City of Phoenix

OFFICE OF THE CITY ENGINEER
DESIGN AND CONSTRUCTION PROCUREMENT
200 W. Washington Street, 5th Floor
Phoenix, Arizona 85003-1611

35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER
DESIGN-BID-BUILD

ADDENDUM NO. 1

MARCH 14, 2024

This notification letter shall become part of the Request for Qualifications for the above referenced project.

A pre-bid meeting will be held on Tuesday, March 19, 2024, at 3:00 p.m., at 200 W. Washington Street, City Hall Conference Room 5 West and via Teams. At this meeting, staff will discuss the scope of work, general contract issues and respond to questions from the attendees. As City staff will not be available to respond to individual inquiries regarding the project scope outside of this pre-bid meeting, it is strongly recommended that interested firms send a representative to the pre-bid meeting.

Microsoft Teams
Meeting ID: 240 808 729 095
Passcode: gMbEdh

The IFB has hereby been revised per the attached document.

Geotechnical Study is here by attached.

All other terms and conditions remain unchanged.

Julie B Smith
Contracts Specialist II
CITY OF PHOENIX
DESIGN AND CONSTRUCTION PROCUREMENT

**********END OF NOTIFICATION**********

CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
DESIGN AND CONSTRUCTION PROCUREMENT

PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS

35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER
PROJECT NO. WS90500303

PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001575

AGREEMENT _____

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PROJECT TITLE: **35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER**
PROJECT NO.: **WS90500303**

CALL FOR BIDS

CITY OF PHOENIX
35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER
DESIGN-BID-BUILD

PROJECT NO. WS90500303

PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001575

BIDS WILL BE DUE: TUESDAY, APRIL 2, 2024, 2024 AT 2:00 P.M.
SUBMITTED INTO THE DESIGN AND CONSTRUCTION PROCUREMENT BID BOX LOCATED ON THE 1ST FLOOR LOBBY OF THE PHOENIX CITY HALL BUILDING, 200 W. WASHINGTON STREET, PHOENIX, ARIZONA, 85003

BIDS WILL BE READ: TUESDAY, APRIL 2, 2024 AT 2:00 P.M.
ON 5TH FLOOR, ROOM 5 WEST
PHOENIX CITY HALL
200 W. WASHINGTON STREET
PHOENIX, AZ 85003-1611
***All times are local Phoenix time**

SCOPE OF WORK

The City of Phoenix is seeking a qualified contractor to provide construction services for the project listed below.

This project includes replacing approximately 5,200 linear feet of existing 15-inch sanitary sewer with new 21-inch sewer and approximately 800 linear feet of existing 18-inch sanitary sewer with new 21-inch sewer in the area of 35th Avenue and Camelback Road.

A Small Business Enterprise goal of 13.5% has been established for this project.

PRE-BID MEETING

A pre-bid meeting will be held on Tuesday, March 19, 2024, at 3:00 p.m., at 200 W. Washington Street, City Hall Conference Room 5 West. At this meeting, staff will discuss the scope of work, general contract issues and respond to questions from the attendees. As City staff will not be available to respond to individual inquiries regarding the project scope outside of this pre-bid meeting, it is strongly recommended that interested firms send a representative to the pre-bid meeting.

REQUEST FOR BID PACKET

On Thursday, March 7, 2024, the bid packet may be downloaded from the City of Phoenix's eProcurement site at:

https://eprocurement.phoenix.gov/irj/portal
(OR)

the City of Phoenix's "Solicitations" web page as. The web address is:

https://solicitations.phoenix.gov

Firms receiving a copy of the bid packet through any other means are strongly encouraged to download

the bid packet from the City webpage.

Firms must be registered in eProcurement https://www.phoenix.gov/finance/vendorsreg as a vendor.

GENERAL INFORMATION

The City reserves the right to award the contract to the lowest responsible responsive bidder or all bids will be rejected, as soon as practicable after the date of opening bids.

The City of Phoenix will provide reasonable accommodations for alternate formats of the bid packet by calling Julie B. Smith at (602) 534-2418 or calling TTY 711. Requests will only be honored if made within the first week of the advertising period. Please allow a minimum of seven calendar days for production.

Questions pertaining to process or contract issues should be directed to Julie B. Smith at (602) 534-2418 or julie.b.smith@phoenix.gov (preferred).

Jeffrey Barton
City Manager

Eric J. Froberg, PE
City Engineer

Published: Arizona Business Gazette
Date: March 7, 2024
Date: March 14, 2024
District: Citywide

INFORMATION FOR BIDDERS

1. **102 BIDDING REQUIREMENTS AND CONDITIONS**, Add the following to **MAG and COP Supplement to MAG Section 102 BIDDING REQUIREMENTS AND CONDITIONS**:

INFORMATION FOR BIDDERS

A. **QUESTIONS ON PLANS AND SPECIFICATIONS**

Neither the Engineer nor the City of Phoenix will be held responsible for any oral instructions. Any changes to the plans and specifications will be in the form of an addendum. All Addenda will be posted online within the project folder at the following website:

https://solicitations.phoenix.gov

OR

https://eprocurement.phoenix.gov/irj/portal

For additional information prior to submitting your bid, contact:

Plans, Technical/Special Provisions, Proposal or Specifications:
NAME: Julie B. Smith, Design and Construction Procurement
ADDRESS: 200 W. Washington Street, 5th Floor, Phoenix, AZ 85003-1611
PHONE: (602) 534-2418 E-MAIL: julie.b.smith@phoenix.gov

SBE Utilization contact:
Equal Opportunity Department: (602) 262-6790

All questions regarding the plans and specifications must be received (in writing) at a minimum seven calendar days prior to bid opening. Questions received after that time may not be given any consideration.

B. **REQUEST FOR SUBSTITUTIONS**

Paragraph A, B, and C of MAG Section 106.4 are deleted, and the following paragraphs substituted:

1. The Engineer will consider written request(s), by a prime bidder only, for substitution(s) which is/are considered equivalent to the item(s) specified in the Contract documents. The written request will be considered only if it is received at least twelve calendar days prior to the established bid date. Notification of acceptable substitutions will be made by addendum issued no fewer than seven calendar days prior to the established bid date. (A.R.S. 34-104)

2. The prime bidder, at his own expense, will furnish the necessary data of substitution and validate that the physical, chemical, and operational qualities of each substitute item is such that this item will fulfill the originally specified required function.

3. The substitution, if approved, will be authorized by a written addendum to the Contract documents and will be made available to all bidders. The bid date and the scheduled completion time will not be affected by any circumstances developing from this substitution.

4. The request will be submitted to Design and Construction Procurement, Attention Julie B. Smith, 5th Floor, Phoenix City Hall, 200 W. Washington Street, Phoenix, Arizona 85003-1611 or via email to julie.b.smith@phoenix.gov.

C. **BID BOND**

Bidders must submit a properly completed proposal guarantee in the form of certified check, cashier's check, or surety bond provided, for an amount not less than 10 percent of the total amount bid included in the proposal as a guarantee that the contractor will enter into a contract to perform the proposal in accordance with the plans and specifications. Surety bonds submitted for this project will be provided by a company which has been rated "A- or better for the prior four quarters" by the A.M. Best Company. ***A bid will be deemed non-responsive if not accompanied by this guarantee.***

The surety bond will be executed solely by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona, issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1. The surety bond will not be executed by an individual surety or sureties even if the requirements of Section 7-101 are satisfied. The certified check, cashier's check, or surety bond will be returned to the contractors whose proposals are not accepted, and to the successful contractor upon the execution of a satisfactory bond and contract.

When providing a Surety Bond, ***failure to provide an "A- or better for the prior four quarters" bond will result in bid rejection.***

D. **LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS & LIST OF ALL SUBCONTRACTORS AND SUPPLIERS**

A bid will be deemed non-responsive if not accompanied by a properly completed and signed L.O.S.-1 "List of Major Subcontractors and Suppliers" form.

To assist in eliminating the practice of bid shopping on City construction projects, the Bidder shall list all Major Subcontractors and Suppliers to whom the Bidder intends to contract with that are equal to or greater than 5% of the base bid. The list of Major Subcontractors and Suppliers will be provided on the L.O.S.-1 "List of Major Subcontractors" form. Failure to properly complete and sign this form will result in bid rejection. This form is due with the bid.

If substantial evidence exists that bid shopping occurred on this project, the Bidder will be ineligible to bid on City or City-affiliated construction projects for a period of one year.

The list of All Subcontractors and Suppliers shall be provided on the L.O.S.-2 "List of All Subcontractors and Suppliers" form. This form is due three calendar days after bid opening by 5:00 p.m. All bidders will be required to submit the L.O.S.-1 form. The three lowest bidders will be required to submit the L.O.S.-2 form. If the L.O.S.-2 form is not submitted by the post-bid deadline, the Bidder will still be required to submit the document prior to award. If the Bidder fails to submit the required L.O.S.-2 form by the post-bid deadline, the Bidder's bid bond may be placed in jeopardy because the City may make a claim against the Bidder's bid bond for the cost difference between the lowest responsive and responsible Bidder's bid and the next lowest bid (and any additional costs involved in awarding the contract to the next lowest responsive and responsible bidder).

E. **BID SUBMITTAL**

The properly completed bid documents along with the ten percent bid guarantee will be submitted in a sealed envelope. The outside of the envelope will be marked as follows:

Bid of (Firm's Name, Address and Phone Number)
For: 35th Avenue and Camelback Road Relief Sewer
City of Phoenix Project Number: WS90500303

Sealed bids will be submitted to the bid box located on the first floor of the Phoenix City Hall Building, 200 W. Washington Street, Phoenix, Arizona, 85003 prior to the time and date specified for bid opening.

F. BID WITHDRAWALS

MAG Section 102-10, Withdrawal or Revision of Proposal, is hereby deleted and the following paragraph is submitted:

"No bidder may withdraw or revise a proposal after it has been deposited with the City except as provided in Phoenix City Code Chapter 2, Section 190.2. Proposals, read or unread, will not be returned to the bidders until after determination of award has been made.

G. ADDENDA

Acknowledge all addenda; a bid will be deemed non-responsive if all issued addenda for this project are not acknowledged in writing on Page P. -1.

The City of Phoenix will not be responsible for any oral responses or instructions made by any employees or officers of the City of Phoenix regarding bidding instructions, plans, drawings, specifications or contract documents. A verbal reply to an inquiry does not constitute a modification of the Invitation for Bid. Any changes to the plans, drawings and specifications will be in the form of an addendum.

It will be the responsibility of the prospective bidder to determine, prior to the submittal of its bid, if any addenda to the project have been issued by the Design and Construction Procurement. All addenda issued will be acknowledged by the bidder on Page P-1. All addenda (if any) will be available online within each project's folder at the following website:

https://eprocurement.phoenix.gov/irj/portal

OR

https://solicitations.phoenix.gov

The contractors are responsible for ensuring they have all addenda for all projects they are submitting on. Prospective bidders are strongly encouraged to check the Solicitations website in order to ascertain if any addenda have been issued for the project.

H. BID SUBMITTAL CHECKLIST

All firms must be registered in the City's Vendor Management System prior to submitting a bid. For new firms – the City will send an email to your firm with a vendor number within two days of submitting the request. The vendor number needs to be included on the cover of the bid proposal package/envelope. Information on how to register with the City is available at:

https://www.phoenix.gov/finance/vendorsreg

BID SUBMITTAL CHECKLIST

This checklist is provided to remind bidders of several of the required elements of the bid packages. It is not intended to be a comprehensive list of all the contract documents. Bidders are encouraged to review all of the Bid Instructions to determine compliance therein.

- Acknowledge all addenda? (Page P-1)

- Completed all of the Bid Proposal forms? (Pages P-1 to P-3 and P.S.-1)
- Included your Bid Bond (rated A- or better for the prior four quarters) or Guarantee Cashier's Check? (Page S.B.-1)
- Completed SBE Utilization form or a fully documented waiver package? (Page S.B.U.-1)
- Completed List of Major Subcontractors and Suppliers form? (Page L.O.S.-1)
- Completed Letter of Intent to Perform as Subcontractor/Supplier (L.O.I-1)

PLEASE DO NOT SUBMIT THE ENTIRE SPECIFICATION BOOK WHEN SUBMITTING YOUR BID. INCLUDE ONLY THE REQUIRED BIDDING DOCUMENTS.

POST-BID SUBMITTAL CHECKLIST

The three lowest bidders must submit completed contracts documents listed below, no later than three calendar days after bid opening by 5:00 p.m. The documents must be submitted to Design and Construction Procurement, 5th Floor, or can be sent by email to julie.b.smith@phoenix.gov.

- Completed List of All Subcontractors and Suppliers form (L.O.S.-2)
- Bidders Disclosure Statement? (Pages B.D.S.-1 to 4)
- Submit Affidavit of Identity (if you are a sole proprietor) (Page A.O.I.-1)

PRIOR TO CONTRACT EXECUTION

- Contractor must provide proof of license required to perform the work.
- Verification of Experience Modification Rate (EMR) – the awarded company will be required to provide an EMR verification letter from the insurance company prior to contract execution.

I. PERMITS

CITY RESPONSIBILITY – The City will be responsible for City of Phoenix review and permit(s) fees for building and demolition permits. The City will also pay review fees for grading and drainage, water, sewer, and landscaping. The City will also pay for utility design fees for permanent services.

CONTRACTOR RESPONSIBILITY – The Contractor will be responsible for all other permits and review fees not specifically listed above. The Contractor is responsible for the cost of water meters, water and sewer taps, fire lines and taps, and all water bills on the project meters until the project is accepted. Arrangements for construction water are the Contractor's responsibility.

The Contractor may elect to use a City fire hydrant for its source of construction water only if an existing water service connection is unavailable or inadequate. The Contractor will be required to comply with Phoenix City Code Section 37-13A.

The Contractor is specifically reminded of the need to obtain the necessary environmental permits or file the necessary environmental notices. Copies of these permits and notices must be provided to the City's Project Manager prior to starting the permitted activity. In the case of Fire Department permits, a copy of the application for permit

will also be provided to the Project Manager. This provision does not constitute an assumption by the City of an obligation of any kind for violation of said permit or notice requirements.

J. CANCELLATION OF CONTRACT FOR CONFLICT OF INTEREST

All parties hereto acknowledge that this Agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

K. CONTRACTOR'S LICENSE AND PRIVILEGE LICENSE AND CERTIFICATIONS

Prior to bidding on this project, the bidder must possess the correct license to perform the work described in the plans and specifications. Prior to award of the contract, the successful bidder must provide to the Contract Procurement Section its Contractor's License Classification and number, its City of Phoenix Privilege License number and Federal Tax Identification number.

Bidder will submit the Bidder's Disclosure Statement as set forth in Pages B.D.S. - 1 to B.D.S. - 4 within three calendar days of bid opening by 5:00 p.m.

