Design Report		2	2		
Traffic Analysis*		2	2		
Utility Conflicts Test Hole List		x	x		
Bridge Selection Report		2			
Structural Calculations			1	1	1
Comments from Previous Submittal			x	x	x
Survey Data for Construction Staking					x
Sealed Mylars					x
* Indicates Items that are to be submitted only if included in scope of services					

12.3 Pre-40% Submittal

12.3.1 The CONSULTANT shall submit, within one week after the notice to proceed, a Work Plan Schedule showing activities and completion dates coordinated with COP/ MCDOT. The CONSULTANT shall include dates of all proposed review meetings and the project tasks shown on their Man-hour Cost Proposal. The

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CONSULTANT shall submit monthly progress reports showing activity status, percent complete and budget status.

12.3.2 Within five days following notice to proceed, the CONSULTANT shall provide to COP/ MCDOT a written quality assurance/quality control plan. The QA/QC plan shall include, at a minimum, such elements as checklists of items to be reviewed prior to each County submittal, the procedures for conducting QA/QC activities, and the person(s) responsible for QA/QC activities.

12.3.3 The CONSULTANT shall submit electronic and hard copy versions of the survey data to the COP/ MCDOT Project Manager. Submittal shall be upon completion of review verification by the CONSULTANT of the collected survey data.

12.4 Initial 40% Submittal

12.4.1 The CONSULTANT shall submit plan sets that contain, as a minimum, the following: cover sheet, general notes sheet, plan and profile sheets, preliminary drainage design and typical section sheets.

12.4.2 Proposed grade and alignment for major design elements such as roadways, storm drains, and irrigation facilities shall be shown in sufficient detail to show all conflicts with existing facilities and that feasible solutions exist for all conflicts.

12.4.3 The base mapping shall be complete with all existing features and utilities shown. The plans shall include all existing topography, underground utilities, existing right-of-way and recommended right-of-way including intersection sight triangles, and all recommended easements. Preliminary drainage design information shall be included to show how roadway drainage and retention will be handled. A preliminary itemized cost estimate shall be included in a format acceptable to the County.

12.4.4 The following shall be included as applicable: recommended irrigation relocations, traffic signal pole locations, and drainage culverts.

12.4.5 The CONSULTANT shall submit revised copies of survey data if changes have occurred since the original submittal.

12.4.6 The CONSULTANT shall submit the Geotechnical Report and Pavement Design Report.

12.4.7 The CONSULTANT shall submit driveway design worksheets.

12.4.8 The CONSULTANT shall submit intersection worksheets.

12.4.9 The CONSULTANT shall distribute review plans to each appropriate municipality and utility company.

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- 12.4.10 The CONSULTANT shall submit a request for utility location verification that contains the list of potential utility conflicts.
- 12.4.11 The CONSULTANT shall submit earthwork calculations, roadway cross-sections, and mass diagram sheets.
- 12.4.12 The CONSULTANT shall submit a construction cost estimate.
- 12.4.13 The CONSULTANT shall provide an electronic plan set in MicroStation format.
- 12.4.14 The CONSULTANT shall submit the ITS Infrastructure Assessment.
- 12.4.15 The CONSULTANT shall submit two copies of the Bridge Selection Report and an electronic copy on CD disk. The CD disk shall contain the report text in Word format and all drawings in MicroStation format.

12.5 Preliminary Design 70% Submittal

- 12.5.1 The CONSULTANT shall submit preliminary plans for roadway, drainage, and irrigation design. All construction details shall be identified and completed to a reasonable degree. Construction notes and quantities shall be included. Utility elevations obtained from field explorations shall be shown. Solutions to known utility conflicts shall be shown in sufficient detail to permit review. Preliminary Signal, Striping and Signing Plans (if applicable) shall be included.
- 12.5.2 The CONSULTANT shall submit draft special provisions.
- 12.5.3 The CONSULTANT shall submit the preliminary drainage report.
- 12.5.4 The CONSULTANT shall submit engineering calculations.
- 12.5.5 The CONSULTANT shall submit checked structural (bridge) calculations.
- 12.5.6 The CONSULTANT shall submit traffic analysis.
- 12.5.7 The CONSULTANT shall submit an updated construction cost estimate.
- 12.5.8 The CONSULTANT shall submit a list of any additional utility location verifications needed.
- 12.5.9 The CONSULTANT shall submit earthwork calculations, roadway cross-sections, and mass diagram sheets.
- 12.5.10 New right-of-way and easements including temporary easements shall be shown.

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12.5.11 The CONSULTANT shall submit driveway design worksheets and the driveway improvement plans.

12.5.12 The CONSULTANT shall submit intersection design worksheets.

12.5.13 The CONSULTANT shall distribute plans to each appropriate municipality and utility company.

12.6 Pre-final Documents 90% Submittal for Office and Field Review

12.6.1 The CONSULTANT shall submit construction plans. The plans are to be complete with all details shown and all prior comments resolved and incorporated.

12.6.2 The Consultant shall submit special provisions.

12.6.3 The CONSULTANT shall submit engineering calculations.

12.6.4 The CONSULTANT shall submit an updated construction cost estimate. Traffic quantities and all other bid items shall be itemized with this submittal.

12.6.5 Roadway cross sections shall be submitted.

12.6.6 If design drawings are required from Salt River Project or other entities, they shall be included in the plan set.

12.7 Final Design Documents 100% Submittal

12.7.1 The CONSULTANT shall submit plans, specifications, and cost estimate for verification that all comments and issues have been satisfactorily addressed. The CONSULTANT shall be notified of any remaining comments or issues that need to be resolved prior to project design completion.

12.7.2 After notification from the COP/ MCDOT project manager that all comments and issues have been satisfactorily incorporate into the plans and specifications, the CONSULTANT shall submit the final sealed and signed plans, Special Provisions, and construction estimate.

12.7.2.1 Two printed sets of final sealed construction plans and the final drawing files on CD-Rom shall be submitted with the sealed mylars.

12.7.2.2 The CONSULTANT shall submit two sets of the sealed and signed Special Provisions and an electronic copy formatted as a Word document.

12.7.2.3 The CONSULTANT shall submit one final sealed and signed Construction Cost Estimate and an electronic copy formatted as an EXCEL document.

12.7.3 Final engineering calculations, cross sections, earthwork calculations, quantity calculations, and final drainage report shall be submitted.

12.7.4 The CONSULTANT shall submit original survey books and survey data for construction staking.

13.0 PROJECT COORDINATION

13.1 General

13.1.1 The CONSULTANT shall designate a Project Manager who shall be familiar with the entire project and be aware of the progress of each phase of the project. The Project Manager and the Project Engineer may be the same person. The Project Manager shall be the point of contact for COP/ MCDOT. The Project Manager shall submit to COP/ MCDOT a project status update on the 1st of each month.

13.2 Coordination

13.2.1 Attend meetings, prepare agendas when requested, and prepare meeting minutes for project meetings with COP/ MCDOT, other county divisions, other agencies, or utility owners.

13.2.2 Provide documents for other agencies and utility owners, as required for review and preparation of utility relocation plans.

13.2.3 Coordinate project improvements with all utility owners and review utility relocation plans.

13.2.4 After the 90% submittal, COP/ MCDOT may schedule a meeting with interested utility companies and other agencies. Adjustments to the Project Plans and Special Provisions based on review comments from this meeting shall be made by the CONSULTANT.

13.3 Meetings

13.3.1 The CONSULTANT shall attend all project meetings.

13.3.2 Pre-Design and Design Progress meetings shall be held to discuss scheduling, submittals, and technical matters and other issues.

13.3.3 Meetings with the CONSULTANT shall generally be held at COP/ MCDOT's office. The CONSULTANT shall prepare the agenda and meeting minutes.

13.3.4 Meetings with outside review agencies and utilities may be held as required and shall generally be held at COP/ MCDOT's office. COP/ MCDOT shall be kept

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informed of all such meetings, and shall attend the meetings as required. COP/ MCDOT shall be copied on all meeting minutes.

13.3.5 The CONSULTANT shall participate in one public meeting. Participation shall include preparation of displays, presentation of the project and answering questions, as requested.

13.3.6 The CONSULTANT shall attend a pre-bid conference to assist in answering questions, and shall assist in the preparation of addenda, if required.

13.4 Schedule

13.4.1 The CONSULTANT shall complete all work within **365** calendar days beginning with the start date specified of the written Notice to Proceed, inclusive of review time.