Unless provided otherwise in this solicitation, Bidder will be deemed non-responsive, and the bid rejected if Bidder fails to possess the proper Contractor's and Business Licenses at the time of bid or fails to submit a substantially completed Bidder's Disclosure Statement as specified above.

L. TAX LIABILITIES; DISCLOSURE OF CONVICTIONS AND BREACH(S) OF CONTRACT

On or before the award of the contract for this project, the successful bidder will: (i) file all applicable tax returns and will make payment for all applicable State of Arizona and Maricopa County Transaction Taxes (ARS Sec. 41-1305) and City of Phoenix Privilege License Taxes (Phoenix City Code Sec.14-415); (ii) disclose any civil fines, penalties or any criminal convictions, other than for traffic related offenses, for violation of federal, state, county or city laws, rules or regulations including, but not limited to, environmental, OSHA, or labor compliance laws (collectively "Laws") by Bidder, Bidder's directors, managing members, responsible corporate officers or party who will be responsible for overseeing and administering this project (collectively "Bidder"); and (iii) disclose any material breach(s) of an agreement with the City of Phoenix, any termination for cause or any litigation involving the City of Phoenix occurring within the past three calendar years. Unless provided otherwise in this solicitation, the successful bidder will be deemed non-responsible and the bid rejected for any of the following: (i) Bidder's civil or criminal conviction, other than for traffic related offenses, for a violation of Laws within the past three calendar years; (ii) liability or culpability resulting in payment of fines or penalties in the cumulative total amount of $100,000 or greater for a violation of "Laws" within the past three calendar years; (iii) material breach of a City of Phoenix agreement, termination for cause or litigation with the City of Phoenix within the past three calendar years; and (iv) Bidder's failure to disclose the information as required by this provision. Further, after award of contract, in addition to any other remedy, Bidder's failure to remit proper taxes to the City of Phoenix may result in the City withholding payment pursuant to Phoenix City Charter Chapter XVIII, Section 14 until all delinquent taxes, interest, and penalties have been paid.

State and Local Transaction Privilege Taxes:
In accordance with applicable state and local law, transaction privilege taxes may be applicable to this transaction. The state and local transaction privilege (sales) tax burden is on the person who is conducting business in Arizona and the City of Phoenix. The legal liability to remit the tax is on the person conducting business in Arizona. Any failure by the Contractor to collect applicable taxes from the City will not relieve the Contractor from its obligation to remit taxes.

It is the responsibility of the Contractor to determine any applicable taxes. The City will review the price or offer submitted and will not deduct, add or alter pricing based on taxes.

If you have questions regarding tax liability, seek advice from a tax professional prior to submitting a bid. Once the bid is submitted, the Offer is valid for the time specified in this Solicitation, regardless of mistake or omission of tax liability.

If the City finds over payment of a project due to tax consideration that was not due, the Contractor will be liable to the City for that amount, and by contracting with the City agrees to remit any overpayments back to the City for miscalculations on taxes included in a bid price.

For purposes of A.R.S. 42-5075(P), this contract is subject to A.R.S. Title 34.

Tax Indemnification:
Contractor will, and require the same of all subcontractors, pay all federal, state and local taxes applicable to its operation and any persons employed by the Contractor. Contractor will, and require the same of all subcontractors, hold the City harmless from any responsibility for taxes, damages and interest, if applicable, contributions required under federal, and/or state and local laws and regulations and any other costs including transaction privilege taxes, unemployment compensation insurance, Social Security and Worker's Compensation.

Tax Responsibility Qualification:
Contractor may be required to establish, to the satisfaction of City, that all fees and taxes due to the City or the State of Arizona for any License or Transaction Privilege taxes, Use Taxes or similar excise taxes, are currently paid (except for matters under legal protest).

Contractor agrees to a waiver of the confidentiality provisions contained in the City Finance Code and any similar confidentiality provisions contained in Arizona statutes relative to State Transaction Privilege Taxes or Use Taxes.

Contractor agrees to provide written authorization to the City Finance Department and to the Arizona State Department of Revenue to release tax information relative to Arizona Transaction Privilege Taxes or Arizona Use Taxes to assist the Department in evaluating Contractor's qualifications for and compliance with contract for duration of the term of contract.

M. STANDARD SPECIFICATIONS AND DETAILS

Except as otherwise required in these specifications, bid preparation and construction of this project will be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision, and the City of Phoenix Supplements to the MAG Uniform Standard Specifications and Details, latest revision.

N. PRECEDENCE OF CONTRACT DOCUMENTS

In case of a discrepancy or conflict, the precedence of contract documents is as follows:

1. Change Orders or Supplemental Agreements
2. Addenda
3. Contract Specifications/Special Provisions/Technical Provisions
4. The Plans
5. COP Supplement to MAG Standard Specifications and Details, latest revision
6. MAG Standard Specifications and Details, latest revision

The precedence of any Addenda falls within the category of which it represents.

O. **CONFIDENTIALITY OF PLANS & SPECIFICATIONS**

Any plans generated for this project must include the following statement in the Title Block on every page: “Per City of Phoenix City Code Chapter 2, Section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of Contractor’s contract with the City of Phoenix.”

P. **AUDIT AND RECORDS**

Records of the Contractor's direct personnel payroll, bond expenses, and reimbursable expenses pertaining to this Project, and records of accounts between the City and Contractor will be kept on the basis of generally accepted accounting principles and must be made available to the City and its auditors for up to five years following Final Acceptance of the Project.

The City, its authorized representative, and/or any federal agency, reserves the right to audit the Contractor's records to verify the accuracy and appropriateness of all cost and pricing data, including data used to negotiate the Contract and any change orders.

The City reserves the right to decrease Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if, upon audit of the Contractor's records, the audit discloses the Contractor has provided false, misleading, or inaccurate cost and pricing data.

The Contractor will include a similar provision in all of its Agreements with subcontractors and suppliers providing services or supplying materials under the Contract Documents to ensure that the City, its authorized representative, and/or the appropriate federal agency has access to the Subcontractor’s and Supplier’s records to verify the accuracy of all cost and pricing data.

The City reserves the right to decrease the Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if the above provision is not included in the Subcontractor’s and Supplier’s contracts, and one or more Subcontractors or Suppliers refuse to allow the City to audit their records to verify the accuracy and appropriateness of cost and pricing data.

If, following an audit of this Contract, the audit discloses the Contractor has provided false, misleading or inaccurate cost and pricing data, and the cost discrepancies exceed 1% of the total Contract billings, the Contractor will be liable for reimbursement of the reasonable, actual cost of the audit.

Q. **IMMIGRATION REFORM AND CONTROL ACT**

Compliance with Federal Laws Required. Contractor understands and acknowledges the applicability of the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act to it. Contractor agrees to comply with these Federal Laws in performing under this Agreement and to permit City inspection of its personnel records to verify such compliance.

R. **LEGAL WORKER REQUIREMENTS**

The City of Phoenix is prohibited by A.R.S. § 41-4401 from awarding a contract to any contractor who fails, or whose subcontractors fail, to comply with A.R.S. § 23-214(A). Therefore, Contractor agrees that:

1. Contractor and each subcontractor it uses warrants their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with § 23-214, subsection A.

2. A breach of a warranty under paragraph 1 will be deemed a material breach of the contract that is subject to penalties up to and including termination of the contract.

3. The City of Phoenix retains the legal right to inspect the papers of any Contractor or subcontractor employee who works on the contract to ensure that the Contractor or subcontractor is complying with the warranty under paragraph 1.

S. **CONTRACTOR AND SUBCONTRACTOR WORKER BACKGROUND SCREENING**

Contractor agrees that all Contractor's and subcontractors' workers (collectively "Contract Worker(s))" pursuant to this Agreement will be subject to background and security checks and screening (collectively "Background Screening") at Contractor's sole cost and expense, unless otherwise provided for in the scope of work. Contractor's background screening will comply with all applicable laws, rules and regulations. Contractor further agrees that the background screening is necessary to preserve and protect the public health, safety and welfare. The City requires a completed Contract Worker Badge/Key/Intrusion Detection Responsibilities Agreement for each Contract Worker who requires a badge or key.

Background Screening Risk Level: The City has established two levels of risk: Standard and Maximum risk. The current risk level and background screening required is **MAXIMUM LEVEL**. If the scope of work changes, the City may amend the level of risk, which could require the Contractor to incur additional contract costs to obtain background screens or badges.

Terms of This Section Applicable to all Contractor's Contracts and Subcontracts: Contractor will include Contract Worker background screening in all contracts and subcontracts for services furnished under this agreement.

Materiality of Background Screening Requirements; Indemnity: The background screening requirements are material to City's entry into this agreement and any breach of these provisions will be deemed a material breach of this contract. In addition to the indemnity provisions set forth in this agreement, Contractor will defend, indemnify and hold harmless the City for all claims arising out of this background screening section including, but not limited to, the disqualifications of a Contract Worker by Contractor. The background screening requirements are the minimum requirements for the Agreement. The City in no way warrants that these minimum requirements are sufficient to protect Contractor from any liabilities that may arise out of the Contractor's services under this Agreement or Contractor's failure to comply with this section. Therefore, Contractor and its Contract Workers will take any reasonable, prudent and necessary measures to preserve and protect public health, safety and welfare when providing services under this Agreement.

Continuing Duty; Audit: Contractor's obligations and requirements will continue throughout the entire term of this Agreement. Contractor will maintain all records and documents related to all background screenings and the City reserves the right to audit Contractor's records.

BACKGROUND SCREENING – MAXIMUM RISK:

The current risk level and background screening required is **MAXIMUM RISK**.

A maximum risk background screening will be performed every five years when the Contract Worker's work assignment will:

- work directly with vulnerable adults or children, (under age 18); or

- any responsibility for the receipt of payment of City funds or control of inventories, assets, or records that are at risk of misappropriation; or
- unescorted access to:
    - City data centers, money rooms, high-value equipment rooms; or
    - unescorted access to private residences; or
    - access to critical infrastructure sites/facilities; or
- direct or remote access to Criminal Justice Information Systems (CJIS) infrastructure.

Requirements: The background screening for maximum risk level will include a background check for real identity/legal name and will include felony and misdemeanor records from any county in the United States, the State of Arizona, plus any other jurisdiction where the Contractor worker has lived at any time in the preceding seven years from the Contract Worker's proposed date of hire. In addition, Maximum screening levels may require additional checks as included herein, depending on the scope of work, and may be amended if the scope of work changes.

Contractor Certification; City Approval of Maximum Risk Background Screening: Unless otherwise provided for in the Scope of Work, Contractor will be responsible for:

- determining whether Contract Worker(s) are disqualified from performing work for the City for maximum risk level background checks; and,
- submitting pass/fail results to the City for approval; and,
- reviewing the results of the background check every three to five years, dependent on scope; and,
- to engage in whatever due diligence is necessary to make the decision on whether to disqualify a Contract Worker; and,
- Submitting the list of qualified Contract Workers to the contracting department; and,
- If, upon review of the background information, the City will advise the Contractor if it believes a Contract Worker should be disqualified. The Contractor will evaluate the Contract Worker and if the Contractor believes that there are extenuating circumstances that suggest that the person should not be disqualified, the Contractor will discuss those circumstances with the contracting department. The contracting department decision on disqualification of a Contract Worker is final.
- For sole proprietors, the Contractor must comply with the background check for himself and any business partners, or members or employees who will assist on the contract and for whom the requirements of the Agreement apply.
- By executing this agreement, Contractor certifies and warrants that Contractor has read the background screening requirements and criteria in this section, and that all background screening information furnished to the City is accurate and current.
- The City final documented decision will be an "approve" or "deny" for identified Contract Workers.
- The City will not keep records related to background checks once they are confirmed. Information to verify the results will be returned to the Contractor, or any contracted agency that assists with review, after the City's completed review.
- By executing this agreement, Contractor further certifies and warrants that Contractor has satisfied all such background screening requirements for the maximum risk background screening, and verified legal worker status, as required.
- Contract Workers will not apply for the appropriate City of Phoenix identification and access badge or keys until Contractor has received the City's written acceptance of Contract Worker's maximum risk background screening. The City may, in its sole discretion, accept or reject any or all the Contract Workers proposed by Contractor for performing work under this Agreement. A Contract Worker rejected for work at a maximum risk level under this agreement will not be proposed to perform work under other city contracts or engagements without city's prior written approval.

The background checks will be conducted prior to any employee entering to work and will be based upon information provided to the Police Department including, but not limited to: name, address,

date and place of birth, social security number, INS number if applicable, and a copy of a valid photo identification. The information will be provided to the Water Services Department at least five business days (excluding weekends and holidays) in advance of the need for access. The form will be provided by Water Services Department. A designated Water Services Department representative will conduct the security check.

The City may, at any time, in its sole discretion, refuse to allow an employee access to an area for any of the following reasons, but not limited to:

- Conviction of a felony.
- Conviction of a misdemeanor (not including traffic or parking violation).
- Any outstanding warrants (including traffic and parking violations).
- A person currently on parole or probation.
- A person currently involved in an investigation.

CONFIDENTIALITY AND DATA SECURITY: All data, regardless of form, including originals, images and reproductions, prepared by, obtained by, or transmitted to Contractor in connection with this Agreement is confidential, proprietary information owned by the City, unless otherwise agreed upon within this Agreement. Except as specifically provided in this Agreement, the Contractor shall not disclose data generated in the performance of the service to any third person without the prior written consent of the City Manager or his/her designee.

Contractor agrees to abide by all current applicable legal and industry data security and privacy requirements and to notify the City immediately if the scope of work changes or personal identifying information or information subject to Payment Card Industry Standards becomes part of the Agreement.

Contractor agrees to comply with all City information security and technology policies, standards, and procedures when accessing City networks and computerized systems whether onsite or remotely.

A violation of this Section may result in immediate termination of this Agreement without notice. The obligations of Contractor under this Section shall survive the termination of this Agreement.

SECURITY INQUIRIES: Contractor acknowledges that all of the employees that it provides pursuant to this Contract shall, at Contractor's expense, be subject to background and security checks and screening at the request of the City. Contractor shall perform all such security inquiries and shall make the results available to the City for all employees considered for performing work (including supervision and oversight) under this Contract. City may make further security inquiries. Whether or not further security inquiries are made by the City, City may, at its sole, absolute and unfettered discretion, accept or reject any or all the employees proposed by the Contractor for performing work under this Contract. Employees rejected by the City for performing services under this Contract may still be engaged by Contractor for other work not involving the City. An employee rejected for work under this Contract shall not be proposed to perform work under other City contracts or engagements without the City's prior approval.

The City, in its sole discretion, reserves the right, but not the obligation to:

- require an employee/prospective employee of the Contractor to provide fingerprints and execute such other documentation as may be necessary to obtain criminal justice information pursuant to A.R.S. 41-1750 (G) (4);
- act on newly acquired information whether or not such information should have been previously discovered;
- unilaterally change its standards and criteria relative to the acceptability of Contractor's employees and/or prospective employees; and

- object, at any time and for any reason, to an employee of Contractor performing work (including supervision and oversight) under this Agreement. Contractor will bear the costs of all inquiries requested by the City.

T. **LAWFUL PRESENCE REQUIREMENT**

Pursuant to A.R.S. §§ 1-501 and 1-502, the City of Phoenix is prohibited from awarding a contract to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming that the identification provided is genuine. This requirement will be imposed at the time of contract award. This requirement does not apply to business organizations such as corporations, partnerships or limited liability companies.

U. **LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)**

If practical, the contractor will provide an easily accessible area to serve the construction site that is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, metals, and designate an area specifically for construction and demolition waste recycling. The contractor must provide documentation that the materials have been taken to a Maricopa County approved recycling facility.

V. **CITY OF PHOENIX EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENT**

1. In order to do business with the City, Contractor must comply with Phoenix City Code, 1969, Chapter 18, Article V, as amended, Equal Employment Opportunity Requirements. Contractor will direct any questions in regard to these requirements to the Equal Opportunity Department, (602) 262-6790.

2. Any Contractor in performing under this contract will not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age, or disability nor otherwise commit an unfair employment practice. The Contractor will ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, national origin, age, or disability and will adhere to a policy to pay equal compensation to men and women who perform jobs that require substantially equal skill, effort, and responsibility, and that are performed within the same establishment under similar working conditions. Such action will include but not be limited to the following: Employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The Contractor further agrees that this clause will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this contract.

   If the Contractor employs more than thirty-five employees, the following language will apply as the last paragraph to the clause above:

   The Contractor further agrees not to discriminate against any worker, employee or applicant, or any member of the public, because of sexual orientation or gender identity or expression and will ensure that applicants are employed, and employees are dealt with during employment without regard to their sexual orientation or gender identity or expression.

3. *Documentation*. Contractor may be required to provide additional documentation to the Equal Opportunity Department affirming that a nondiscriminatory policy is being utilized.

4. *Monitoring*. The Equal Opportunity Department will monitor the employment policies and

practices of suppliers and lessees subject to this article as deemed necessary. The Equal Opportunity Department is authorized to conduct on-site compliance reviews of selected firms, which may include an audit of personnel and payroll records, if necessary.

W. PROTEST PROCEDURES

Any bidder who has any objections to the awarding of a contract to any bidder by the City of Phoenix, pursuant to competitive bidding procedures, will comply with Phoenix City Code Chapter 2, Section 188." A copy of the Protest Policy is also available online at:

https://www.phoenix.gov/streets/procurement-opportunities

X. DATA CONFIDENTIALITY

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

The parties agree that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to the Contractor or its subcontractors in connection with the Contractor's or its subcontractor's performance of this Contract is confidential and proprietary information belonging to the City.

Except as specifically provided in this Contract, the Contractor or its subcontractors will not divulge data to any third party without prior written consent of the City. The Contractor or its subcontractors will not use the data for any purposes except to perform the services required under this Contract. These prohibitions will not apply to the following data provided the Contractor or its subcontractors have first given the required notice to the City:

A. Data which was known to the Contractor or its subcontractors prior to its performance under this Contract unless such data was acquired in connection with work performed for the City;

B. Data which was acquired by the Contractor or its subcontractors in its performance under this Contract and which was disclosed to the Contractor or its subcontractors by a third party, who to the best of the Contractor's or its subcontractor's knowledge and belief, had the legal right to make such disclosure and the Contractor or its subcontractors are not otherwise required to hold such data in confidence; or

C. Data which is required to be disclosed by virtue of law, regulation, or court order, to which the Contractor or its subcontractors are subject.

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

The Contractor, unless prohibited by law, within ten calendar days after completion of services for a third party on real or personal property owned or leased by the City, the Contractor or its subcontractors will promptly deliver, as set forth in this section, a copy of all data to the City. All data will continue to be subject to the confidentiality agreements of this Contract.

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

Personal Identifying Information-Data Security

Personal identifying information, financial account information, or restricted City information, whether electronic format or hard copy, must be secured and protected at all times. At a minimum, Contractor must encrypt and/or password protects electronic files. This includes data saved to laptop computers, computerized devices or removable storage devices.

When personal identifying information, financial account information, or restricted City information, regardless of its format, is no longer necessary, the information must be redacted or destroyed through appropriate and secure methods that ensure the information cannot be viewed, accessed, or reconstructed.

In the event that data collected or obtained by Contractor or its subcontractors in connection with this Contract is believed to have been compromised, Contractor or its subcontractors will immediately notify the Project Manager and City Engineer. Contractor agrees to reimburse the City for any costs incurred by the City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach.

Contractor agrees that the requirements of this Section will be incorporated into all subcontracts entered into by Contractor. It is further agreed that a violation of this Section will be deemed to cause irreparable harm that justifies injunctive relief in court. A violation of this Section may result in immediate termination of this Contract without notice.

The obligations of Contractor or its subcontractors under this Section will survive the termination of this Contract.

Y. PROJECT MANAGEMENT INFORMATION SYSTEM (UNIFIER)

The Street Transportation Department's Design and Construction Management (DCM) Division Project Manager may determine that use of UNIFIER will be required during this contract. The following information provides a guideline for utilization. Any questions related to the requirements of UNIFIER should be directed to the DCM Project Manager.

1. The contractor will be required to maintain all project records in electronic format. The City provides an Application Service Provider (ASP) web-based project management database which the contractor will be required to utilize in the fulfillment of the contract requirements. Although this electronic platform does not fulfill this requirement in its entirety, the contractor will be required to utilize this platform as the basis for this work.

2. The contractor can expect to use this ASP to process all primary level tri-partite contract documents related to the design or construction phase of the Project including but not limited to: requests for interpretation/information, potential Change Orders, construction meeting minutes, Submittals, Design Professional's supplemental instructions, and Payment Requests.

3. The contractor will be required to process information into electronic digital form. To fulfill this requirement, the contractor will provide all necessary equipment to perform the functions necessary to generate, convert, store, maintain, connect to web-based ASP and

transfer electronic data.

4. The contractor will provide a computerized networked office platform with broadband internet connectivity. Wired or wireless is acceptable. This platform will function well in a web-based environment utilizing an internet browser compatible with the City's UNIFIER ASP system.

UNIFIER training will be provided through the City of Phoenix. Contact information will be provided to the firms under contract, to establish the set up with a log-in and password.

Z. PROJECT STAFFING

Key Personnel: Before starting work, Contractor must submit detailed résumés of key personnel involved in that work for City's approval (which City will not unreasonably withhold). If Contractor later desires to change key personnel involved in that work, Contractor must submit detailed résumés of the new personnel for City's approval (which City will not unreasonably withhold).

Qualified Staff: Contractor must maintain an adequate and competent staff of qualified persons—as City may determine in its sole discretion—during performance of this Master Agreement. If City in its sole discretion determines that any of Contractor's staff is objectionable, Contractor must take prompt corrective action or replace that staff with new personnel, subject to City's approval.

Third-Party Employment Brokers: Contractor and Subcontractors will not utilize a third-party labor broker for any construction worker under this Agreement. The Contractor and Subcontractors must be the employers of record for its construction staff under this Agreement.

AA. NO ISRAEL BOYCOTT

If this Contract is valued at $100,000 or more and requires Contractor (a company engaging in for-profit activity and having ten or more full-time employees) to acquire or dispose of services, supplies, information technology, or construction, then Contractor must certify and agree that it does not and will not boycott goods or services from Israel, pursuant to Title 35, Chapter 2, Article 9 of the Arizona Revised Statutes. Provided that these statutory requirements are applicable, Contractor by entering this Contract now certifies that it is not currently engaged in and agrees for the duration of the Contract to not engage in, a boycott of goods or services from Israel.

BB. NO FORCED LABOR OF ETHNIC UYGHURS

If this Contract requires Contractor (a company engaging in for-profit activity and having ten or more full-time employees) to acquire or dispose of services, supplies, information technology, goods, or construction, then pursuant to Title 35, Chapter 2, Article 10 of the Arizona Revised Statutes Contractor must certify and agree that it and any contractors, subcontractors, or suppliers it utilizes do not and will not use the forced labor of ethnic Uyghurs in the People's Republic of China or any goods or services produced by such forced labor. Provided these statutory requirements are applicable, Contractor, by entering this Contract, now certifies it is not currently engaged in, and agrees for the duration of the Contract to not engage in, (a) the use of forced labor of ethnic Uyghurs in the People's Republic of China; (b) the use of any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; or (c) the use of any contractors, subcontractors, or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China.

CC. **COMPLIANCE WITH LAWS**

Contractor must comply with all existing and subsequently enacted federal, state and local laws, ordinances and codes, all applicable ADA requirements, regulations that are, or become applicable to this Agreement, and be in general conformance with PROWAG guidance. If a subsequently enacted law imposes substantial additional costs on Contractor, a request for an amendment may be submitted pursuant to this Agreement. Contractor is also required to certify its compliance with all applicable laws and Contractor must pass along these requirements to its Subcontractors. If any of Contractor's certifications is found to be false, the City may terminate this Agreement or impose other remedies due to the false certification

SUPPLEMENTARY CONDITIONS

1. **103 AWARD AND EXECUTION OF CONTRACT,** Add the following to **Subsection 103.3 AWARD OF CONTRACT**:

Contract award will be made to a responsive and responsible bidder based on the low total base bid or on the low combination of the total base bid and any selected alternate(s), whichever is in the best interest of the City. If unit pricing is required in the proposal, the extensions and additions will be verified to assure correctness. Award will be based on the revised total if any errors are found. Additionally, the Contractor will meet the minimum SBE subcontracting goal set for this contract or have been granted a full or partial waiver of the goal. The City expressly reserves the right to cancel this agreement without recourse or prejudice to Contractor until all parties have executed the agreement in full.

Any bidder that currently contracts with the City must be in good standing for its proposal to be considered responsive. For the purpose of this Invitation to Bid, good standing means compliance with all contractual provisions, including payment of financial obligations.

2. **103 AWARD AND EXECUTION OF CONTRACT**, Add the following to **Subsection 103.5, REQUIREMENT OF CONTRACT BONDS**:

A. PERFORMANCE BOND AND LABOR AND MATERIAL BOND

Prior to the execution of a contract, the successful bidder must provide a performance bond and a labor and material bond, each in an amount equal to the full amount of the contract. Each such bond will be executed by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona issued by the Director of the Department of Insurance. A copy of the Certificate of Authority will accompany the bonds. The Certificate will have been issued or updated within two years prior to the execution of the Contract. The bonds will be made payable and acceptable to the City of Phoenix. The bonds will be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this state, as required by law, and the bonds will have attached thereto a certified copy of Power of Attorney of the signing official. If one Power of Attorney is submitted, it will be for twice the total contract amount. If two Powers of Attorney are submitted, each will be for the total contract amount. Personal or individual bonds are not acceptable. Failure to comply with these provisions will be cause for rejection of the bidder's proposal.

B. BONDING COMPANIES

All bonds submitted for this project will be provided by a company which has been rated “A- or better for the prior four quarters” by the A. M. Best Company. **Failure to provide an "A- or better for the prior four quarters” bond will result in bid rejection.**

3. **103 AWARD AND EXECUTION OF CONTRACT**, **Delete Subsection 103.6, CONTRACTOR’S INSURANCE** in its entirety and substitute the following:

103.6.1 General:
Contractor and subcontractors must procure insurance against claims that may arise from or relate to performance of the work hereunder by Contractor and its agents, representatives, employees and subconsultants. Contractor and subcontractors must maintain that insurance until all of their obligations have been discharged, including any warranty periods under this Contract.

The City in no way warrants that the limits stated in this section are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees, or subcontractors and Contractor may purchase additional insurance as they determine necessary.

SCOPE AND LIMITS OF INSURANCE - Contractor must provide coverage with limits of liability not less than those stated below. An excess liability policy or umbrella liability policy may be used to meet the liability limits provided that (1) the coverage is written on a "following form" basis, and (2) all terms under each line of coverage below are met.

Commercial General Liability – Occurrence Form

General Aggregate	$2,000,000
Products – Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

- The policy must name the City of Phoenix as an additional insured with respect to liability for bodily injury, property damage and personal and advertising injury with respect to premises, ongoing operations, products and completed operations, and liability assumed under an insured contract arising out of the activities performed by, or on behalf of the Contractor, related to this Contract.

- Coverage must include XCU coverage.

- There shall be no endorsement or modification which limits the scope of coverage or the policy limits available to the City of Phoenix as an additional insured.

- City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor.

- The Contractor's insurance coverage must be primary and non-contributory with respect to any insurance or self-insurance carried by the City.

- Contractor's policies must be endorsed to provide an extension of the completed operations coverage for a period of nine years.

Automobile Liability
Bodily injury and property damage coverage for any owned, hired, and non-owned vehicles used in the performance of this Contract.

Combined Single Limit (CSL)	$1,000,000

- The policy must be endorsed to include The City of Phoenix as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, related to this contract.

- City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor.

- The Contractor's insurance coverage must be primary and non-contributory with respect to any insurance or self-insurance carried by the City.

Worker's Compensation and Employers' Liability

Workers' Compensation	Statutory
Employers' Liability	
Each Accident	$100,000
Disease – Each Employee	$100,000
Disease – Policy Limit	$500,000

- Policy must contain a waiver of subrogation against the City of Phoenix.

- This requirement does not apply when a contractor or subcontractor is exempt under A.R.S. §23-902(E), **AND** when such contractor or subcontractor executes the appropriate sole proprietor waiver form.

Builders' Risk Insurance or Installation Floater

Policy must be in an amount equal to the initial Contract Amount plus additional coverage equal to Contract Amount for all subsequent change orders.

$ _____

- The City of Phoenix, the Contractor and subcontractors, must be named insureds on the policy.
- Special Causes of Loss coverage must be written on a replacement cost basis and must include coverage for soft costs, flood and earth movement.
- Policy must be maintained until whichever of the following must first occur: (1) final payment has been made; or, (2) until no person or entity, other than the City of Phoenix, has an insurable interest in the property required to be covered.
- Policy must be endorsed such that the insurance must not be canceled or lapse because of any partial use or occupancy by the City.
- Policy must provide coverage from the time any covered property becomes the responsibility of the Contractor, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off site.
- Policy must contain a waiver of subrogation against the City of Phoenix.
- Contractor is responsible for the payment of all policy deductibles.

ADDITIONAL INSURANCE REQUIREMENTS:

A. NOTICE OF CANCELLATION

For each insurance policy required by the insurance provisions of this Contract, the Contractor must provide to the City, within five business days of receipt, a notice if a policy is suspended, voided or cancelled for any reason. Such notice must be mailed, emailed, or hand delivered to **Design and Construction Procurement, 200 W. Washington Street, 5th Floor, 85003**.

B. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers duly licensed or authorized to do business in the state of Arizona

and with an "A.M. Best" rating of not less than "B+VI." The City in no way warrants that the required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

C. VERIFICATION OF COVERAGE

Contractor must furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

All certificates required by this Contract must be sent directly to Design and Construction Procurement via email at **str.title34.procure@phoenix.gov**. **The City project number, contract number and project description must be noted on the certificate of insurance**. The City reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time**. DO NOT SEND CERTIFICATES OF INSURANCE TO THE CITY'S RISK MANAGEMENT DIVISION.**

D. SUBCONTRACTORS

Contractor's certificates shall include all subcontractors as additional insureds under its policies **OR** Contractor shall be responsible for ensuring and verifying that all subcontractors have valid and collectable insurance. At any time throughout the life of the contract, the City of Phoenix reserves the right to require proof from the Contractor that its subcontractors have insurance coverage. All subcontractors providing services included under this Contract's Scope of Services are subject to the insurance coverages identified above and must include the City of Phoenix as an additional insured. In certain circumstances, the Contractor may, on behalf of its subcontractors, waive a specific type of coverage or limit of liability where appropriate to the type of work being performed under the subcontract. Contractor assumes liability for all subcontractors with respect to this Contract.

E. APPROVAL

Any modification or variation from the insurance coverages and conditions in this Contract must be documented by an executed contract amendment.

103.6.2 Defense and Indemnification

To the maximum extent allowed by law, including Title 34 A.R.S., Contractor ("Indemnitor") agrees to defend, indemnify, and hold harmless the City of Phoenix and its officers, officials (elected or appointed), agents and employees (and any jurisdiction or agency issuing permits for any work included in the project, and its officers, agents and employees) ("Indemnitee") from any and all claims, actions, liabilities, damages, losses or expenses, (including but not limited to court costs, attorney fees, expert fees, and costs of claim processing, investigation and litigation) of any nature or kind whatsoever ("Losses") caused or alleged to be caused, in whole or in part, by the wrongful, negligent or willful acts, or errors or omissions of Indemnitor or any of its owners, officers, directors, members, managers, agents, employees, or subcontractors (Indemnitor's Agents") arising out of or in connection with this Contract. This defense and indemnity obligation includes holding Indemnitee harmless for any Losses or other amount arising out of or recovered under any state's workers' compensation law or arising out of the failure of Indemnitor or Indemnitor's Agents to conform to any federal,

state or local law, statute, ordinance, rule, regulation, or court decree. Indemnitor's duty to defend Indemnitee accrues immediately at the time a claim is threatened or a claim is made against Indemnitee, whichever is first. Indemnitor's duty to defend exists regardless of whether Indemnitor is ultimately found liable. Indemnitor must indemnify Indemnitee from and against any and all Losses, except where it is proven that those Losses are solely as a result of Indemnitee's own negligent or willful acts or omissions. Indemnitor is responsible for primary loss investigation, defense and judgment costs where this indemnification applies. In consideration of the City's award of this Contract, Indemnitor agrees to waive all rights of subrogation against Indemnitee for losses arising from or related to any work performed by Indemnitor or Indemnitor's Agents for the City of Phoenix under this Contract. The obligations of Indemnitor under this provision survive the termination or expiration of this Contract.

4. **104 SCOPE OF WORK,** Add the following to **Subsection 104.1.2 MAINTENANCE OF TRAFFIC**:

ADA AND ANSI ACCESS OF PREMISES DURING CONSTRUCTION

Contractor will maintain existing ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements will include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. Contractor will be responsible for the coordination of all work to minimize disruption to building occupants and facilities.

5. **104 SCOPE OF WORK,** Add the following to **Subsection 104.1.4 WATER SUPPLY**:

The Contractor may use water through a metered fire hydrant during construction of this project. The Contractor can apply for a hydrant meter at the 2nd Floor of City of Phoenix City Hall Counter 8 (Civil Permit / Water Services). At the end of construction, the Contractor shall contact the Water Services Department; have the meter read and reimburse the Water Services Department for all water used. The Contractor shall provide the utility account number, meter number and account address to the Engineer at least two (2) weeks prior to the estimated date that the Contractor's water use ends. The Engineer's written verification of the account transfer must be completed before the City will take responsibility for the account.

6. **104 SCOPE OF WORK,** Add the following to **Subsection 104.1.4 CLEANUP AND DUST CONTROL**:

The Contractor will use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

7. **105 CONTROL OF WORK,** Add the following to **Subsection 105.1, AUTHORITY OF THE ENGINEER**:

A. CONTRACT ADMINISTRATION

The definition of "Engineer" will read as follows:

"Engineer": All references to "Engineer" in these contract bid documents, including the MAG Specifications, will mean City Engineer.

B. PRECONSTRUCTION CONFERENCE

After completion of the contract documents, to include bonds, insurance and signatures and prior to the commencement of any work on the project, the Water Services Department, will schedule a Pre-Construction Conference.

Construction administration will be provided by City of Phoenix, Water Services Department

The purpose of this conference is to establish a working relationship between the Contractor, utility firms and various City agencies. The agenda will include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment application and processing, coordination with the involved utility firms, emergency telephone numbers for all representatives involved in the course of construction and establishment of the notice to proceed date. The Contractor will also provide copies of all purchase orders and/or contracts with SBE subcontractors and suppliers used to meet the subcontract goals programmed for this project.

Minimum attendance by the Contractor will be a responsible company/corporate official, who is authorized to execute and sign documents on behalf of the firm, the job superintendent and the Contractor's safety officer.

C. AUTHORIZATION OF THE ENGINEER

The City may, at its discretion and without cause, order the Contractor in writing to stop and suspend work. Immediately after receiving such notice, the Contractor will discontinue advancing the work specified under this Agreement.

Such suspension will not exceed one hundred and eighty (180) consecutive days during the duration of the project.

The Contractor may seek an adjustment of the contract price and time, if the cost or time to perform the work has been adversely impacted by any suspension or stoppage of work by the City.

8. **105 CONTROL OF WORK,** Add the following to **Subsection 105.2 PLANS AND SHOP DRAWINGS**:
The Contractor will submit as many of the required shop drawings and product data submittals at the Pre-Construction meeting as practical and possible. All shop drawings and product data submittals will be submitted sufficiently in advance to allow adequate time for City review(s) and approval. The Contractor will submit early enough to allow enough time for reviews based on the assumption that a submittal may be marked “Revise and Resubmit” or “Rejected”, requiring the Contractor to modify the submittal and resubmit for additional review(s) until acceptance.

A separate transmittal will be used for each specific item type, class of material or equipment for which a submittal is required. Multiple items under one transmittal will only be allowed when the items taken together constitute a complete manufacturer’s package or are so functionally related that the entire package should be reviewed as a whole. **Email submittals may be accepted. Format and procedure for submittals will be discussed at the pre-construction conference.**

The Contractor will allow up to four (4) weeks for City review for each submittal. Some submittals may be simple and straightforward and may not require the full four (4) weeks, but other more complex submittals may take the full four (4) weeks.

9. **105 CONTROL OF WORK**, Add the following to **Subsection 105.7 COOPERATION BETWEEN CONTRACTORS**

Other Contractors may be working in or near the area of this contract. The Contractor will conduct his work as specified in MAG Section 105.7.

10. **105 CONTROL OF WORK**, Delete **Subsection 105.8 CONSTRUCTION STAKES, LINES AND GRADES**

and substitute the following

Description

The work under this section will consist of furnishing all materials, personnel and equipment necessary to perform all surveying, staking and verification of the accuracy of all points which have been provided on the Plans.

Included in this work will be all calculations required for the satisfactory completion of the project in conformance with the plans and specifications. The work will be done under the direction of a registered professional surveyor employed by the Contractor.

Measurements of all removals and pay quantity items will be the responsibility of the Contractor and confirmed by the City's inspector.

When utility adjustments are a part of the contract, the Contractor will perform and be responsible for locating, tying and untying all manholes and valves that are discovered during the course of the contract. The Contractor will set all survey points, stakes and references necessary for carrying out all such adjustments.

During installation and/or relocation of new water lines, valves, water meters and service connections, fire hydrants, sewer lines, sewer taps, clean outs, manholes, and other similar assets, the Contractor will record the final as-built location and provide additional information related to cost, manufacturer, and model numbers in a form provided by the Engineer.

The Contractor will furnish all traffic control, including flagging for survey and staking operations. Traffic control will be in accordance with the requirements of the City of Phoenix Barricade Manual.

The Contractor will keep field notes in bound field books. These books will be available for inspection by City personnel at all times and will become the property of the City of Phoenix upon completion of the project.

Construction Staking Requirements

Staking will be performed in accordance with the City of Phoenix's Survey Section Standard Requirements for Staking, As-Builts and Quantity Calculations, plus any special addenda provided by the Engineer. The Contractor will provide to the Engineer in writing, for the Engineer's approval, any special procedures that will be used for construction survey staking completion.

The Contractor will use control points provided on the Plans for establishing an accurate construction centerline and will establish benchmarks adjacent to this line for the proper layout of the work. Control points with elevations are located within the project area as shown on the Plan and Profile Sheets in the Plans. No less than three (3) benchmarks will be established; one (1) at the beginning of the project, one (1) at the midpoint, and one (1) at the end of the project. Additional benchmarks may be established at other convenient locations.

After the Contractor has verified the accuracy of the control points and construction centerline provided on the Plans, the Contractor will set all stakes necessary for construction in accordance with the City of Phoenix Survey Section Standard Requirements.

If errors are discovered during the verification process and control points do not agree with the geometrics shown in the plans, the Contractor will promptly notify the Engineer in writing, and explain the problem in detail. The Engineer will advise the Contractor of any corrective actions which may be necessary.

The Contractor will exercise care in the preservation of stakes, references, benchmarks and will reset them when they are damaged, lost, displaced or removed.

Any discrepancies in grade, alignment, locations or dimensions detected by the Contractor will be brought to the attention of the Engineer by letter. No changes in the project plans will be allowed without the approval of the Engineer.

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

If any portion of the Contractor's staking and layout work is ordered redone, resulting in additional rechecking by the Engineer, the City will be reimbursed for all costs for such additional checking. The amount of such costs will be deducted from the Contractor's progress payment.

Inspection of the Contractor's layout by the Engineer and the acceptance of all or any part of it will not relieve the Contractor of their responsibility to secure the proper dimensions, grades and elevations for the work.

Record Drawings

The Contractor shall maintain a record set of plans at the job site. These shall be kept legible and current and shall show all changes or work added in a contrasting, reproducible color. Two weeks prior to issuance of substantial completion, the Contractor shall submit, prior to final inspection, corrected drawings showing the location of all utility services, controller, pipe, manholes, services, valves and wiring. The Engineer shall be the sole judge as to the acceptability of the record plans and receipt of an acceptable set is a pre-requisite for final payment.

Prior to final acceptance, the Contractor will provide a complete as-built set, sealed by a Registered Land Surveyor in the State of Arizona, showing all field modifications and final elevation, stations and offset of the completed improvements. For construction related to sewer, and water facilities, and other utilities, as-built information may be requested at the Engineer prior to completion of as-builts at no additional cost.

Measurement and Payment

Surveying will be measured as a single complete unit of work and paid at the lump sum price indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and required to provide all necessary survey stakes and control. The approved schedule showing the sequencing and percentage of the survey and layout work shall be the basis on which monthly progress payments shall be made. This schedule shall be subject to periodic review, at the request of either party, if the survey and layout work lags or accelerates. If necessary, the schedule will be revised to reflect changes in survey and layout progress. When approved, the revised schedule will become the basis for payment

No payment will be made for the resetting of stakes, references, benchmarks and other survey control.

11. **105 CONTROL OF WORK,** Add the following to **Subsection 105.15 ACCEPTANCE, paragraph (B) Final Acceptance**:

A. SUBSTANTIAL COMPLETION

Substantial Completion is the time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Design Professional, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purpose for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.

The work may be judged substantially complete when all construction, including all applicable ADA requirements, has been completed with the possible exception of final inspection punch list work. The purpose of granting or acknowledging substantial completion is to stop contract time. This is particularly important to the Contractor if contract time is exhausted or nearly so and/or punch list work is anticipated to extend beyond the allotted time. Granting of substantial completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply.

When Contractor considers the entire Work ready for its intended use, including obtaining an Approval of Construction from MCESD, Contractor shall notify City and Engineer in writing that the Work is substantially complete, in accordance with the Contract Documents (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion. Within a reasonable time thereafter, City, Contractor and Engineer shall make an inspection of the Work to determine the status of completion. The punch list shall be created collectively as a team and shall include as a minimum the following individuals; City’s project manager, Engineer and On-Site Inspector, Contractor’s project manager and lead field superintendent.

If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons for denial. If Engineer considers the Work substantially complete, Engineer will deliver to City a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be, attached to the certificate, a tentative list of items (typically referred to as a "punch list") to be completed or corrected before final payment. The punch list will be prepared and issued by the Engineer. City shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to City notify Contractor in writing, stating the reasons, therefore.

At the time of delivery of the tentative certificate of Substantial Completion, Design Professional will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Design Professional in writing prior to Design Professional’s issuing the definitive certificate of Substantial Completion, Design Professional’s aforesaid recommendation will be binding on Owner and Contractor until final payment.

Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.
The Owner and Design Professional have thirty (30) days from the date of substantial completion to add incorrect or incomplete items to the punch list. The Contractor is required to complete all of these items prior to final acceptance. After the expiration of the thirty (30) day period, the Owner may continue to add items to the punch list, but the Contractor must only endeavor to complete them by the final acceptance date. Any such items added after the 30-day period that is not completed prior to final acceptance must be completed during the warranty period.

In the event that the Engineer grants substantial completion, the Contractor will have thirty (30) days thereafter to complete punch list work, unless additional time is granted--in writing--by the Engineer. In no case will a Contractor be granted more than thirty (30) days to complete punch list work, unless there are extenuating circumstances such as delay in shipment of a specialized piece of equipment, labor strike, or other circumstances beyond the Contractor's control which would necessitate a further time extension.

Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Design Professional will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

Contractor may apply for final payment and acceptance after completing correction of the deficiencies to satisfaction of Design Professional and delivering all maintenance and operation instructions, warranties and guarantees, certificates of inspection, revised record documents (reflecting revisions made after Substantial Completion), required Bonds and all other required documents, and after Design Professional has consented to review the Work for final acceptance.

B. PENALTY FOR FAILURE TO COMPLETE PUNCH LIST WORK WITHIN SPECIFIED TIME

In the event the Contractor fails to complete the punch list work within thirty (30) days following the contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the work completed by others.

In the event of default, as described herein, the Engineer will withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining work. In addition, the Engineer will withhold the retention deducted from contract progress payments until all punch list work has been satisfactorily completed, whereupon twice the amount of the actual cost of completing the work will be deducted from the Contractor's final payment and the remaining funds, if any, including the contract retention, will be released in accordance with the conditions set forth in contract retention.