14.0 BIDDING ASSISTANCE

14.1 Preparation of Addenda

14.1.1 The CONSULTANT shall prepare addenda that may be required to clarify or correct the plans or Special Provisions.

14.2 Pre-Bid Meeting

14.2.1 The CONSULTANT shall attend the pre-bid meeting.

15.0 POST DESIGN SERVICES

15.1 General

15.1.1 The CONSULTANT shall provide a proposal for post design services, if requested by COP/ MCDOT, after the construction documents have been approved and accepted. Post design services shall include, but not be limited to:

15.1.1.1 Provide personnel and equipment to update the project documents, which may be required due to changes in site conditions between the completion of the plans and the bidding of the project.

15.1.1.2 Prepare additional Documents for alternate bids for the Work or a portion thereof.

15.1.1.3 Determine the acceptability of substitute materials and equipment proposed.

15.1.1.4 Assist in evaluating Bid protests.

15.1.1.5 During the construction phase respond to questions and make site visits as requested by COP/ MCDOT, to clarify and interpret the intent of the project documents.

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15.1.1.6 Perform other work, as mutually agreed to between COP/ MCDOT and the CONSULTANT.

16.0 COP/ MCDOT RESPONSIBILITIES

16.1 COP/ MCDOT will provide for the CONSULTANT (**if available**) the following:

1. COP/ MCDOT Record Drawings (As-Builts). The Consultant shall research and obtain these from the COP/ MCDOT Customer Service Center.
2. COP/ MCDOT standard electronic files for MicroStation V8
3. Design related Reports
4. Drainage reports or Area Drainage Master Plans
5. City/Town Limits Maps.
6. Traffic studies and traffic count data

17.0 INVOICES

17.1 CONSULTANT may submit invoices for progress payments using the Maricopa County Department of Transportation payment request form.

17.2 Progress payments will be made on an approved earned value basis. The project's design tasks and associated values shall be as determined during contract negotiations. The earned value of each task shall be determined by multiplying the percent of completion times the total task value. The status (percent complete) of each task shall be subject to review and approval by the COP/ MCDOT Project Manager. Project payments shall not exceed the cumulated earned value of all project tasks. A Design Progress Report shall accompany each payment request.

END EXHIBIT A

EXHIBIT B

**PROJECT SPECIFIC REQUIREMENTS
FOR**

THE DESIGN

OF

Buckeye Road (MC 85)

107th Avenue to 75th Avenue

MCDOT ROADWAY PROJECT NUMBER

(TT345)

APRIL 27, 2010

EXHIBIT B

PROJECT SPECIFIC REQUIREMENTS FOR THE DESIGN OF

Buckeye Road (MC 85) –107th Avenue to 75th Avenue

MCDOT ROADWAY PROJECT (TT345)

1.0 PROJECT DESCRIPTION

Scope Outline – The following scope outline describes the project design and plan preparation limits:

Design Limits:

- **70% Roadway Design – 107th Avenue to 75th Avenue**
- **Final Drainage Design – 107th Avenue to 75th Avenue**
- **Final Design – Intersection of MC85/83rd Avenue**
- **Final Design – Interim 5-Lane Section (107th Ave to 75th Ave)**
- **Final Design – Signal Interconnect (107th Ave to 75th Ave)**

Construction Plan Preparation Limits:

- **Intersection of MC85/83rd Avenue**
- **Interim 5-Lane Section (107th Ave to 75th Ave)**
- **Signal Interconnect (107th Ave to 75th Ave)**

In 2006, the COUNTY retained Jacobs Engineering (CONSULTANT) to prepare plans to improve MC85 (Buckeye Road) from 91st Avenue to 75th Avenue to an Urban Principal Arterial Section consisting of three through lanes in each direction with a raised median. DMJM Harris prepared plans to improve MC 85 (Buckeye Road) from 107th Avenue to 91st Avenue. The roadway was developed according to MCDOT Roadway Design Manual and CAD standards.

Jacobs' 90% Construction Plans were submitted to the COUNTY in February 2007. The consultant DMJM Harris had additionally submitted 90% plans to the COUNTY in April 2006. Due to funding issues, both projects were placed on hold.

This project will provide final design of a 5-lane roadway (from 107th Ave to 75th Ave), Signal Interconnect System (from 107th Ave to 75th Ave), and the intersection of MC 85 and 83rd Ave to ultimate configuration. The 5-lane section

will be built as an interim configuration until future construction of the ultimate 6-lane divided section).

Under this contract, the improvement plans for both segments will be revised to City of Phoenix Design Guidelines, except for the Traffic Signal Plans and Signal Interconnect System.

Upon completion of project improvements the City of Phoenix (COP) will annex this road. Maintaining and operating certain traffic signals and any ITS applications will be the responsibility of the COUNTY per an IGA with COP. With this change, both the City and County have come to an agreement to design to the COP Design Standards. While the COUNTY is leading this project, the COP is expected to provide quality control such as plan review and inspection during construction.

The COUNTY will be the sole reviewer of the signal and signal interconnect plans.

The CONSULTANT shall provide all engineering services required to prepare final construction documents for roadway improvements for MC 85 at the intersection of 83rd Avenue, and interim 5-lane roadway section from 107th Avenue to 75th Avenue. This shall include the preparation of construction plans, specifications, special provisions, calculation of construction quantities, including drainage, earthwork, construction cost estimates, calculations, utility considerations. The design shall include the storm drain trunk line, laterals and inlets that can be modified to incorporate flows from roadway design of MC 85 under the 70% Roadway and Drainage Design. Project plans and specifications will be prepared per City of Phoenix Design Standards, except as noted. The consultant shall also prepare field surveys, supplemental geotechnical reports.

The CONSULTANT shall provide all engineering services required to prepare construction documents for construction of the ITS system from 107th Avenue to 75th Ave. Project plans and specifications will be prepared per Maricopa Department of Transportation (MCDOT) Design Standards.

The CONSULTANT shall attend project meetings, one public meeting, and provide project coordination and administration as described herein and as required to complete the project.

2.0 Project Scoping

2.1 General

- 2.1.1 CONSULTANT shall coordinate with MCDOT, COP & FCDMC to determine the potential impacts of the regional storm drain system. This work shall include developing a phasing plan of the drainage improvements within the project corridor and the impacts to the main truck line sizing if outfall is to occur south along 83rd Avenue, 91st Avenue and 99th Avenue.

3.0 Design Standards

3.1 General

- 3.1.1 CONSULTANT shall prepare Construction Documents with the exception of traffic signals and signal interconnect to the Maricopa Association of Government Standards Specifications and Details and the City of Phoenix 2009 MAG Supplement.
- 3.1.2 CONSULTANT shall prepare Traffic Signal Plans and Signal Interconnect Plans in accordance with MCDOT Traffic Signal Standards.
- 3.1.3 AutoCAD shall be used to develop all construction documents with the exception of the Traffic Signal Plans and Signal Interconnect Plans which shall be prepared using Microstation.

4.0 SURVEY

4.1 General

- 4.1.1 CONSULTANT shall provide topographic data obtained by their surveyors and generate base file mapping for the limits of this project covering the limits for the roadway improvements from 107th Avenue to 75th Avenue. Topographical data shall be collected 50 feet beyond the proposed right of way limits. Limits shall also include 100 feet beyond the limits of construction including each leg of all major side roads. Existing striping information shall be collected 300 feet beyond the limits of construction.
- 4.1.2 Survey data will be acquired on MCDOT Datum system. A City of Phoenix datum equation will be reflected on the Geometric Plan.
- 4.1.3 Temporary Benchmarks will be set at a minimum of 500 foot increments as well as beyond the construction limits but within the proposed right of way.

- 4.1.4 CONSULTANT shall take top of operating nut elevations for all water valves, and rims and inverts for all existing sanitary and storm sewer manholes on the project.

5.0 RIGHT OF WAY

5.1 Determination of Minimum Right of way

- 5.1.1 The COP Standard Cross Sections shall be used by the CONSULTANT to determine minimum ultimate right of way requirements for the project. During design, the CONSULTANT shall identify additional right of way requirements and any construction, drainage, utility, or other easements required. Unless specifically permitted by the MCDOT project manager, all roadway slopes shall be contained in permanent right of way. Permanent right of way, including the size of sight triangles at intersections, and the location and configuration of construction, drainage, slope and temporary easements, including any required for detours, shall be identified. The plans shall show and clearly identify both existing and proposed right of way and all easement configurations.

5.2 Right of Way Strip Map

- 5.2.1 The CONSULTANT shall prepare a right of way strip map with the 70% showing proposed and existing right of way, easements, and ownership. The right of way strip map is for the purpose of identifying property boundaries to prepare legal descriptions and exhibits for property acquisition and temporary construction easements.
- 5.2.2 During design, the CONSULTANT shall coordinate drainage design to identify additional right of way requirements and any construction, drainage, utility, or other easements required. The plans shall show and clearly identify both existing and proposed right of way and all easement configurations.