C. CONTRACT RETENTION

This project will not be considered complete until all work has been completed, including punch list work. Under no circumstances will a Contractor receive any portion of the legally retained progress payments until the City has granted a final acceptance and/or acknowledged substantial completion. The following conditions will apply to each case:

1. Substantial Completion: The Engineer may reduce outstanding contract retention to not less than one (1) percent of the total contract amount, upon granting substantial completion, if the value of the punch list work is estimated to be less than one (1) percent of the total contract.

2. Project Acceptance: Project acceptance implies that all punch list work is done, and the improvements have been accepted by the City. Under these conditions, the retention will be fully released to the Contractor subject only to the signing of the standard claims affidavit and hold harmless clause required for all contracts.

3. Final Release of Contract Retention and/or Release of More Than Ninety (90) Percent of the Contract Funds: Prior to final payment and release of monies retained and/or in the case of

substantial completion where the Contractor has requested a reduction in contract retention, the Contractor will be required to sign a claims affidavit agreeing to hold the City harmless from any and all claims arising out of the contract.

12. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Add the following to **Subsection 107.1, LAWS TO BE OBSERVED, paragraph (C)**:

While every effort has been made to Blue Stake all known utilities, and to research and show on the plans, all existing underground utilities based on the best available information, it will be the Contractor's responsibility to locate and pothole all existing utilities sufficiently in advance of anticipated new underground construction to identify any potential conflicts and allow reasonable time for the Engineer to determine solutions. For construction of gravity pipelines, this shall be prior to installation of any new work. Any claims for additional compensation or work required due to the Contractor's non-compliance with this provision will not be considered for payment by the City.

13. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Add the following new paragraphs to **Subsection 107.1, LAWS TO BE OBSERVED**:

(G) FAIR TREATMENT OF WORKERS

The Contractor will keep fully informed of all Federal and State laws, County and City ordinances, regulations, codes and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any way affect the conduct of the work. He will at all times observe and comply with all such laws, ordinances, regulations, codes, orders and decrees; this includes, but is not limited to laws and regulations ensuring fair and equal treatment for all employees and against unfair employment practices, including OSHA and the Fair Labor Standards Act (FLSA). The Contractor will protect and indemnify the Contracting Agency and its representatives against any claim or liability arising from or based on the violation of such, whether by himself or his employees.

(H) DESERT TORTOISE MITIGATION

As stated in the Arizona Interagency Desert Tortoise Team (AIDTT) Management Plan (1996), if a desert tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision), included in these contract provisions. Taking, possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

(I) BURROWING OWLS' MITIGATION – MIGRATORY BIRD TREATY ACT OF 1918

Landscaped vegetation in Cielito Park and neighboring properties along the sewer line route may provide suitable habitat for active nests protected under the Migratory Bird Treaty Act (MBTA). Impacts to vegetation should be avoided to the extent practicable.

While no burrowing owls have been seen at the project site, small animal burrows likely used by rodents and cottontail rabbits are present. In the event that burrowing owls are found on the site, the project will comply with the Migratory Bird Treaty Act of 1918 and relocate the birds prior to grading. A contact for relocation of burrowing owls is Bob Fox or Greg Clark of Wild at Heart, 31840 North 45th Street, Cave Creek, AZ 85331, 480-595-5047.

14. **<u>107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC</u>,** Add the following to **<u>Subsection 107.2, PERMITS</u>**:

A. **HAUL PERMIT**

On any project, when the quantity of fill or excavation to be hauled exceeds 10,000 C.Y. or when the duration of the haul is for more than twenty (20) working days, the Contractor will:

1. Obtain approval of the proposed haul route, number of trucks, etc., by the Street Transportation Department, and then;

2. Submit the proposed haul route plan to the Planning and Development Department and pay the appropriate plan-review fee (contact Planning and Development Department at 602-534-5933 for current plan review fee, the cost of which will be considered incidental to the project), and after their approval;

3. Obtain the written haul permit from the Planning and Development Department.

<u>NOTE</u>: Obtaining the haul permit and the approval by Street Transportation does not release the Contractor from strict compliance with MAG Subsection 108.5, Limitation of Operations.

B. **STORM WATER POLLUTION PREVENTION PLAN AND AZPDES PERMIT**

Any project that disturbs one acre or more of the ground surface requires the Contractor to obtain an AZPDES permit and prepare a SWPPP. This project does require an AZPDES permit and SWPPP.

C. **DUST PERMIT**

Any project that disturbs more than 1/10 acre of soil requires a dust control permit from Maricopa County. Information and forms can be found at:

https://www.maricopa.gov/1913/Dust-Sources-Control-and-Training

To facilitate and encourage strict compliance with the Maricopa County Air Pollution Control Regulations pertaining to fugitive dust control, the Contractor will submit the following documentation to the Engineer at the Pre-Construction meeting prior to conducting any earth moving or dust generating activities under the Contract.

a. Copy of a valid Maricopa County Earth Moving (Dust Control) Permit applicable to the work or services under the Contract.

b. Copy of the Dust Control Plan applicable to the work or services under the Contract.

c. Documentation that all of the Contractor's on-site project managers have received the Comprehensive or Basic dust control training as required by Maricopa County Rule 310 based on project disturbed acres.

For construction sites where 5-acres or more are disturbed, the Contractor will designate and identify to the City an individual who has completed the dust control training as required for the site Dust Control Coordinator. The Dust Control Coordinator will be present on-site all times that earth moving or dust generating activities are occurring and until all ground surfaces at the site have been stabilized.

For construction sites less than 1-acre, the Contractor will designate an individual who has completed Basic Training to be on site at all times that earth moving or dust generating activities are occurring.

The Contractor will notify the Engineer within twenty-four (24) hours of any inspection, Notice of Violation, or other contact by the Maricopa County Air Quality Department with it or any of its subcontractors regarding the work or services under the Contract. A copy of any written communications, notices or citations issued to Contractor or any of its subcontractors regarding the work or services under the Contract will likewise be transmitted to the Engineer within twenty-four (24) hours.

The Contractor will prevent any dust nuisance due to construction operations in accordance with MAG Specifications, Section 104.1.3, Cleanup and Dust Control. The Contractor will use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

The Contractor agrees to indemnify and reimburse the City for any fine, penalty, fee or monetary sanction imposed on the City by Maricopa County arising out of or caused by the performance of work or services under the Contract. The Contractor will remit payment of the reimbursable sum to the City within thirty (30) days of being presented with a demand for payment from the City.

D. **TEMPORARY RESTRICTION AND CLOSURE SYSTEM (TRACS) PERMIT**

The Contractor will obtain a TRACS permit for any construction that restricts access (partial or complete closures) on Major/Collector public streets, or complete closures on Local streets, sidewalks, bike lanes and alleys. The Contractor will obtain this permit in accordance with the City of Phoenix Traffic Barricade Manual, latest edition. The Contractor will follow all requirements of the TRACS permit during construction. The Contractor will obtain this permit before the Notice to Proceed date. Any construction delays caused by non-compliance with the TRACS permit or the City of Phoenix Traffic Barricade Manual requirements will be the responsibility of the Contractor.

E. **DEMINIMUS DISCHARGE PERMIT**

As required, if the Contractor anticipates the discharge of any amount of water from the City water or wastewater system during construction, the Contractor will be responsible for obtaining a DeMinimus Permit from the Arizona Department of Environmental Quality (ADEQ) for any discharge that will reach "waters of the U.S.", either directly or indirectly, and complying with all requirements of that permit. This includes all compliance reporting required by the permit. No separate payment will be made for obtaining or complying with this permit.

F. **OTHER PERMITS**

The Contractor may be required to obtain other permits from other agencies. The Contractor will be required to obtain these permits and comply with their requirements.

15. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**, Revise the title of **Subsection 107.4 ARCHAEOLOGICAL REPORTS** to **107.4 ARCHAEOLOGICAL MONITORING AND DISCOVERIES**, and add the following:

Archaeological monitoring may be required within the limits of the project during construction. The Contractor must coordinate all ground disturbing work with the archaeologist(s) and provide a current work schedule to

facilitate the archaeologist's investigation and monitoring of all ground disturbing work within the area(s) of interest. When archaeological materials are discovered, the Contractor must stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the on-site archaeologist(s) who must then contact the City Archaeology Office (602-495-0901) or the Street Transportation Environmental Section at 602-534-3747, who will coordinate with the City Archaeology Office. The Contractor must not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

If suspected archaeological materials are discovered during construction without an archaeologist present, the Contractor must stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the City Archaeology Office (602-495-0901). The Contractor must not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

In 1990, the Arizona legislature amended two state laws (Arizona Antiquities Act & State Historic Preservation Act) that protect human burials and associated artifacts on both private and state land. As specified in these laws and rephrased below:

I) A person shall not knowingly excavate in or upon any historic or prehistoric archaeological site, except when acting as a duly authorized agent of an institution or corporation organized for scientific, research or land use planning purposes. [Arizona Revised Statute §41-841(A) - Archaeological Discoveries] Any person, institution or corporation violating any provision of this article is guilty of a class 2 misdemeanor. [A.R.S. §41-846 - Violation]

2) A person who knowingly excavates in violation of A.R.S. §41-841 is guilty of a class 5 felony pursuant to Arizona Criminal Code- Title 13. A second or subsequent violation under this subsection is a class 3 felony. [A.R.S. I 7 .OJ - Excavating Certain Sites].

A class 5 felony carries potential penalties of up to two years in prison. If a City of Phoenix (City) project may impact historic or pre-historic archaeological resources, the guidelines described above must be adhered to. Therefore, no subsurface disturbance activities related to this without having an archaeological consultant on-site prior to and during this project's ground disturbance activities.

The City of Phoenix Office of the City Engineer is requesting that the Project Archaeological Requirements Acknowledgment Form is completed for all City sponsored or managed projects involving ground subsurface disturbance activities in areas that may include archaeological resources, as determined by the City of Phoenix Archaeology Office (CAO). If archaeological monitoring is required on a project, a City Archaeological Monitoring Acknowledgment form will be provided for your review and signature. The guidelines and the provisions in the Terms and Conditions of the Archaeological Monitoring Form must be followed as prescribed on the form and referenced above in this section. Penalties for non-compliance are detailed on the Archaeological Monitoring Form. Failure to comply with the requirements of this acknowledgment form and the City contract may constitute a breach of contract.

16. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Modify Subsection 107.8, USE OF EXPLOSIVES** as follows:

Replace the words "Uniform Fire Code" with “Phoenix Fire Code".

17. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC,** Add the following to **Subsection 107.8, USE OF EXPLOSIVES**:

NO BLASTING will be allowed on this project.

18. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC,** Add the following to **Subsection 107.11,**

CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES:

A. **UNDERGROUND FACILITIES**

The Contractor will make whatever investigation it deems necessary to verify the location of underground utility facilities. If such facilities are not in the location shown in the drawings, then (regardless of whether this is discovered prior to or during construction) the contractor's remedies, if any, pursuant to Art. 6.3, Chapter 2, Title 40, A.R.S. (A.R.S. 40-360.21 through 40-360.32, "Underground Facilities"), will be the contractor's sole remedy for extra work, delays and disruption of the job, or any other claim based on the location of utility facilities. Locations of utility facilities shown on drawings furnished by the City are to be regarded as preliminary information only, subject to further investigation by the contractor. The City does not warrant the accuracy of these locations, and the contractor, by entering into this contract, expressly waives and disclaims any claim or action against the City under any theory for damages resulting from location of utility facilities.

The Contractor will be responsible for obtaining all AZ811 or Blue Stake utility location information, and for performing all requirements as prescribed in A.R.S. 40-360.21 through .29, for all underground facilities, including those that have been installed on the current project, until the project is accepted by the City.

At least two (2) working days prior to commencing any excavation, the Contractor will call the BLUE STAKE CENTER, between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday for information relative to the location of buried utilities. The number to be called is as follows:

Maricopa County AZ811 or (602) 263-1100

B. **UTILITY-RELATED CONSTRUCTION DELAY DAMAGES CLAIM PROCEDURES**

The following procedure is intended to provide a fair and impartial process for the settlement of construction delay claims associated with unknown or improperly located utility facilities.

The Contractor will immediately notify, in writing, the Project Engineer of any potential utility-related delay claim.

The Contractor will immediately notify the appropriate liaison of the affected utility verbally, followed by a written notification.

The Contractor will coordinate an investigation of the situation with the affected utility and the City's Utility Coordinator. After resolution, the Contractor will provide written notification of the settlement of the claim to all affected parties. If the affected utility makes a decision to handle negotiations for a claim, their personnel will be responsible for monitoring the project and all negotiations with the Contractor regarding the claim.

The Contractor will determine to document requirements of the affected utility for their acceptance of responsibility for the claims. The Contractor will provide four (4) copies of the required documentation to the utility involved and two (2) copies of this documentation to the Project Engineer. The Contractor will obtain written confirmation from the utility company involved of their documentation requirements.

19. **108 COMMENCEMENT, PROSECUTION AND PROGRESS** Add the following to **Subsection 108.2, SUBLETTING OF CONTRACT**:

(F) PROMPT PAYMENT

1. Contractor Payment to Subcontractor or Supplier

Contractor will pay its subcontractors or suppliers within seven (7) calendar days of receipt of each progress payment from the City. The Contractor will pay for the amount of work performed or materials supplied by each subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the Contractor will result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. Contractor will pay subcontractors or suppliers the reduced retention within fourteen (14) days of the payment of the reduction of the retention to the Contractor. No Contract between Contractor and its subcontractors and suppliers may materially alter the rights of any subcontractor or supplier to receive prompt payment and retention reduction as provided herein. If the Contractor fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and Contractor agrees that the City may take such actions: (1) to hold the Contractor in default under this agreement; (2) withhold future payments including retention until proper payment has been made to subcontractors or suppliers in accordance with these provisions; (3) reject all future bids from the Contractor for a period not to exceed one year from substantial completion date of this project; or (4) terminate agreement.

2. Alternative Dispute Resolution Between Contractor and Subcontractor or Supplier

If Contractor's payment to a subcontractor or supplier is in dispute, Contractor and subcontractor or supplier agree to submit the dispute to any one of the following dispute resolution processes within fourteen (14) calendar days from the date that any party involved gives written notice to the other party(ies): (1) binding arbitration; (2) a form of alternative dispute resolution (ADR) agreeable to all parties; or (3) a City of Phoenix facilitated mediation. When disputed claim is resolved through ADR or otherwise, the Contractor and subcontractor or supplier agree to implement the resolution within seven (7) calendar days from the resolution date.

3. Inspection and Audit

Contractor, its subcontractors and suppliers will comply with A.R.S. 35-214 and the City will have all rights and remedies to inspect and audit the records and files of Contractor, subcontractor or supplier, as afforded the State of Arizona in accordance with the provisions of A.R.S. Section 35-214.

4. Non-Waiver

Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this Section, such failure or delay will not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

5. Inclusion of provisions in Subcontracts

Contractor will include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

6. No Third-Party Benefits or Rights

Nothing contained in this Agreement is intended to benefit or confer any rights on any person or entity not a party to this Agreement, and no such person or entity, including but not limited to other

Contractors, subcontractors or suppliers, may assert any claim, cause of action, or remedy against the City hereunder.

20. <u>108 COMMENCEMENT, PROSECUTION AND PROGRESS</u>, Add the following to **<u>Subsection 108.4, CONTRACTOR'S CONSTRUCTION SCHEDULE</u>**:

No later than one (1) week after the Pre-Construction meeting (or one week after the Notice to Proceed date is firmly established), the Contractor will submit to the Engineer, two (2) copies of a detailed Critical Path Model (CPM) chart outlining the detailed progress of all major and critical elements of the project by weeks, from beginning of project to end. The chart will begin at the established Notice to Proceed date and progress on a calendar basis, week by week, to the end of the project.

The Contractor will submit updated CPM charts as required by the Engineer. This will typically be on a monthly basis. The required submittals of updated CPM charts may be less frequent than monthly, if approved by the Engineer.

Neither the City nor the Engineer will accept liability or responsibility for the reasonable or workable nature of the CPM schedules prepared and submitted by the Contractor—that responsibility will remain with the Contractor.

21. <u>108 COMMENCEMENT, PROSECUTION AND PROGRESS</u>, Add the following to **<u>Subsection 108.5, LIMITATION OF OPERATIONS</u>**:

A. **WORK HOURS**

Regular working hours will be defined as one 8 1/2-hour shift per day, Monday through Friday, exclusive of City holidays. Regular working hours will be defined as Monday through Friday from 7:00a m to 7:00 pm between October 1st and April 30th and from 6:00 am to 7:00 pm between May 1st and September 30th. Regular working hours exclude legal holidays.

If pre-approved, work in excess of regular working hours will be defined as overtime. For overtime which becomes necessary, the Contractor will make a written request to the Engineer at least eight (8) calendar days before the desired overtime. The request will include the duration, dates, times, reason for overtime, and a statement of the consequences if overtime is not approved.

The Contractor will not schedule any overtime work which requires inspection, survey, or material testing without written permission from the Engineer two (2) working days before the proposed overtime work. The Engineer reserves the right to deny the requested overtime. If an overtime request is denied, the Engineer may extend the contract time at no additional cost to the City, including extended overhead costs.

<u>Unscheduled Overtime</u>

Overtime that is not requested and approved in accordance with the above procedure will be defined as unscheduled overtime. All costs (including appropriate overhead) will be paid by the Contractor by deduction from the contract.

<u>Emergency Overtime</u>

An emergency is defined as work required for a situation that is not within the Contractor's control.

With the Engineer's approval, the Contractor will be permitted to work overtime without being responsible for paying the City's costs.

B. **NIGHT WORK**

If pre-approve, any proposed night work will be done in accordance with all City of Phoenix Ordinances. Night work will only be allowed upon submittal and approval of After-Hours Work in the Right-of-Way application.

The Contractor will submit a comprehensive plan at the Preconstruction Conference that details the steps and methods of noise reduction during night working hours. This plan will address, but not be limited to the following: back-up alarms, equipment noise, scheduling of excessively noisy construction phases, and material delivery times. Spotters, in lieu of back-up alarms, may be required at night.

There will be no separate measurement or payment for work related to this item, the cost being considered incidental to the cost of contract items.

22. **108 COMMENCEMENT, PROSECUTION AND PROGRESS**, Add the following to **Subsection 108.10, FORFEITURE AND DEFAULT OF CONTRACT**:

City's Right to Perform and Terminate for Cause

If the City provides the Contractor with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the Contractor fails to comply in a time frame specified, the City may have work accomplished by other sources at the Contractor's expense.

If Contractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Sub-consultants and/or Subcontractors, (v) prosecute the Contract Services with promptness and diligence to ensure that the Contract Services are completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then the City, in addition to any other rights and remedies provided in the Contract Documents or by law, will have the rights set forth below.

Upon the occurrence of an event set forth above, City may provide written notice to Contractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Contractor's receipt of such notice.

If Contractor fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to Contractor of its intent to terminate within an additional seven (7) day period.

If Contractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then the City may declare the Agreement terminated for default by providing written notice to Contractor of such declaration.

Upon declaring the Agreement terminated pursuant to the above, City may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Contractor hereby transfers, assigns and sets over to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

In the event of such termination, Contractor will not be entitled to receive any further payments under the Contract Documents until the Work will be finally completed in accordance with the Contract Documents. At such time, the Contractor will only be entitled to be paid for Work performed and accepted by the City prior to its default.

If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Contractor will be obligated to pay the difference to City. Such costs and expense will include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the City in connection with the re-procurement and defense of claims arising from Contractor's default.

23. **108 COMMENCEMENT, PROSECUTION AND PROGRESS**, Add the following to **Subsection 108.11, TERMINATION OF CONTRACT**:

TERMINATION FOR CONVENIENCE

The Owner for its own convenience has the right for any reason and at any time to terminate the contract and require the Contractor to cease work hereunder. Such termination will be effective at the time and in the manner specified in the notification to the Contractor of the termination. Such termination will be without prejudice to any claims which the Owner may have against the Contractor. In the event of a termination for convenience, the Contractor will be paid only the direct value of its completed work and materials supplied as of the date of termination, and Contractor will not be entitled to anticipated profit or anticipated overhead or any other claimed damages from the Owner, Architect or the Engineer.

If the City is found to have improperly terminated the Agreement for cause or default, the termination will be converted to a termination for convenience in accordance with the provisions of this Agreement.

CANCELLATION OF CONTRACT FOR CONFLICT OF INTEREST

All parties hereto acknowledge that this agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

24. **109 MEASUREMENTS AND PAYMENTS,** Add the following to **Subsection 109.4.3, DUE TO EXTRA WORK**:

ALLOWANCE FOR EXTRA WORK

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

This allowance item provides an estimated funding to cover unforeseen changes that may be encountered, and corresponding extra work needed to complete the contract per plan. Unforeseen extra work, if any, will be as approved by the Engineer; for example, extension of unit bid prices, negotiated price or time and material, in accordance with MAG Specification Section 109.4 and 109.5.

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

The Contractor shall notify the City's inspector prior to beginning any work that they believe is beyond the scope of the original contract documents. The order of notification shall be as follows: Inspector, Chief Construction Inspector, Construction Inspection Supervisor, Construction Engineer, and Engineering Supervisor.

The Contractor and the inspector shall agree on the labor and equipment hours and material quantities the day the work is performed and sign a City of Phoenix Daily Record of Time, Materials and Equipment (noting equipment that is owned by contractor) Form. Signature by the inspector is for verification of hours only. **It is not for the approval of payment.**

Contractor shall provide all information needed to locate the equipment in the Rental Rate Blue Book. This shall include: the manufacturer's name, equipment type, year of manufacture, model number, type of fuel used, horsepower rating, attachments required together with their size or capacity and any other information necessary to ascertain the proper rate.

The Hourly Equipment Rental Rate (HERR) will be determined by the following formula: HERR= F x [(1.15 x R)/176] +HOC

For rented equipment, Contractor shall provide the paid invoice.

Documentation of work done by subcontractors shall be submitted using the same format and follow MAG Standard Specifications Section 109.5.4.1 Work performed by Subcontractors. All Subcontractor invoices shall be reviewed by the Contractor for accuracy and validity of items, hours and equipment being charged to the contractor.

25. **109 MEASUREMENTS AND PAYMENTS,** Add the following to **Subsection 109.4 COMPENSATION FOR ALTERATION OF WORK**:

109.4.7 CHANGE ORDERS

Owner reserves the right to decrease adjustments made in any change order if, upon audit of Contractor's records, the audit discloses contractor provided false or inaccurate cost and pricing data in negotiating the change order. In enforcing this provision, the parties will follow the procedure provided in the Federal Acquisition Regulation (FAR) clause 52.214-27, found in 48 CFR Part 52.

26. **109 MEASUREMENTS AND PAYMENTS**, **Delete Table 109-1** in **Subsection 109.9, DOLLAR VALUE OF MAJOR ITEM**, and substitute the following:

CONTRACT AMOUNT	MAJOR ITEM IS DEFINED AS ANY ITEM EQUAL TO OR GREATER THAN THE FOLLOWING
Up to $1 million	$15,000 or 3%, whichever is greater
$1 million to $3 million	3% of the original contract amount to a maximum of $75,000.00
$3 million to $5 million	2.5% of the original contract amount to a maximum of $90,000.00

CONTRACT AMOUNT	MAJOR ITEM IS DEFINED AS ANY ITEM EQUAL TO OR GREATER THAN THE FOLLOWING
Over $5 million	1.5% of the original contract amount to a maximum of $125,000.00

CONTINGENCY ITEMS

Contingency items which fall under the definition of a major item are subject to negotiation if decreased by more than twenty (20) percent.

Contingency items will not increase more than twenty (20) percent without being subject to renegotiation, regardless of the percentage of that item relative to the total contract amount.

27. **109 MEASUREMENTS AND PAYMENTS Subsection 109.7, PAYMENT FOR BOND ISSUE AND BUDGET PROJECTS,** Delete the first three paragraphs in their entirety and replace with the following **Subsection 109.7, PAYMENT FOR BOND ISSUE AND BUDGET PROJECTS**:

A. **PARTIAL PAYMENTS**

The contracting agency will make a partial payment to the Contractor on the basis of an approved estimate prepared by the Engineer or the Contractor for work completed and accepted through the preceding month. The notice to proceed date, which is designated for the specific project involved, will be used as the closing date of each partial pay period. Payment will be made no later than fourteen (14) days after the work is certified and approved. City will review payment requests and make recommendation of approval or denial within seven calendar days.

B. **PAYMENT RETENTION**

At the start of construction, ten percent of all pay requests will be retained by the City to guarantee complete performance of the contract. When the work is fifty percent complete, this amount may be reduced to five percent providing that construction progress and quality of work is acceptable to the City. Any funds which are withheld from the contractor will be paid no later than sixty days after completion of the contract and settlement of all claims.

In lieu of retention, the contractor may provide as a substitute, an assignment of money market accounts, demand deposit accounts, or time certificates of deposit (CDs) from a bank licensed by Arizona, securities guaranteed by the United States, securities of the United States, the State of Arizona, Arizona counties, Arizona municipalities, Arizona school districts, or shares of savings and loan institutions authorized to transact business in Arizona. These securities are referred to as "Qualified Securities."

Qualified Securities deposited in lieu of retention must be deposited into a separate account with a bank having a branch located in the City of Phoenix and be assigned exclusively for the benefit of the City of Phoenix pursuant to the City's form of escrow and/or deposit agreement.

Escrow Agreement and Deposit Agreement forms may be obtained from the Contract Specialist assigned to the project.

28. **110 NOTIFICATION OF CHANGED CONDITIONS AND DISPUTE RESOLUTION** Add the following to **Subsection 110.1 GENERAL**:

SOILS INFORMATION

The material boring logs shown on the plans or included in these specifications are included for the Contractor's convenience only. It is not intended to imply that the character of materials shown in the logs is representative throughout the project. **The soil borings are indicative of the soil characteristics only at the location and to the depth of each of the borings.**

Even if not specifically shown in the geotechnical information provided, the Contractor may encounter large cobbles, boulders, caliche, conglomerate, hard rock, perched groundwater, historic or prehistoric cultural resources, or other differing site conditions on this project. **No additional compensation will be made for any differing site condition that may be encountered.**

SPECIAL PROVISIONS

1. Add the following new Section, **232 STORM WATER POLLUTION PREVENTION – BEST MANAGEMENT PRACTICES**:

Description

Implementation of "Best Management Practices" (B.M.P.'s) to reduce stormwater pollution will be undertaken by the Contractor on a multi-tiered, most cost-effective approach. The Contractor will utilize the lowest-cost acceptable B.M.P. available to address each type of potential stormwater pollution situation encountered on the project. Should this prove ineffective in resolving the stormwater pollution problem, additional, higher-cost B.M.P.'s may need to be employed, upon approval by the City.

Construction Requirements

Typical multi-tiered B.M.P. approaches to construction operations may include:

A. ROADWAY SUBGRADE EXCAVATION:

1. Tier I - The excavated area will create, in effect, a temporary retention area. This may provide adequate control of storm runoff to prevent sediment from leaving the site. Pumping or other methods utilized to drain the excavation will employ filter fabric or other filtering method to remove sediment before leaving the site or entering the storm drain system.

2. Tier II - Catch basin inlet protection (utilizing filter fabric, gravel, etc.) may be necessary should Tier I controls prove inadequate. Care will be exercised to ensure that Tier II B.M.P.'s do not result in blockage of drainage and resultant flooding of adjacent properties.

B. OPEN PIPELINE TRENCHES:

1. Tier I - The open trench itself will act as a temporary retention area. The Contractor will provide a low-cost, readily installed/removed temporary device on the open end of the pipe to prevent sediment-laden stormwater from entering the pipe. This may consist of a temporary "plug" incorporating filter fabric, a temporary weir, or other device capable of removing sediment before allowing stormwater to enter the pipe. Care must be taken to prevent damming of floodwaters in the excavation that could result in "floating" the pipe.

2. Tier II - If Tier I protection does not prove satisfactory, the Contractor may need to install straw bales, sandbag berms, or temporary diversion dikes around the perimeter of the open excavation to prevent sediment-laden stormwater from entering the open excavation. Due to installation/removal time, such devices need only be installed during periods of likely precipitation and runoff. Earthen dikes are the preferred alternate, due to ease of installation and removal. Care must be taken to assure that runoff is not blocked to the extent that flooding of adjacent properties will result.

C. BACKFILLED PIPELINE TRENCHES:

1. Tier I - As with roadway subgrade excavations, pipeline trenches which have been backfilled but not yet paved will be several inches lower than adjacent pavement areas and will therefore act as temporary retention areas.

2. Tier II - If the "retention" provided by the backfilled area does not prevent sediment-laden runoff from leaving the excavated area, perimeter controls such as silt fence, straw bales, sandbag berms, or gravel filter berms may need to be installed around the downstream edge(s) of the backfilled area. As with open trenches, the selection of the appropriate measure, extent of its application, and time period during which it is needed will be dependent upon cost, site conditions, ease of installation/removal, and likelihood of precipitation/runoff. Again, care must be taken to ensure that diversion of stormwater onto adjacent properties does not result from these installations.

Another stormwater control method, which the Contractor may need to consider, is limiting the amount of area disrupted and therefore subject to sediment-laden stormwater runoff at any one time. Should such project phasing prove necessary due to the failure of other B.M.P.'s, the Contractor will revise his construction activities accordingly, at no additional cost to the City.