5.3 Existing Right of Way Verification

- 5.3.1 The CONSULTANT shall verify the existing right of way from the Original 90% Submittal and modify the plans as needed for changes that have been recorded, and revise as needed to accommodate new roadway cross section and storm drain system limits.

5.4 Legal Descriptions and Exhibits

- 5.4.1 The CONSULTANT shall provide MCDOT with an electronic file in MicroStation format for the project alignment containing the section

line, the survey construction centerline when different from section line, proposed RIGHT OF WAY, drainage easements, utility easements, and TCE requirements.

5.4.2 The CONSULTANT shall coordinate with MCDOT's right of way staff to define specific right of way and easement requirements.

5.4.3 The COUNTY will obtain title reports for the parcels where property acquisition is needed and provide them to the CONSULTANT. Written legal descriptions and exhibits for the acquisition of permanent right of way, temporary construction, and utility easements will be prepared by the CONSULTANT and paid for through an Allowance assuming a maximum of 42 legal exhibits to be prepared for this project.

5.4.4 The COUNTY will negotiate and acquire right of way from parcel owners for proposed right of way.

6.0 SUPPLEMENTAL GEOTECHNICAL REQUIREMENTS

6.1 Pavement Design Data

6.1.1 The proposed pavement structural design shall be provided to the COP for review by the Materials Department.

6.1.2 An Allowance will be provided for additional Geotechnical Investigation for the proposed storm drain system.

7.0 UTILITIES

7.1 Utility Contacts

7.1.1 Direct contact with utility company engineers for design coordination and conflict resolution may be initiated through MCDOT and all subsequent coordination shall be the responsibility of the CONSULTANT.

7.2 Utility Identification

7.2.1 The horizontal location of all existing utilities within the project limits shall be shown on the roadway plans. CONSULTANTS to reorder as built maps and verify existing utilities locations.

7.3 Utility Potholing

7.3.1 An Allowance has been provided for any additional potholing needed to complete this project.

- 7.3.2 Where elevations are necessary for the determination of conflicts, the CONSULTANT shall send MCDOT a pothole request letter to provide an accurate vertical and horizontal location of the utility. All pothole requests are to be made prior to or with the 70% plan submittal. Request verification of the as-built location of any underground utility that appears to be in close proximity or conflict with any proposed project improvements to determine actual locations and resolve potential conflicts prior to construction. MCDOT shall be responsible for obtaining potholing data and providing this information to the CONSULTANT for use in the design. The CONSULTANT shall be responsible for reviewing relocation plans produced by the Utility companies to assure that the utility conflicts are eliminated.

7.4 Relocation of Utilities

- 7.4.1 Relocation of existing utilities shall be avoided, except where necessary due to construction or hydraulic requirements.
- 7.4.2 The CONSULTANT shall determine utility conflicts, which require relocation or adjustment of utility facilities and shall advise the MCDOT Utility Coordinator.
- 7.4.3 Existing and new underground facility locations shall be appropriately shown on plan and profile drawings.
- 7.4.4 The CONSULTANT shall arrange and conduct utility coordination meetings to facilitate identification and resolution of conflicts. Eight (8) meetings are anticipated.
- 7.4.5 The MCDOT Utility coordinator will determine by examination of easements, permits and/or other evidence, the utility's rights to occupy the area of conflict and who will bear the burden of relocation costs. The MCDOT Utility Coordinator will notify the company to relocate its facilities, verify or deny prior rights, and request any necessary cost estimates and relocation plans.

7.5 Private Irrigation Facilities Relocation

- 7.5.1 Private irrigation facilities shall be designed with the approval of the irrigation owner. Unless otherwise determined necessary all private irrigation facilities, including irrigation and field maintenance roads, shall be designed on a replace-in-kind basis and shall be relocated outside of the new right of way within an Easement and to accommodate future roadway improvements for public facilities. The initial contact with the owner or irrigator shall be made through MCDOT with all necessary engineering and subsequent coordination by the CONSULTANT. Design of irrigation district facility relocations

shall take into account the ultimate roadway width measured between face of curbs.

7.6 Salt River Project Irrigation Facilities

7.6.1 The design of Salt River Project (SRP) irrigation facilities will be prepared by SRP forces or the SRP consultant. Whenever possible the design of irrigation district facility relocations shall take into account the ultimate future roadway to eliminate future relocations. The CONSULTANT shall assist SRP in the irrigation relocation design by coordinating the design and any changes that result from design improvements.

7.6.2 The CONSULTANT shall work with SRP to reevaluate and establish the right of way and easement requirements to accommodate the revised design mentioned in Section 6.6.1. The SRP right of way and easements requirements shall be shown on the plans.

7.7 Salt River Project Power Relocation

7.7.1 The design of Salt River Project (SRP) power facilities will be prepared by SRP forces or the SRP consultant. Whenever possible the design of power line relocations shall take into account the ultimate future roadway to eliminate future relocations. The CONSULTANT shall assist SRP in the relocation design by coordinating the design and any changes that result from design improvements.

7.7.2 CONSULTANT shall work with SRP to reevaluate and establish the right of way and aerial easement requirements to accommodate the revised design. SRP right of way and aerial easements requirements shall be shown on the plans.

7.7.3 After SRP has reviewed the proposed plan, the CONSULTANT shall submit legal exhibits and descriptions to SRP for review. An Allowance, assuming 25 parcels will be affected, has been established to prepare legal descriptions and exhibits.

7.8 Coordination with Union Pacific Railroad (UPRR)

7.8.1 CONSULTANT shall coordinate with UPRR to evaluate possibilities of drainage structure crossings near 107th Avenue and UPRR's right of way. The CONSULTANT shall prepare meeting agendas and graphics to adequately describe the design intent. Development of any agreement or permitting by the CONSULTANT is not included in this scope of work

8.0 DRAINAGE

8.1 Drainage Design

- 8.1.1 The CONSULTANT shall utilize the results of the hydrology review to determine offsite design flows. Depending on the roadway profile design, additional hydrologic analysis may be performed to determine design flows at concentration points other than those in the previous studies or hydrology review.
- 8.1.2 CONSULTANT shall perform one field visit to verify hydrologic conditions within the watershed.
- 8.1.3 CONSULTANT shall prepare the drainage design, construction plans and estimate for MC 85 from 107th Avenue to 75th Avenue storm drain trunk line, laterals and inlets that can be modified to incorporate flows from roadway design of MC 85 under the 70% Roadway and Drainage plans. The final plans will be completed to a 100% level for five lane interim roadway section considering the future ultimate 6-lanes divided roadway. The City of Phoenix Storm Drain Policies will be utilized. The design will have an outfall to the Durango Regional Outfall Channel west of 107th Avenue and retention basin facilities unless it is determined that the outfall shall proceed to a channel currently being planned one mile south of MC85. MC 85 drainage trunk line sizing will depend on phasing of this proposed channel.
- 8.1.4 CONSULTANT shall prepare drainage design, final construction plans and estimate for the intersection improvement of MC 85 83rd Avenue for ultimate storm drain plans coordinated with proposed roadway improvements.
- 8.1.5 CONSULTANT shall prepare drainage design, construction plans and estimate for MC 85 from 107th Avenue to 75th Avenue for ultimate storm drain plans coordinated with proposed roadway improvements to a 70% level.
- 8.1.6 CONSULTANT shall also prepare a drainage report to complete the project.
- 8.1.7 The roadway shall be designed so that drainage follows historic flow paths and does not create site flooding or adverse ponding within the right of way. Runoff from intersecting streets shall be designed to maintain or improve existing drainage conditions, as economically feasible, and in no case adversely impact the improvements of this project.

- 8.1.8 Minimum pipe diameter shall be 18 inches. A minimum of 15 inch pipe diameter is allowed for connector pipes for storm drainage of curbed roadways.

8.2 Drainage Coordination

- 8.2.1 The CONSULTANT shall utilize the drainage design to determine the right of way, temporary construction, and/or drainage easement requirements needed to accommodate both the onsite and offsite drainage.

9.0 ROADWAY

9.1 Roadway Design

- 9.1.1 The CONSULTANT shall redesign the roadway using the COP Standard Arterial Roadway Typical Sections which have been agreed upon by both MCDOT and the COP: MC85 (Cross Section B), 91st Ave, 83rd Avenue (Cross Section C or CM).
- 9.1.2 The CONSULTANT shall prepare plans for the ultimate improvements to the intersection of MC85 and 83rd Ave; 5-lane section from 107th Avenue to 75th Avenue based on and considering the 70% design of the ultimate configuration of MC 85; and the ITS system from 107th Avenue to 75th Avenue.
- 9.1.3 The CONSULTANT shall match existing 5-lane cross section improvements at 75th Avenue.
- 9.1.4 The CONSULTANT shall use the design data (Design Speed, Road Classification) from the Original 90% Submittal: MC85 (55 mph, Urban Principal Arterial) 91st Ave (45 mph, Urban Minor Arterial), 83rd Ave (55 mph, Urban Minor Arterial), 79th Ave (40 mph, Urban Minor Collector), 75th Ave (55 mph, Urban Minor Arterial)
- 9.1.5 The CONSULTANT shall modify the proposed horizontal alignment to adjust for a narrower roadway section and still utilize existing segments of existing curb and gutter as feasible.
- 9.1.6 The CONSULTANT shall reevaluate the vertical alignment from the Original 90% Submittal to maintain existing offsite drainage patterns. In order to achieve this, the profile will be evaluated to be lowered to reduce the difference in grades between the proposed and existing crown elevation with the constraints of cover over existing utilities, proposed storm drain, as well as relocated SRP irrigation and private irrigation.

- 9.1.7 The CONSULTANT shall coordinate the proposed vertical alignment with ongoing development along the corridor. The COP shall provide the CONSULTANT with development plans.
- 9.1.8 The CONSULTANT shall redesign sidewalks and sidewalk ramps to meet COP Standard Details. It has been agreed to by both the COP and MCDOT that the north side sidewalk shall be 6' wide attached, and south side 5' wide detached. Cross Street sidewalks shall match the width that the COP standard cross section defines in Section 8.1.1
- 9.1.9 The CONSULTANT shall redesign the driveways to meet COP Standard Details. Driveway entrances shall be designed to provide a width that is equal to existing widths provided that the new driveway width is at least equal to the minimum standard width and does not exceed the maximum allowable width.

10.0 SIGNING AND PAVEMENT MARKING

10.1 General

- 10.1.1 The CONSULTANT shall prepare the signing and pavement marking plans based on the preliminary layout provided by the City of Phoenix Streets Department and transition to existing striping configuration.

11.0 TRAFFIC SIGNALS

11.1 Traffic Signal Design

- 11.1.1 The CONSULTANT shall prepare the traffic signal design based on MCDOT design standards. The signals on MC85 will be controlled and operated by MCDOT as part of the Smart Corridor.
- 11.1.2 The CONSULTANT shall prepare Traffic Signal design at the intersections of 91st Avenue, 87th Avenue, 83rd Avenue and 79th Avenue. The CONSULTANT shall prepare final Traffic Signal plans for the MC 85 & 83rd Avenue intersection.
- 11.1.3 The CONSULTANT shall prepare the design plans per MCDOT CADD standards using Microstation.

11.2 Traffic Signal Coordination

- 11.2.1 The CONSULTANT shall coordinate with MCDOT to define signal design requirements.

11.2.2 The CONSULTANT shall coordinate with APS for power service requirements.

11.2.3 The CONSULTANT shall submit the traffic signal plans to MCDOT for all reviews.

11.2.4 The CONSULTANT shall coordinate with City of Phoenix regarding the signing & striping plans as it relates to the new traffic signals.

12.0 STREET LIGHTING

12.1 Lighting Design

12.1.1 The CONSULTANT shall design the street lighting based on COP standards and APS requirements. The CONSULTANT shall prepare the lighting design with the proposed conduit and pull box spacing per the design, however, not show the light poles or foundations. Lighting will only be provided at signalized intersections as part of this project.

12.1.2 The CONSULTANT shall prepare the final design plans for the intersection of MC 85 and 83rd Avenue only.

12.1.3 The CONSULTANT shall prepare the design plans in AutoCAD format.

12.2 Lighting Coordination

12.2.1 The CONSULTANT shall coordinate with City of Phoenix's Streets staff to define lighting design requirements.

12.2.2 The CONSULTANT shall coordinate with APS regarding power service requirements and APS design.

13.0 SIGNAL INTERCONNECT

13.1 Signal Interconnect Design

13.1.1 The CONSULTANT shall prepare the signal interconnect plans based on MCDOT design standards as the signals on MC85 will be controlled and operated by MCDOT as part of the Smart Corridor.

13.1.2 The CONSULTANT shall prepare the interconnect design plans per MCDOT CADD standards using Microstation.

13.2 Signal Interconnect Coordination

13.2.1 The CONSULTANT shall coordinate with MCDOT to define interconnect design requirements.

13.2.2 The CONSULTANT shall submit the interconnect design plans to MCDOT for all reviews.

14.0 PLAN PREPARATION

14.1 Drafting Standards

14.1.1 The CONSULTANT shall revise the base drawings produced for the Original 90% Submittal to meet current City of Phoenix Standards. This will require the conversion of certain base files (existing utility files, existing right of way etc.) drawings from Microstation format to AutoCAD format. The base files will follow the COP standard layer naming conventions.

14.1.2 The CONSULTANT shall use prepare all drawing utilizing AutoCAD software excluding Traffic Signal and Signal Interconnect plans. These plans will be prepared utilizing Microstation. All sheet drawings will use MCDOT Standard Border.

14.1.3 The CONSULTANT shall use plan symbols shown in the MAG Standard Details and COP Guidelines, unless otherwise requested.

14.1.4 Drawing sheet size shall be 22" by 34". The final submittal shall be on 4 mil mylar or utilizing a plotter printing a minimum of 400 dots per square inch (final plot shall be plotted or photo reproduced on 4 mil mylar), without sticky backs. If sticky backs have been used, 4 mil photo reproducible mylars shall be submitted with original seal and signature on the photo mylars, in smudge-proof ink.

14.2 Plan, Profile, Typical Sections, Driveway Profiles, and Cross Section Sheets

14.2.1 All plans shall be at English scale of 1"=20' horizontally and 1"=2' vertically, unless otherwise approved.

14.2.2 All existing utilities shall be dimensioned on each sheet with respect to the roadway centerline.

14.2.3 All plans shall be at an English scale of 1" = 20' horizontally and 1"=2' vertically unless otherwise specified.

14.2.4 Typical sections shall be provided for MC85 as well as the cross streets and shall be drawn to scale with a maximum vertical to horizontal exaggeration of 2'=1".

14.2.5 Driveway profiles shall use 1"=5' vertical and 1"=10' horizontal scales. Driveway centerline profiles with existing and finished profiles and elevations at the new pavement, shoulder, right of way line, including slopes and distances shall be submitted for each driveway.

14.2.6 Earthwork cross sections may use 1"=10' vertical and 1"=10' horizontal scales. Earthwork cross sections shall show and label right of way and easement lines.

14.3 Summary Sheets

14.3.1 Quantity summary sheets shall identify quantity requirements for all items required within the construction plan set. The individual quantities required by each plan sheet shall be identified and the total of each bid item shall be given and shall match the bidding schedule quantity. The quantity sheet items shall be sorted in ascending order based on MCDOT bid item numbers.

14.4 Intersections

14.4.1 Arterial intersection legs shall be designed to extend a minimum of approximately 370 feet from each intersection, and shall be appropriately tapered to match the existing edge of pavement. Project traffic detection loops may be for more than 370 feet in some locations. Intersections shall be designed to meet future roadway width requirements, as defined by MCDOT and as indicated in the DCR and independently verified by the CONSULTANT. Sight distances shall be checked and designed to comply with AASHTO criteria. Stopping sight distance along improved or impacted roadways shall be based on the design speed as shown.

14.4.2 The use of concrete valley gutters, such as MAG Standard Detail 240, is not desirable at intersecting side streets. The use of concrete valley gutters shall be considered for areas that do not have a drainage system and longitudinal gutter slopes are less than 0.5 percent across intersections.

14.5 Cost Estimate

14.5.1 The CONSULTANT shall prepare a cost estimate at each submittal that will list the MCDOT bid item number, the description of the bid item, and the unit of measurement, the total quantity of the item and the total cost of the item. At each submittal, the cost estimate will be

revised as additional construction items are added or quantities are refined.

- 14.5.2 Until the final cost estimate, contingencies may be applied to the construction cost estimate as follows: 40% submittal – 25% contingency, 70% submittal – 20% contingency, 90% submittal – 10% contingency.

14.6 Special Provisions

- 14.6.1 The CONSULTANT shall prepare Special Provisions for items, details and procedures not adequately covered by MAG Uniform Standard Specifications and the COP Supplement. COP will review all drafts and the CONSULTANT shall prepare all final Special Provisions.