Standards for installation of the above B.M.P.'s are provided in the Flood Control District of Maricopa County's "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control". Installation and operation of B.M.P.'s will be in accordance with that manual.

There will be no separate measurement or payment for preparing or developing Storm Water Pollution Prevention Plans, or for preparing NOI's or NOT's or obtaining an AZPDES Permit, all these costs being considered incidental to the cost of the project.

Use of individual BMP items will conform to the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP).

Measurement and Payment

This project includes a pay item "ALLOWANCE FOR STORMWATER POLLUTION PREVENTION BEST MANAGEMENT PRACTICE (BMP'S)". The amount of this allowance is determined by the Engineer and is not subject to individual bid pricing. All bidders will incorporate the amount pre-entered in the bid proposal and will reflect the same in the total amount bid for this project.

Payment for various types of necessary BMP's will be made from this allowance based on approved invoiced cost of the materials only, plus taxes, and a maximum 15 percent markup for overhead and profit. There will be no separate measurement or payment for the preparation or development of the Storm Water Pollution Prevention Plan; labor or equipment necessary to install, maintain or remove the BMP materials; moving existing BMP materials from one location to another on the same project; or constructing BMP swales or berms, all of these costs being considered incidental to the cost of the project.

2. **334 PRESERVATIVE SEAL FOR ASPHALT CONCRETE**, Delete the sentence in **Subsection 334.4 MEASUREMENT**, and substitute the following:

Preservative seal coating will be measured by the square yard applied.

3. **336 PAVEMENT MATCHING AND SURFACING REPLACEMENT,** Add the following to **Section 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT**:

PERMANENT PAVEMENT REPLACEMENT (ASPHALT CONCRETE)

Description

Unless otherwise specified on the plans, pavement replacement sections shall be as follows:

Alley & Driveway: 3 inches Type D-1/2 on 6 inches of ABC

Collector Street: 2 inches Type D-1/2 on 6 inches Type C-3/4 (two lifts) on 100% compacted native subgrade.

Major Arterial Street: 2 inches Type D-1/2 on 7 inches Type C-3/4 (two lifts) on 100% compacted subgrade.)

Crack seal shall be applied to the full area of micro/slurry seal placement in addition to the joint between the new and existing pavement.

Measurement and Payment

Measurement and payment for permanent pavement replacement will be by the square yard, complete in place, including all necessary subgrade preparation and tack coat. In computing the pay quantity for trench patch pavement replacement, the field measurement along the centerline of the trench and the trench pay width as listed in MAG 336 will be used. When the longitudinal trench is only partially in the pavement, adjustments in the pay width will be made by the Engineer.

There shall be no additional measurement and payment for crack sealing as it shall be included in the unit cost of permanent pavement replacement.

There will be no separate measurement or payment for trench backfill, over excavation, import or export as required by the geotechnical repot and Plans. The cost of the backfill, over excavation, import and/or export is considered included in the cost of the pipe.

4. **340 CONCRETE CURB, GUTTER, SIDEWALK RAMPS, DRIVEWAY AND ALLEY ENTRANCE** , Add the following to **Subsection 340.2.1 Detectable Warnings; Subsection 340.3.1 Detectable Warnings; Subsection 340.5 MEASUREMENT; and Subsection 340.6 PAYMENT**:

Add the following to **MAG Subsection 340.2.1 Detectable Warnings**:

Detectable warning material will meet the latest ADA requirements. Approved detectable warning material manufacturers include the following:

a. Strongo, TekWay Dome-Tiles
b. Tuftile, Cast Iron ADA Detectible Warning Plates
c. Neenah Foundry, Cast Iron Detectable Warning Plate

Alternate materials may be submitted subject to review and approval prior to use. All detectable warnings will be of the same type and color within the project limits, unless otherwise specified.

Add the following to **MAG Subsection 340.2.1.1 Color and Contrast**:

Unless shown otherwise on the plans, the color of the detectable warning tiles to be used shall be terracotta color on grey concrete and yellow color on colored concrete sidewalk ramps – color to be approved by the Engineer.

Add the following to **MAG Subsection 340.3.6 Detectable Warnings**:

Detectable warning plates will be installed per manufacturer's recommended specifications. The layout of plates will be determined by the Contractor, and if necessary, pre-cut as needed prior to beginning the installation process to meet ADA placement requirements. Plates will not be cut to less than half their size. Plates will be cut as recommended by the manufacturer.

Add the following to **Subsection 340. 5 MEASUREMENT and 340.6 PAYMENT**:

Sidewalk Ramps, Measurement and Payment

Sidewalk ramps will be constructed in accordance with Phoenix Standard Details or special details called out on the plans.

Payment for sidewalk ramps will be made under the bid items for "SIDEWALK", "CURB AND GUTTER", and TRUNCATED DOMES FOR SIDEWALK RAMPS, and will include all costs for labor, materials, equipment, forming, placement and finishing for complete sidewalk ramp installation. The cost of any special curb at the back of sidewalk ramps will be measured by the square foot and paid for as "SIDEWALK".

Decorative pavement or paving stones as shown on the plans and used in sidewalk areas will be measured by the square foot installed and paid for under the bid item for "DECORATIVE PAVEMENT FOR LANDSCAPING PER DETAIL", including all subgrade preparation, leveling sand, etc to provide a complete installation.

Concrete Driveway and Sidewalk Slab Connections, Measurement and Payment

This work will consist of constructing concrete driveway and sidewalk slab connections to match existing at locations shown on the plans or requested by the Engineer. The slab thickness will conform to the applicable driveway or sidewalk detail.

Measurement and payment for this work will be made per square foot complete and in place for the appropriate pay item "CONCRETE DRIVEWAY ENTRANCE" or "CONCRETE SIDEWALK".

Mountable Curb and Gutter, Measurement and Payment

Mountable curb and gutter will be constructed in accordance with MAG Detail 220-2, Type E, where shown on the plans.

Measurement will be made per linear foot complete in place, and payment will be made under the bid item for "COMBINED CONCRETE CURB AND GUTTER, STD. DETAIL 220, TYPE 'A', H=6".

5. **345 ADJUSTING FRAMES, COVERS, VALVE BOXES, AND WATER METER BOXES**, Revise **Subsection 345.1 DESCRIPTION**, **Subsection 345.5 MEASUREMENT**, and **Subsection 345.6 PAYMENT** as follows:

Delete Subsection 345.1 DESCRIPTION in its entirety, and substitute the following:

Adjustment of manhole frames, covers, clean outs, valve boxes, survey monument boxes (and water meter boxes if located in the pavement) to finish grade will be done AFTER placement of the final surface course pavement and/or surface seal.

Any missing manhole frames or covers and water valve or survey monument box hardware (such as lids, for example) will be reported in writing to the Engineer during the initial lowering process to allow arrangements to be made to obtain replacement hardware. Missing hardware that is properly reported to the Engineer will be

supplied to the Contractor by the City of Phoenix or the appropriate private utility company.

Replacement of any missing hardware that was not reported to the Engineer initially as specified, that comes up missing later when these facilities are brought back up to finish grade, will be the full responsibility of the Contractor, at no additional cost to the City.

In addition, all manhole frames and covers, water valve and survey monument boxes or other related hardware removed by the Contractor during the lowering process will be maintained in a secure area, and the Contractor will bear full responsibility for this hardware material. Any hardware lost by the Contractor will be replaced in-kind, at no additional cost to the City.

All areas of existing pavement removed for adjustments that will be subjected to traffic prior to placement of final concrete collar rings will be temporarily filled with hot-mix Type D-1/2 asphalt and roller-compacted flush with the adjacent pavement. There will be no separate measurement or payment for this temporary hot-mix asphalt or placement or subsequent removal, the cost being considered incidental to the cost of the adjustment.

After removal of asphalt pavement in the area of adjustment, and prior to placement of the final concrete collar ring around the frame or valve box (as shown on City of Phoenix Detail P-1391 and MAG Detail 422), the asphalt pavement in proximity of the adjustment will be rolled with a self-propelled, steel wheel roller.

The concrete collar ring around the frame or valve box will be circular and will be a minimum of eight (8) inches thick, placed flush with the adjacent new pavement surface. At a minimum, concrete will be MAG Class 'AA' on all paved streets. All concrete will be obtained from plants approved by the Engineer.

A single No. 4 rebar hoop will be placed in each adjustment collar. The hoop diameter will be such that its placement is centered between the edge of the manhole frame or valve box, and the outside edge of the concrete collar. The depth of the hoop will be such that it is centered in the thickness of the collar. Each concrete ring will be scored radially at quarter-circle points. Score lines will be 1/4-inch wide by 1/2-inch deep. The concrete collar surface will be rough broom-finished. All pavement removed for adjustments will be replaced with concrete.

Traffic will not be allowed on the collars until the concrete has reached a minimum compressive strength of 2500 psi on residential streets, and 3000 psi on collector and major streets. On major streets, the Contractor will use "high-early" cement in the concrete mix, approved by the Engineer, to minimize delay in re-opening the street to traffic.

Prior to commencing work on the adjustments, the Contractor will submit a written adjustment plan and schedule to the Engineer for approval. At the request of the City, the contractor will provide access to all services under construction at no additional cost.

Sewer manhole frames and covers will be matched, kept together, and replaced to their original locations. The Contractor will remove existing asphalt, chip seal, or other materials from all sewer manhole covers and water valve box lids to be adjusted on this project. The Contractor's method for removal will be approved by the Engineer prior to actual work. Cover cleaning will be completed prior to adjustment of frames. Also, all water valve risers will be thoroughly cleaned to fully expose the valve operating nut.

QUARTER SECTION MAPS FOR WATER AND SEWER LINES

The Contractor may obtain up to three sets of waterline and sewerline quarter section maps for the streets included in this project after the contract is awarded and issued. To order the maps, the Contractor will bring

an official contract specification book and a list of desired quarter section maps to the Technical Support Services counter on the 8th Floor of City Hall, 200 W. Washington Street. Up to three sets of maps will be provided at no cost to the Contractor. If more than three sets are requested, the Contractor will purchase the additional sets.

WATER VALVE AS-BUILTS

Upon completion of water valve box adjustments, the Contractor will provide one complete accurate and clearly legible set of as-built waterline Quarter Section maps to the Engineer. The Contractor will mark and color code all water valves on the maps as follows:

Blue- All valves shown on the Q.S. map found and adjusted.

Yellow- All valves shown on the Q.S. map but not found in the field.

Red- Any valve not shown on the Q.S. maps but discovered and adjusted. (Draw valve symbol on map at appropriate location and provide offset and location dimensions for valves in this category.)

Delete Subsections 345.5 MEASUREMENT and 345.6 PAYMENT and substitute the following:

345.5 MEASUREMENT

Measurement for adjustments will be per each respective item.

345.6 PAYMENT

Payment for the appropriate item will be made at the unit price bid for 'ADJUST EXISTING MANHOLE FRAME AND COVER, STANDARD DETAIL 422'; 'ADJUST EXISTING TYPE 'A' WATER VALVE, STANDARD DETAIL P-1391 AND P-1391-1'; 'ADJUST EXISTING SEWER CLEAN-OUT FRAME & COVER, STANDARD DETAIL P-1270'; 'ADJUST SURVEY MONUMENT HANDHOLE FRAME AND COVER, STD DET P-1270; or ADJUST EXISTING WATER METER BOX & COVER. Payment will include all labor, materials, and equipment necessary to satisfactorily clean and make complete adjustments.

There will be no separate measurement or payment for adjusting NEW manhole frame & covers, valve boxes, sewer clean-out frame & covers, or water meter boxes constructed with the project. Payment for adjusting these new facilities is considered included in the price bid for the appropriate new item.

6. 401 TRAFFIC CONTROL, Add the following to **Subsection 401.4 TRAFFIC CONTROL MEASURES**:

SEQUENCE OF CONSTRUCTION

The sequence of construction will conform to the requirements of the Special Traffic Regulations.

The project will follow a phasing plan approved by the Engineer. All lanes will be maintained on a paved surface at all times during construction. This may be accomplished by using existing, new, or temporary asphalt pavement. Trenches will be completely backfilled and either paved with temporary asphalt pavement or covered with metal plating as necessary to comply with this requirement and the "Special Traffic Regulations".

Night work will **not** be allowed on this project, unless required by the City of Phoenix. If the City of Phoenix requires work to be done at night, it will be done at no additional cost to the City.

The right to direct the sequence of construction is a function vested solely with the Engineer. Prior to commencement of the work, the Contractor will prepare and submit to the Engineer, a written phasing plan and work schedule for the project. This plan and work schedule will be submitted to the Engineer at the Preconstruction Conference for review.

When approved, the phasing plan and work schedule will not be changed without the written consent of the Engineer. Orderly procedure of all work to be performed under this contract will be the full responsibility of the Contractor. The work schedule will include the hours per day and the days per week that the Contractor plans to work on the project site.

7. **401 TRAFFIC CONTROL,** add the following to **Subsection 401.5 GENERAL TRAFFIC REGULATION**:

TRAFFIC REGULATIONS

A. The following shall be considered Arterial streets:

Camelback Road & 35th Avenue

The following shall be considered Collector streets**:**

31st Avenue

B. All traffic and/or traffic control devices on this project shall be provided, maintained and/or controlled as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.

C. Permission to restrict City streets, sidewalks and alleys (street closure permits) shall be requested as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.

D. Unless otherwise provided for in the following "Special Traffic Regulations", all traffic on this project shall be regulated as specified in the City of Phoenix Traffic Barricade Manual, latest edition and addendums thereof.

E. No deviation to the "Special Traffic Regulations will be allowed or implemented unless submitted to the Engineer for review and approval two (2) weeks prior to proposed work.

F. Only City of Phoenix certified contractors can set, move, or remove temporary traffic control devices (signs, barricades, etc.). This annual certification can be scheduled by calling 602-262-6235.

G. Civil Sanctions for temporary traffic control violations apply as follows:

Civil Sanction Per Day	Violation Description
$1,500.00	Creating an imminent risk of death or injury to the public within the public right-of-way.
$1,000.00	Restricting the right-of-way without proper certification or a right-of-way temporary use permit.
$1,000.00	Restricting traffic during peak traffic hours as described in the Traffic Barricade Manual without authorization.
$1,000.00	Failing to correct or cure a violation, as listed in this schedule, within the time period stated on the warning notice.
$1,000.00	Restricting traffic at signalized intersections without any work occurring.
$500.00	Closing a sidewalk improperly or closing a sidewalk without proper certification or closing a sidewalk without a right-of-way temporary use permit.
$500.00	Violating the restrictions, limits, times and location of the right-of-way temporary use permit.
$500.00	Missing or improper use of advance warning signs.
$500.00	Missing or improper use of barricades and channelizing devices.
$250.00	Leaving advance warning signs facing traffic after restriction has been removed - per one traffic direction.
$250.00	Leaving traffic control devices in the right-of-way twenty-four hours after right-of-way temporary use permit expires unless a request for a permit extension is received by the City prior to the expiration of such permit.
$250.00	Use of an “Unacceptable” quality traffic control devices as described in the Traffic Barricade Manual.
$250.00	Rendering a bus stop inaccessible without relocating it or making other accommodations.