15.0 SUBMITTAL REQUIREMENTS

15.1 General

- 15.1.1 The CONSULTANT shall be required to resubmit any scheduled submittal deemed by MCDOT to be incomplete or lacking in sufficient detail.
- 15.1.2 The CONSULTANT shall submit to MCDOT and the City of Phoenix for review and comment. While plans are developed to City of Phoenix Design Guidelines, the ultimate determining authority on review conflicts will be MCDOT.
- 15.1.3 At each submittal, the CONSULTANT shall return the last set of check prints along with any comment summaries annotated with CONSULTANT responses. The CONSULTANT shall also submit quality assurance documentation that proposed procedures have been implemented.
- 15.1.4 Special Provisions, drainage reports, soils reports and other data prepared on word processors shall be submitted electronically (Microsoft Word) along with the specified number of hard copies.
- 15.1.5 Cost estimates and other data prepared on spreadsheets shall be submitted electronically (Microsoft Excel) along with the specified number of hard copies.
- 15.1.6 A legible copy of survey notes shall be provided to MCDOT with the initial submittal and updated as revised.
- 15.1.7 Over the Shoulder Reviews (OTS) shall be presented to MCDOT and COP at a pre-40% level to depict the ultimate roadway**

section from 107th Avenue to 75th Avenue as well as an overlay of the interim 5-Lane configuration. A roll plot will be presented at the meeting showing these improvements.

15.1.8 Final construction plans shall only be developed for the 5-Lane Interim Section and ITS System from 107th Avenue to 75th Ave and the ultimate configuration of the intersection of MC 85 and 83rd Avenue.

15.1.9 The CONSULTANT shall send two (2) sets of plans to each utility company and municipality impacted by the project at the 40%, 70% & Pre-Final submittals. Subsequent plan submittals shall only be at MCDOT's request.

15.1.10 The following table relates the general deliverables required for the Roadway Improvements for MC 85 from 107th Avenue to 75th Avenue. 40% and 70% Plans will be developed for the 6-lane divided ultimate section. Pre-Final and Final construction plans will be developed for the interim 5-Lane Section, ITS Section and the Intersection of MC85 and 83rd Avenue.

15.2 Table of Deliverables Due At Each Submittal

Roadway Configuration	Ultimate	Ultimate	Interim	Interim
Item	40% Plans	70% Plans	Pre-Final	Final
Plan Submittal – Number of Sets	12+ 2 for each utility	12+ 2 for each utility	12+ 2 for each utility	12
Cover Sheet	X	x	x	x
Notes Sheet	x	x	x	x
Typical Section Sheets	x	x	x	x
Geometric Control Sheets	x	x	x	x
Plan & Profile Sheets	x	x	x	x
Intersection Detail Sheets		x	x	x
Median Detail Sheets		x	x	x
Driveway Details		x	x	x
Roadway Details		x	x	x
Mass Diagram Sheet		x	x	x
Drainage Design Sheets		x	x	x
Signing Summary Sheet		x	x	x
Signing and Pavement Marking Plans		x	x	x
Traffic Signal Plans		x	x	x
Signal Interconnect Plans		x	x	x
Street Lighting Plans		x	x	x
Pipe Summary Sheet		x	x	x
Structural Summary Sheet		x	x	x
Storm Drain Pipe Profile Sheets	x	x	x	x
Box Culvert Sheets		x	x	x

Roadway Configuration	Ultimate	Ultimate	Interim	Interim
Item	40% Plans	70% Plans	Pre-Final	Final
Plan Submittal – Number of Sets	12+ 2 for each utility	12+ 2 for each utility	12+ 2 for each utility	12
Storm Drain Connector Pipe Culvert Sheets		x	x	x
Retention Basin Details		x	x	x
Utility and Irrigation Relocations		x	x	x
Cross Sections	x	x	x	x
Driveway Profile Sheets	x	x	x	x
Special Provisions		5	5	5
Cost Estimate	2	2	2	2
Right of way Strip Maps	x	x		
Plan Diskette		1	1	1
Survey Control Data Verification	1			
Supplemental Topographic Survey Data	1			
Survey Data Diskette	1			
Engineering Calculations	2	2	2	2
Geotechnical Report & Pavement Design	2	2	2	2
Pothole List		x	x	x
Comments from Previous Submittal		x	x	x
Sealed Mylars				x

Note: All Plan Submittals shall be 11" x 17", except final mylars (22"x34").

15.3 Initial 40% Submittal

15.3.1 The CONSULTANT shall provide twelve (12) sets of the plans (11" x 17") for the following distribution: (12 sets to be submitted to MCDOT with MCDOT retaining 7 sets and distributing the remaining 5 sets to the COP). The base mapping shall be complete with all existing features and utilities shown. Proposed grade and alignment for major design elements such as roadways, storm drains, and irrigation facilities shall be shown in sufficient detail to show all conflicts with existing facilities and that feasible solutions exist for all conflicts. Preliminary drainage design information shall be included to show how roadway drainage and retention will be handled.

15.3.2 The CONSULTANT shall provide two copies of engineering calculations.

15.3.3 The CONSULTANT shall provide two copies of the preliminary construction cost estimate.

15.3.4 The CONSULTANT shall submit revised copies of survey books and survey diskettes if changes have occurred since the original submittal.

15.3.5 Four sets of roadway cross sections at 50 foot spacing shall be provided. An estimate of the earthwork shall be provided using the average end area method. Shrink and swell factors shall be noted and applied.

15.4 Preliminary 70% Submittal

15.4.1 The CONSULTANT shall provide twelve (12) sets of the plans (11" x 17") for the following distribution: (12 sets to be submitted to MCDOT with MCDOT retaining 7 sets and distributing the remaining 5 sets to the COP). Preliminary Signal, Striping and Signing Plans shall be included. The plans shall include the roadway and drainage design and, if appropriate, the irrigation design. Details shall be complete to the degree possible. Construction notes shall be included. Pothole elevations shall be shown. Known utility conflicts shall be identified and solutions shall be shown in sufficient detail to permit review.

15.4.2 The CONSULTANT shall provide five copies of the special provisions.

15.4.3 The CONSULTANT shall provide two copies of engineering calculations.

15.4.4 The CONSULTANT shall provide two copies of the preliminary construction cost estimate.

15.4.5 Any additional potholes for determining utility locations needed shall be identified by the CONSULTANT with the preliminary 70% submittal.

15.4.6 Four sets of roadway cross sections at 50 foot spacing shall be provided. An estimate of the earthwork shall be provided using the average end area method. Shrink and swell factors shall be noted and applied. A mass diagram for project earthwork shall be provided.

15.4.7 If design drawings are required from Salt River Project and have not been received, the anticipated locations shall be shown in the plans.

15.4.8 Required right of way including temporary easements shall be shown.

15.4.9 The CONSULTANT shall submit driveway profile sheets.

15.4.10 The CONSULTANT shall submit two sets of plans (11" x 17") to each appropriate utility company.

15.4.11 For each Phase, if the relocation/easement requirements from Salt River Project Irrigation, SRP Power, UPRR or Kinder Morgan have not

been received prior to the submittal date, the anticipated locations shall be shown in the plans and required right of way including

15.5 Pre-Final Submittal for Office and Field Review

15.5.1 The CONSULTANT shall provide twelve (12) sets of the plans (11" x 17") for the following distribution: (12 sets to be submitted to MCDOT with MCDOT retaining 7 sets and distributing the remaining 5 sets to the COP) for verification that all comments have been satisfactorily addressed. All pothole data shall be shown on these plans.

15.5.2 The Consultant shall provide five copies of the special provisions and bid item list.

15.5.3 The CONSULTANT shall provide five copies of engineering calculations.

15.5.4 The CONSULTANT shall submit two copies of the preliminary construction cost estimate shall also be submitted. Traffic quantities shall be itemized with this submittal.

15.5.5 Four sets of roadway cross sections at 50 foot spacing shall be provided. An estimate of the earthwork shall be provided using the triangulation method. Shrink and swell factors shall be noted and applied. A mass diagram for project earthwork shall be provided.

15.5.6 If design drawings are required from Salt River Project, they shall be included in the plan set.

15.5.7 The CONSULTANT shall submit two sets of plans (11" x 17") to each appropriate utility company.

15.5.8 For each Phase, if the relocation/easement requirements from Salt River Project Irrigation, SRP Power, UPRR or Kinder Morgan have not been received prior to the submittal date, the anticipated locations shall be shown in the plans and required right of way including

15.6 Final Submittal

15.6.1 The CONSULTANT shall provide twelve (12) sets of the plans (11" x 17") for the following distribution: (12 sets to be submitted to MCDOT with MCDOT retaining 7 sets and distributing the remaining 5 sets to the COP) for verification that all comments have been satisfactorily addressed. If necessary the plans may be returned to the CONSULTANT to complete comments.

- 15.6.2 Once MCDOT project manager is satisfied that the plans and specifications are complete, the CONSULTANT shall be notified to submit final plans, specifications and estimates.
- 15.6.3 The final submittal shall be on 4 mil mylar or utilizing a plotter printing a minimum of 400 dots per square inch (final plot shall be plotted or photo reproduced on 4 mil mylar), without sticky backs. If sticky backs have been used, 4 mil photo reproducible mylars shall be submitted with original seal and signature on the photo mylars, in smudge-proof ink. Each sheet shall be signed and sealed by an appropriate registrant.
- 15.6.4 Two sets of final prints and the final drawing file on CD ROM disks shall be submitted along with the mylars.
- 15.6.5 The CONSULTANT shall provide MCDOT with the sealed and signed original Special Provisions, unbound, plus two copies. One copy of the Special Provisions shall also be submitted in electronic format as a WORD document.
- 15.6.6 Original survey books, final design calculations, cross sections, final earthwork calculations, final quantity calculations, final drainage study, final construction cost estimate, shall also be submitted for MCDOT's use.
- 15.6.7 The CONSULTANT shall provide survey data for construction staking COGO coordinate data file on both an 8 ½ x 11 inch hard copy and CD Rom diskettes in Microstation and Inroads format.

16.0 PROJECT COORDINATION

16.1 General

- 16.1.1 The CONSULTANT shall attend meetings and prepare agendas as needed when meeting with COP, MCDOT, other county divisions, other agencies, and utility owners, as required to complete the project.
- 16.1.2 Monthly Progress Meetings will be held at the COP, MCDOT or Jacobs's office. The CONSULTANT shall prepare and distribute meeting minutes for each progress meeting.
- 16.1.3 Internal Project Team meetings will be held bi-weekly at JACOBS to review and coordinate progress
- 16.1.4 The CONSULTANT shall attend Monthly Utility Coordination Meetings with the COUNTY, the MCDOT Utility Coordinator, and utility companies at MCDOT.

16.1.5 The CONSULTANT shall participate in one public meeting. Participation shall include preparation of displays, presentation of the project and answering questions, as requested. MCDOT will arrange the location and prepare meeting announcements and invitations.

17.0 BIDDING ASSISTANCE

17.1 Preparation of Addenda

17.1.1 During the bidding phase for MC 85 from 107th Avenue to 75th Avenue Storm Drain Trunk Line, the CONSULTANT shall prepare addenda that may be required to clarify or correct the plans or Special Provisions.

17.2 Pre-Bid Meeting

17.2.1 The CONSULTANT shall attend the pre-bid meeting.

18.0 POST DESIGN SERVICES

18.1 General

No Post Design Services are proposed for this project

END EXHIBIT A



CONSULTANT SERVICES CONTRACT

BETWEEN

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

AND

ENTER CONSULTANT's NAME

FOR

ENTER PROJECT NAME

WORK ORDER NO.

CONTRACT NO.

C-64-

CONSULTANT SERVICES

CONTRACT NO.

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CONSULTANT SERVICES
CONTRACT NO.

Pursuant to the provisions of the Arizona Revised Statutes § 11-201 the Maricopa County Board of Supervisors has the authority to enter into contracts.

The Maricopa County Department of Transportation, hereinafter called the "COUNTY", is desirous of having certain professional services performed in connection with **ENTER Contract No. , INCLUDE TITLE OF PROJECT** , hereinafter called the "Project", and as more fully described in Exhibit A, Scope of Work, and in accordance with Exhibit B, Fee Proposal, attached; and **ENTER CONSULTANT'S NAME** ., hereinafter called "CONSULTANT", with its principal offices located at **ENTER ENTIRE MAILING ADDRESS** , , **ENTER CITY, ENTER STATE, ZIP CODE** , **Telephone No. ()** , subject to the following terms and conditions:

THEREFORE, the parties hereto mutually agree as follows:

SECTION I—SERVICES OF THE CONSULTANT

The CONSULTANT, under the general supervision of the COUNTY, **xxxxxxx** Division, Manager, shall prepare studies, reports, surveys, plans, drawings, specifications, and cost estimates as are necessary for the Project according to the directions and designated standards of the COUNTY, and in accordance with Exhibit A, Scope of Work. It is understood and agreed that the COUNTY authorized representative shall be the COUNTY **xxxxxxxxxxx** Division, Manager or his duly authorized representative, hereinafter called the "Agent". For purposes of this contract, the Agent's duly authorized representative shall be the Project Manager and he/she shall be the sole contact for administering this contract.

The CONSULTANT shall meet periodically with the Agent so as to keep the COUNTY informed of the progress of the work in accordance with the schedule defined in Exhibit A, Scope of Work.

The CONSULTANT shall promptly advise the Agent of any factors which develop during the Project that would likely result in construction or design costs in excess of budgetary constraints.

SECTION II—PERIOD OF SERVICE

The CONSULTANT shall complete all work in accordance with the time requirements provided in Exhibit A, Scope of Work, within **SPELL OUT NUMBER HERE (ENTER NUMBER HERE)** CALENDAR DAYS after receipt of the Notice to Proceed. Should extension of this contract period be necessary, and any such extension(s) continue the date of contract performance for a time period of more than one (1) year from the original date of contract expiration, adjustment(s) of the CONSULTANT's fee(s) may, upon agreement by both the COUNTY and the CONSULTANT, be made in accordance with the Consumer Price Index for Urban Consumers, Western Division, published by the U.S. Department of Labor, Bureau of Labor Statistics, using the published edition coinciding with the initial contract expiration date. Any such fee adjustment shall only apply to the extended contract time period.

SECTION III—PAYMENTS TO THE CONSULTANT

The **CONSULTANT** shall be paid for work under this contract a lump sum fee of \$_____ plus a fee not-to-exceed \$_____ for optional tasks as identified below and in accordance with the Scope of Work. A written authorization from the Agent will be required prior to initiating any optional task. – **DELETE THIS SECTION IF NO OPTIONS OR ALLOWANCES ARE INCLUDED**

OPTIONAL

TASK NUMBER	DESCRIPTION	TOTAL
--------------------	--------------------	--------------

The **CONSULTANT** shall be paid for work under this contract in accordance with the Scope of Work a lump sum fee of _____ (\$_____) **INSERT IN BOLD THE WRITTEN DOLLAR AMOUNT FOLLOWED BY THE NUMERICAL DOLLAR AMOUNT** plus any adjustments that have been approved in writing in accordance with the Maricopa County Procurement Code.

The **COUNTY** shall compensate the **CONSULTANT** for post design services, based on the rates documented in Exhibit B, **CONSULTANT's** Fee Schedule, a not to exceed amount of _____ (\$_____). The post design allowance shall only be utilized for post design services and shall only be activated by means of a Change Order to this Contract. – **DELETE THIS SECTION IF NO POST DESIGN SERVICES ARE INCLUDED.**

The **COUNTY** will pay the **CONSULTANT** upon completion of the work as accepted by the **COUNTY**, except that progress payments may be made as billed by the **CONSULTANT** based on approved monthly progress reports subject to the limitations set forth in Exhibit A, Scope of Work. No retention shall be withheld from the contract

The final invoice shall be paid to the **CONSULTANT**, as applicable, within forty-five (45) calendar days after:

- A. final completion of all work per Exhibit A, Scope of Work,
- B. acceptance of the work by the **COUNTY**,
- C. the **COUNTY's** receipt of the fully executed "Certificate of Performance" form (Attachment 2),

SECTION IV—THE COUNTY's RESPONSIBILITIES

The **COUNTY** will furnish the **CONSULTANT**, at no cost to the **CONSULTANT**, the following information or services for this Project:

- A. One copy of on-hand maps, records, survey ties, benchmarks, or other data pertinent to the Project. This does not, however, relieve the **CONSULTANT** of the responsibility of searching records for additional information, for requesting specific information, or for verification of that information provided. The **COUNTY** does not warrant the accuracy or comprehensiveness of any such information.

- B. All available information and data relative to policies, standards, criteria, and studies, etc. impacting the Project as identified by the CONSULTANT.
- C. Available staff for consultation with the CONSULTANT during the performance of studies and plan development in order to identify the problems, needs, and other functional aspects of the Project.
- D. Prompt examination of documents submitted by the CONSULTANT and rendering of decisions pertaining thereto in order to avoid unreasonable delay in the progress of the work by the CONSULTANT. The COUNTY will keep the CONSULTANT advised concerning the progress of the COUNTY's review of work.

SECTION V—AMENDMENTS

This contract may be amended by mutual agreement of the COUNTY and the CONSULTANT.

Any alteration in the Scope of Work that will result in a substantial change in the nature of the Project so as to materially increase or decrease the contract fee will require negotiation of an amendment to the contract to be executed by the COUNTY and the CONSULTANT. No work shall commence on the change until the contract amendment has been approved by the COUNTY and the Agent has notified the CONSULTANT to proceed. It is distinctly understood and agreed that no claim for extra work performed or materials furnished by the CONSULTANT will be allowed by the COUNTY except as provided herein, nor shall the CONSULTANT do any work or furnish any materials not covered by this agreement unless such work is first authorized in writing by the COUNTY in accordance with the Maricopa County Procurement Code. Any such work or materials furnished by the CONSULTANT without such written authorization first being given shall be at CONSULTANT's own risk, cost, and expense. The CONSULTANT hereby agrees to make no claim for such work or materials furnished without such written authorization.

SECTION VI—RECORDS

Records of the CONSULTANT's expenses pertaining to this contract and records of accounts between the COUNTY and the CONSULTANT shall be kept on a generally recognized accounting basis and shall be available upon request to the COUNTY or its authorized representative for audit during normal business hours.

All CONSULTANT and COUNTY procurement records shall be retained for a period of one (1) year and disposed of in accordance with the records retention guidelines and schedules approved by the State of Arizona Department of Library, Archives, and Public Records unless applicable Federal regulations require a longer period of retention.

SECTION VII—PROJECT COMPLETION

If, during the course of this contract, situations arise which prevent completion within the allotted time, the Agent may grant an extension.

SECTION VIII—TERMINATION

The COUNTY may terminate this contract at any time upon reimbursement to the CONSULTANT of expenses that include reasonable charges for time and material for the percentage of work satisfactorily completed and provided to the COUNTY.

The COUNTY reserves the rights to postpone, terminate, or abandon this contract for the CONSULTANT's failure to complete the Project on time or failure to comply with the provisions of the contract. The COUNTY also reserves the right to terminate any or all parts of this contract for its own convenience as the COUNTY may determine at its sole discretion.

The COUNTY hereby gives notice that pursuant to A.R.S. § 38-511 "A" this contract may be canceled without penalty or further obligation within three (3) years after execution if any person significantly involved in initiating, negotiating, securing, drafting, or creating a contract on behalf of the COUNTY is, at any time while the contract or any extension of the contract is in effect, an employee or agent of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. Cancellation under this section shall be effective when written notice from the Transportation Director is received by all of the parties to the contract. In addition, the COUNTY may recoup any fee or commission paid or due to any person significantly involved in initiating, negotiating, securing, drafting, or creating the contract on behalf of the COUNTY from any other party to the contract arising as a result of the contract.

The CONSULTANT may terminate this contract in the event of nonpayment of fees as specified in SECTION III, PAYMENTS TO THE CONSULTANT.

SECTION IX—OWNERSHIP OF DOCUMENTS

- A. All original documents including, but not limited to studies, reports, tracings, drawings, physical and computer models, estimates, field notes, investigations, design analysis, calculations, computer software, and specifications, prepared in the performance of this contract are to be and remain the property of the COUNTY and are to be delivered to the Agent before final payment is made to the CONSULTANT. The COUNTY will not reuse, alter or modify these documents without noting such modifications, alterations, or intent of their reuse, and will hold the CONSULTANT harmless from any claims arising from such reuse, modifications, or alterations of the documents. The CONSULTANT may retain reproducible copies of all such documents delivered to the COUNTY.
- B. If the CONSULTANT retains reproducible copies of all such documents delivered to the COUNTY, the CONSULTANT may not use those documents in regard to current or future claims or litigation against the COUNTY brought by another party or parties unless the documents are independently produced in accordance with a court order or procedural rules and notice of such production is given to the COUNTY immediately and prior to their production.
- C. Copies retained by the CONSULTANT, sub-consultant(s), or any related entities are governed by Arizona Law regarding the use of public records and may not be used for commercial purpose without additional written permission from the COUNTY and the payment of all applicable fees.
- D. The COUNTY reserves the right to reuse the documents as it sees fit.

SECTION X—COMPLIANCE WITH LAWS

The CONSULTANT is required to comply with all Federal, State, and local laws, local ordinances and regulations. The CONSULTANT's signature on this contract certifies compliance with the provisions of the I-9 requirements of the Immigration Reform and Control Act of 1986 for all personnel that the CONSULTANT and any subconsultants employ to complete any Project. It is understood that the COUNTY shall conduct itself in accordance with the provisions of the Maricopa County Procurement Code.

The CONSULTANT warrants that it is in compliance with A.R.S. §41-4401 and further acknowledges:

- (1) That the CONSULTANT and its sub-consultants, if any, warrant their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with A.R.S. §23-214, subsection A;
- (2) That a breach of a warranty under subsection 1 above, shall be deemed a material breach of the contract that is subject to penalties up to and including termination of the contracts;
- (3) That the contracting government entity retains the legal right to inspect the papers of any CONSULTANT or sub-consultant employee who works on the contract to ensure that the CONSULTANT or sub-consultant is complying with the warranty provided under subsection 1 above and that the CONSULTANT agrees to make all papers and employment records of said employee(s) available during normal working hours in order to facilitate such an inspection.
- (4) That nothing herein shall make any CONSULTANT or sub-consultant an agent or employee of the contracting government entity.

Verification Regarding Compliance With Arizona Revised Statutes §§35-391.06 And 35-393.06 Business Relations With Sudan And Iran:

- (1) By entering into the Contract, the CONSULTANT certifies it does not have scrutinized business operations in Sudan or Iran. The CONSULTANT shall obtain statements from its subconsultants certifying compliance and shall furnish the statements to the Procurement Officer upon request. These warranties shall remain in effect through the term of the Contract.
- (2) The COUNTY may request verification of compliance for any CONSULTANT or subconsultant performing work under the Contract. Should the COUNTY suspect or find that the CONSULTANT or any of its subconsultants are not in compliance, the COUNTY may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, termination of the Contract for default, and suspension and/or debarment of the CONSULTANT. All costs necessary to verify compliance are the responsibility of the CONSULTANT.

Certification Regarding Debarment and Suspension:

- (1) The undersigned (authorized official signing for the CONSULTANT) certifies to the best of his or her knowledge and belief, that the CONSULTANT, defined as the primary participant in accordance with 45 CFR Part 76, and its principals:

- (a) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal Department or agency;
 - (b) have not within 3-year period preceding this Contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
 - (d) have not within a 3-year period preceding this Contract had one or more public transaction (Federal, State or local) terminated for cause of default.
- (2) Should the CONSULTANT not be able to provide this certification, an explanation as to why should be attached to the Contract.
- (3) The CONSULTANT agrees to include, without modification, this clause in all lower tier covered transactions (i.e. transactions with subcontractors) and in all solicitations for lower tier covered transactions related to this Contract.

SECTION XI—GENERAL CONSIDERATIONS

- A. The CONSULTANT shall furnish to the COUNTY for approval, the names of its key employees, and of its subconsultants and their key employees, to be used on this Project prior to beginning the work under this contract. Any subsequent changes are subject to the written approval of the COUNTY.
- B. The CONSULTANT shall perform, with its own firm, work amounting to fifty percent (50%) or more of the total amount of the contract value. Any deviation may be approved, in writing, at the discretion of the Agent.
- C. The failure of either party to enforce any of the provisions of this contract or to require performance of the other party of any of the provisions hereof shall not be construed to be a waiver of such provisions, nor shall it affect the validity of this contract or any part thereof, or the right of either party to thereafter enforce each and every provision.
- D. The CONSULTANT shall be responsible for the cost of any additional design, field layout, testing, construction and supervision necessary to correct those errors or omissions attributable to the CONSULTANT, and for any damage incurred by the COUNTY as a result of additional construction costs caused by such consultant errors or omissions.
- E. The fact that the COUNTY has accepted or approved the CONSULTANT's work shall in no way relieve the CONSULTANT's responsibility.

- F. It is mutually understood and agreed that this contract shall be governed by the laws of the State of Arizona, both as to interpretation and performance. Any action at law, suit in equity, or judicial proceeding for the enforcement of this contract, or any provision thereof, shall be instituted only in the courts of the State of Arizona.
- G. When this contract requires the CONSULTANT to study specific geographic areas of Maricopa County the CONSULTANT agrees during the term of this contract and any extensions thereof that CONSULTANT will not perform similar services for any clients other than the COUNTY within that specific geographic area without the written authorization and approval of the Transportation Director of the COUNTY.
- H. The CONSULTANT agrees that it, its principals, employees, sub-consultants, agents and assigns, shall not accept employment as consultants, expert witnesses or otherwise in any pending or contemplated litigation against the COUNTY during the term of this contract and any extensions thereof without the written authorization and approval of the Transportation Director of the COUNTY.
- I. The CONSULTANT agrees that it, its principals, employees, sub-consultants, agents and assigns, shall not accept employment as consultants, expert witnesses or otherwise in any future litigation against the COUNTY in regard to the subject matter of this contract without the written authorization and approval of the Transportation Director of the COUNTY.
- J. It is understood that the COUNTY shall have the right to seek and obtain in any court of competent jurisdiction an injunction to restrain a violation or alleged violation by the CONSULTANT, its principals, employees, sub-consultants, agents or assigns, of the provisions of G., H., and I. of this section or of the provisions of B. of Section IX, and the right of action for full damages at law, in addition to any other remedies provided by this contract. In no case shall a waiver by the COUNTY of the right to seek relief under this provision constitute a waiver of any other or further violation.
- K. The Consultant shall incorporate stormwater quality best management practices (BMPs) in the design of the project and comply with the Maricopa County Stormwater Quality Management and Discharge Control Regulation, the Maricopa County Drainage Policies and Standards, and the Maricopa County Drainage Regulations, using guidance from the Maricopa County Drainage Design Manual, Vol. III, Erosion Control.

SECTION XII—SUCCESSORS AND ASSIGNS

This contract shall not be assigned by either party without prior written approval of the other except that the CONSULTANT may use in the performance of this contract without prior approval of the COUNTY, personnel or services of its related entities and affiliated companies as if they were an integral part of the CONSULTANT; and it shall extend to and be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

SECTION XIII—NO KICK-BACK CERTIFICATION

The CONSULTANT warrants that no person has been employed or retained to solicit or secure this contract upon any agreement or understanding for a commission, percentage, brokerage, or contingent fee;

and that no member of the Board of Supervisors or any employee of the COUNTY has any interest, financially or otherwise, in the CONSULTANT's firm.

For breach or violation of this warranty, the COUNTY shall have the right to annul this contract without liability, or at its discretion, to deduct from the contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

SECTION XIV—ANTI-DISCRIMINATION PROVISION

The COUNTY will endeavor to ensure in every way possible that small business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the COUNTY without being discriminated against on the grounds of race, religion, gender, age, disability, or national origin.

The CONSULTANT agrees not to discriminate against any employee or applicant for employment because of race, religion, gender, age, disability, or national origin, and further agrees not to engage in any unlawful employment practices. The CONSULTANT further agrees to insert the foregoing provisions in all subcontracts hereunder.

SECTION XV—INDEMNIFICATION

To the fullest extent permitted by law, CONSULTANT shall defend, indemnify, and hold harmless COUNTY, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses, including, but not limited to, attorney fees, court costs, expert witness fees, and the cost of appellate proceedings, relating to, arising out of, or alleged to have resulted from the negligent acts, errors, omissions or mistakes relating to the performance of this Contract. CONSULTANT'S duty to defend, indemnify and hold harmless COUNTY, its agents, representatives, officers, directors, officials, and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property, including loss of use resulting there from, caused by any negligent acts, errors, omissions or mistakes in the performance of this Contract including any person for whose acts, errors, omissions or mistakes CONSULTANT may be legally liable.

The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph. The scope of this indemnification does not extend to the sole negligence of COUNTY.

SECTION XVI - INSURANCE REQUIREMENTS

CONSULTANT, at CONSULTANT'S own expense, shall purchase and maintain the herein stipulated minimum insurance from a company or companies duly licensed by the State of Arizona and possessing a current A.M. Best, Inc. rating of B++6. In lieu of State of Arizona licensing, the stipulated insurance may be purchased from a company or companies, which are authorized to do business in the State of Arizona, provided that said insurance companies meet the approval of COUNTY. The form of any insurance policies and forms must be acceptable to COUNTY.

All insurance required herein shall be maintained in full force and effect until all work or service required to be performed under the terms of the Contract is satisfactorily completed and formally accepted. Failure to do so may, at the sole discretion of COUNTY, constitute a material breach of this Contract.

CONSULTANT'S insurance shall be primary insurance as respects COUNTY, and any insurance or self-insurance maintained by COUNTY shall not contribute to it.

Any failure to comply with the claim reporting provisions of the insurance policies or any breach of an insurance policy warranty shall not affect the COUNTY'S right to coverage afforded under the insurance policies.

The insurance policies may provide coverage that contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to COUNTY under such policies. CONSULTANT shall be solely responsible for the deductible and/or self-insured retention and COUNTY, at its option, may require CONSULTANT to secure payment of such deductibles or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

COUNTY reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. COUNTY shall not be obligated, however, to review such policies and/or endorsements or to advise CONSULTANT of any deficiencies in such policies and endorsements, and such receipt shall not relieve CONSULTANT from, or be deemed a waiver of COUNTY'S right to insist on strict fulfillment of CONSULTANT'S obligations under this Contract.

The insurance policies required by this Contract, except Workers' Compensation, and Errors and Omissions, shall name COUNTY, its agents, representatives, officers, directors, officials and employees as Additional Insureds.

The policies required hereunder, except Workers' Compensation, and Errors and Omissions, shall contain a waiver of transfer of rights of recovery (subrogation) against COUNTY, its agents, representatives, officers, directors, officials and employees for any claims arising out of CONSULTANT'S work or service.

CONSULTANT is required to procure and maintain the following coverages indicated by a checkmark:

- ☒ 1. **Commercial General Liability.** Commercial General Liability insurance and, if necessary, Commercial Umbrella insurance with a limit of not less than \$1,000,000 for each occurrence, \$2,000,000 Products/Completed Operations Aggregate, and \$2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage, and shall not contain any provision which would serve to limit third party action over claims. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.
- ☒ 2. **Automobile Liability.** Commercial/Business Automobile Liability insurance and, if unnecessary, Commercial Umbrella insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence with respect to any of the CONSULTANT'S owned, hired, and non-owned vehicles assigned to or used in performance of the CONSULTANT'S work or services under this Contract.

- ☒ 3. **Workers' Compensation.** Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of CONSULTANT'S employees engaged in the performance of the work or services under this Contract; and Employer's Liability insurance of not less than \$1,000,000 for each accident, \$1,000,000 disease for each employee, and \$1,000,000 disease policy limit.

CONSULTANT waives all rights against COUNTY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the Workers' Compensation and Employer's Liability or commercial umbrella liability insurance obtained by CONSULTANT pursuant to this agreement.

- ☒ 4. **Errors and Omissions Insurance.** Errors and Omissions insurance and, if necessary, Commercial Umbrella insurance, which will insure and provide coverage for errors or omissions of the CONSULTANT, with limits of no less than \$1,000,000 for each claim.

CERTIFICATES OF INSURANCE

Prior to commencing work or services under this Contract, CONSULTANT shall furnish COUNTY with Certificates of Insurance in a form acceptable to COUNTY, or formal endorsements as required by the Contract in the form provided by the COUNTY, issued by CONSULTANT'S insurer(s), as evidence that policies providing the required coverages, conditions and limits required by this Contract are in full force and effect. Such certificates shall identify this contract number and title.

In the event any insurance policy(ies) required by this contract is (are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of CONSULTANT'S work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the Contract, a renewal certificate must be sent to COUNTY fifteen (15) days prior to the expiration date.

CANCELLATION AND EXPIRATION NOTICE

Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to COUNTY.

(END OF SECTION)

In WITNESS WHEREOF, the parties herein have executed this Contract.

ENTER CONSULTANT'S NAME

By _____
Principal of the Firm

Printed Name

Title

Date

Tax Identification Number

COUNTY OF MARICOPA, ARIZONA

RECOMMENDED BY

CERTIFICATE OF INSURANCE APPROVED

By _____
John B. Hauskins
Transportation Director

By _____
Risk Manager

Date _____

LEGAL REVIEW
Approved as to form and within the
Powers and authority granted under the
Laws of the State of Arizona to
Maricopa County.

ACCEPTED AND APPROVED
By _____
Chairman, Board of Supervisors

ATTEST

Deputy County Counsel

Clerk of the Board

Date _____

Date _____

EXHIBIT D

CONTRACT ACCEPTANCE

The draft contract has been reviewed and is accepted without any specific contract exclusions, modifications, or exceptions.

Principal of the Firm

Printed Name

Title

Date

ADDENDUM ACKNOWLEDGEMENT

RECEIPT BY THE UNDERSIGNED OF THE FOLLOWING ADDENDA IS HEREBY ACKNOWLEDGED:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

(firm)

(address)

(signature required)

(phone)

(print name)

(fax)

(print title)