H. Parking Meter Fees: To take a parking meter out of service requires a $35 application fee and $10 per meter per day. The fee will not be charged on City of Phoenix projects.

I. The City has the authority to remove and store temporary traffic control devices in emergency situations or as a last resort if the barricade owner will not pick them up. The City assess removal and storage accordingly.

SPECIAL TRAFFIC REGULATIONS
Any Restrictions and/or Closures will only be approved based on scope of work.

Traffic restrictions are not permitted on Arterial/Collector streets during peak traffic hours (6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:30 p.m. weekdays). Outside of these hours the following applies:

Arterial Streets
Minimum number of travel lanes to be open to through traffic:
a. If more than four lanes exist:.....Two will be open each way;
b. If four or less lanes exist: .....One will be open each way
c. On one-way streets:.....Two lanes open

At signalized intersections, a minimum of four lanes (two each way) plus left-turn lanes will be maintained open from 8:30 a.m. to 4:00 p.m., and from 6:30 p.m. to 6:00 a.m., Monday through Fridays including weekends unless otherwise noted within the approved TRACS permit issued to the contractor.

Collector Streets
A minimum of two travel lanes (one each way) will be open to through traffic.

At signalized intersections, a minimum of two lanes (one each way) plus left-turn lanes will be maintained open from 8:30 a.m. to 4:00 p.m., and from 6:30 p.m. to 6:00 a.m., Monday through Fridays including weekends unless otherwise noted within the approved TRACS permit issued to the contractor.

Pre-construction Field Meeting

Prior to requesting a TRACS Permits; the Contractor must coordinate in advance with the construction inspector to schedule a pre-construction field visit. The following personnel shall attend the meeting: Contractor, contracted barricade company, construction inspector and right-of-way inspector.

Nighttime Regulations

To minimize disruption to traffic, crews may be requested to work at night during off-peak hours. In this case, an after-hours permit will be required to authorize work in residential areas. Permits may be granted for up to 30 days for hours including nights, weekends, and holidays and are issued under Phoenix City Code 23-14 for building and roadway construction by the Planning and Development and Street Transportation departments, respectively. The purpose of the permits is to authorize work yet minimize loud and disturbing noises in residential areas due to construction or maintenance activities.

Variable Message Boards

Variable Message Boards (VMB) shall be provided on this project, 24 hours per day, from up to 10 days prior to any roadway closures and from at least 5 days prior to; maintaining a single thru lane at a signalized intersection, restricting left turn movement or 24-hour lane restrictions. The VMB shall remain in place until all roadway traffic restrictions are removed or approval from the area Right-of-Way Inspector.

Special Sign Requirements

The Contractor shall provide, install and maintain advance notification, public informational and directional access signs (for businesses, churches, hospitals, schools, etc.) that may be required by the Engineer. These signs may include, but are not limited to, portable changeable message signs, radar/speed sensing trailers,

and other applicable Intelligent Transportation System type devices. The cost shall be included in the bid item for Traffic Control Devices.

No Parking Signs

When used, temporary NO PARKING signs must be placed 72 hours in advance for notification.

Signs should be spaced 80 feet apart for collector and arterial streets. On local Streets, a minimum of one (1) sign must be placed in front of each affected resident not to exceed 80 feet.

Signs must be clearly marked with “Date” to “Date” and the time period of the no parking.

NO PARKING Signs must be new and not reused, dates and times must be legible.

Contractor must provide Parking enforcement a picture of the placement of the no parking sign with a date and time stamp on the picture.

1.500" Radius, 0.375" Border, 0.375" Indent, Red on White;
"TEMPORARY" B; "NO" B; "PARKING" B;
"DATE TO DATE" B; "TIMES(S)" B;

Police Officer Requirements

Off-duty police officers are required for construction projects as defined in the most recent edition of the City of Phoenix Traffic Barricade Manual and TRACS permit. The Contractor must competitively procure off-duty police with vendors who are Authorized Traffic Coordinators with the City of Phoenix Police Department or Phoenix Police Department off-duty detail. The following requirements must be included in the procurement:

1. Hourly fees charged

2. Administrative fees (administrative fees to be charged as a part of the hourly rate, not billed separately)
   a. Pay applications requesting reimbursement for Off Duty Police hours worked will be accompanied with itemized documentation indicating officer name, date worked, hours worked, time of day worked and location.
   b. For audit purposes, contractor's files will contain documentation from the successful off duty vendor that the above items are accounted for in the vendor's price proposal.

The Contractor shall provide one off-duty police officer, as defined in the City of Phoenix Traffic Barricade Manual, at signalized intersections affected from 6:00 a.m. to 6:30 p.m. weekdays, and during working hours nights and weekends when traffic is restricted (as described in the Traffic Barricade Manual).

When construction activities do not restrict traffic through the intersections, police officer hours may be reduced or suspended at the direction of the ROW Inspector.

Signalized Intersection Requirements

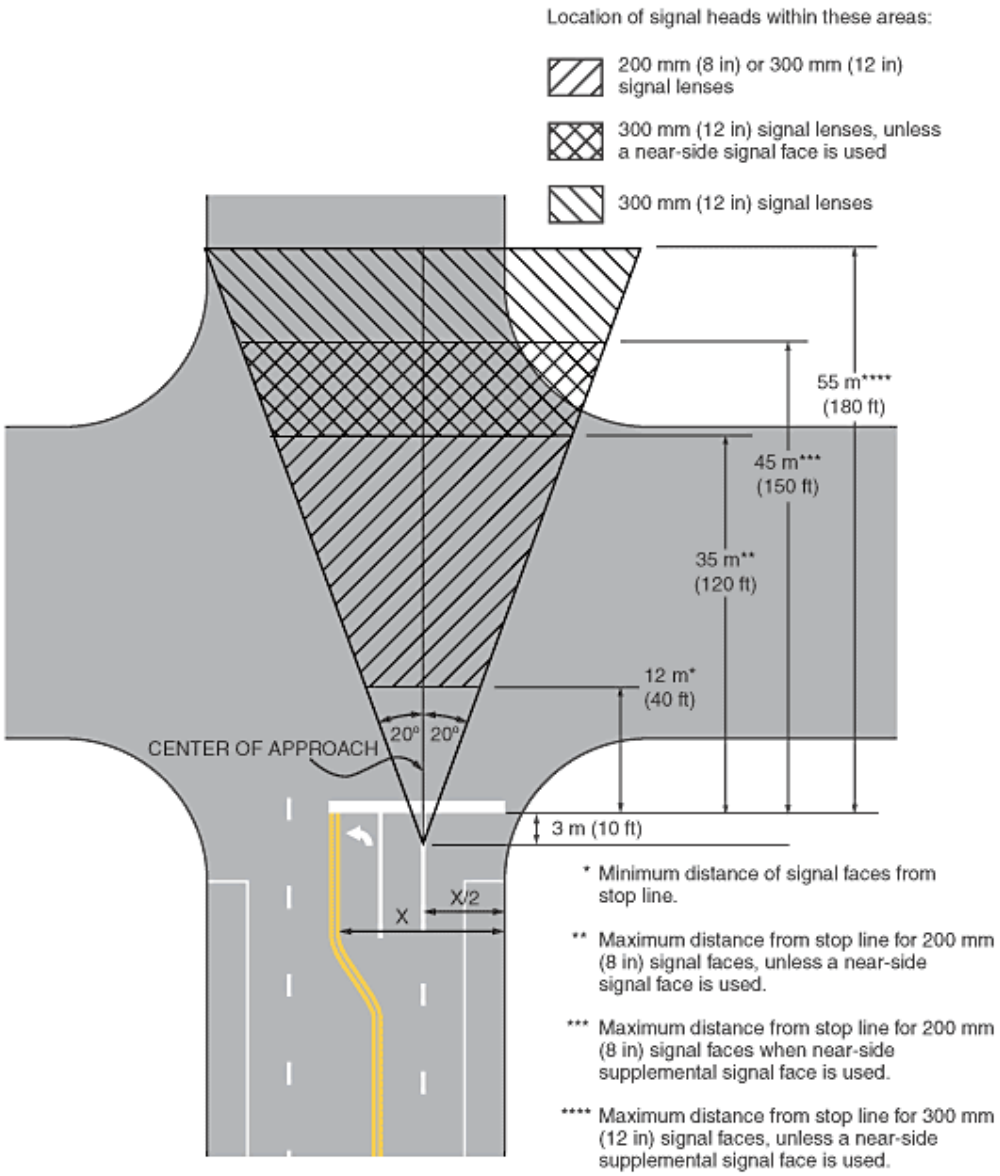
When left turns are prohibited at signalized intersections with left-turn arrow indications or when working in vicinity of a signalized intersection, the contractor will coordinate with the project inspector five days in advance and provide a written schedule indicating days, times and specific locations where left turns will be prohibited or where signals will be interrupted. The project inspector will notify the City Traffic Signal Shop (phxtmc@phoenix.gov) at least 72 hours in advance to make arrangements for arrow indications to be turned off or to coordinated signals being affected by the construction.

The contractor shall maintain the project inspector informed of any schedule changes or when work will be completed. When the work has been completed the inspector will immediately notify Traffic Signal Shop (phxtmc@phoenix.gov) so they can reactivate the left-turn arrow.

Traffic Signal Head Visibility Requirements

The contractor shall maintain a "40-degree Cone-of-Vision" at all intersections, for full view of the intended traffic. If during construction, traffic will be positioned in such a manner that the driver cannot see a minimum of two (2) traffic signal head indications within 20-degrees either side of straight ahead (40-degree Cone-of-Vision), immediately contact the Signal Engineer at 602-262-4693 prior to the start of any work.

Figure 4D-2. Horizontal Location of Signal Faces



Note: This figure illustrates the horizontal location of signal faces.

Local Access Requirements

The Contractor shall maintain local access to all side streets, access roads driveways, alleys, and parking lots at all times and shall notify residents 72 hours in advance of any restrictions which will affect their access. The Contractor shall restore the access as soon as possible. If the primary access cannot be restored in a timely manner, the Contractor shall provide an alternative which shall be pre-determined with the residents prior to

imposing any restrictions. Any local street restrictions imposed shall be such that local area traffic circulation is maintained.

Business Access Requirements

Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties with multiple driveway access will not have more than one driveway access restricted at any given time. While the one driveway is restricted, access to the other adjacent driveways will be maintained and unrestricted. Access to adjacent driveways shall be provided during all non-working hours. Any business restrictions shall be coordinated with the affected business in writing at least fourteen (14) days prior to imposing restrictions.

Pedestrian Access Requirements

The Contractor shall ensure that all sidewalks on this project remain in compliance with all the issues outlined by the American Disabilities Act of 1990. All pedestrian-walking areas, whether paved or unpaved, shall be maintained open and safely or a suitable pedestrian detour route will be provided. Such measures as backfilling or ramping at a 12:1 slope to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. Right-of-Way inspector may also request an ADA/Pedestrian plan for any proposed sidewalk restrictions or closures. In high pedestrian use areas, the Engineer may request temporary hard-surface walkways, and/or covered pedestrian walkways to be installed at no additional cost to the City.

Frontage Road Access Requirements

Local access shall be maintained at all times on frontage roads. Frontage roads shall not be used for through traffic, equipment parking, material storage, or spoil stockpile area. Frontage road closures shall follow the same special provisions as described in “Local Access Requirements”.

School Access Requirements

The Contractor shall provide clean and safe school zones, crosswalks, and walkways for students attending nearby schools during all hours of school use.

This may require backfilling trenches, temporary pavement, shoring, plating, or pedestrian bridges with handrails across open trenches.

In addition to school zones and crosswalks, the Contractor shall maintain accessibility to all school bus routes during all hours of school use. The Contractor shall notify the school Principal(s) and the school Transportation Director at least fourteen (14) days prior to any restrictions and shall restore access as soon as possible.

Church Access Requirements

The Contractor shall maintain a high level of access to churches during all hours of church use. The Contractor shall coordinate any access restrictions with the clergy at least fourteen (14) days prior to any restrictions and shall restore access as soon as possible.

Hospital Access Requirements

The Contractor shall maintain the Emergency entrance to nearby Hospitals by way of a paved lane for emergency vehicles at all times for the duration of the project. The Contractor shall coordinate any access

restrictions with the hospital administrator at least fourteen (14) days prior to any restrictions and shall restore access as soon as possible.

Fire Station Access Requirements

The Contractor shall maintain emergency vehicle access to and from the fire station at all times. The Contractor shall coordinate with the Fire Station Commander at least seven (7) days prior to any restrictions and shall restore access as soon as possible.

Police Station Access Requirements

The Contractor shall maintain emergency vehicle access to and from nearby police stations at all times. The Contractor shall coordinate with the Police Station Commander at least seven (7) days prior to any restrictions and shall restore access as soon as possible.

City Park Access Requirements

The Contractor shall maintain access to nearby parks during park hours. Any restrictions shall be coordinated with the appropriate Parks District Supervisor at least seven (7) days in advance, and full access shall be restored as soon as possible.

Recreational Trail Crossing

The Contractor shall maintain the trail crossings safely open at all times and shall maintain all special trail signs required.

Canal Access Road Requirements

Canal access and maintenance roads shall remain open at all times.

Any work that may affect this project shall be coordinated with the appropriate Agency contact at least fourteen (14) working days in advance.

Coordination With Other Agency Projects

The Contractor will coordinate and schedule work to minimize disruption or conflicts with the following other Agency projects:

Project Name: COP STREETS BUILD project for work on 35th Avenue

Project Contact: Paul NjiRaini | 602.206.1188 | paul.njiraini@phoenix.gov

Any work that may affect this project will be coordinated with the appropriate Agency contact at least fourteen (14) days in advance.

Sanitation Pick-up

The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City Public Works Department (602-256-3310).

Special Events

Should there be special events scheduled to take place during the construction of this project, it is the responsibility of the Contractor to coordinate their Construction schedule around the special event. No compensation for delays associated with special events will be considered. The Contractor shall coordinate with Grand Canyon University and Bourgade Catholic High School to identify special events, such as graduations, that could be impacted by construction.

Bus Stops

The Contractor shall maintain all existing bus stop locations on this project in a safe manner or provide alternate bus stop locations and related directional signage as required by the Inspector. Relocation of bus stops shall be coordinated through the area. Relocation of bus stops shall be coordinated through the City of Phoenix Public Transit Department, contact 602-534-6284 or 602-262-4087.

Flagging of Traffic

No flagging of traffic will be permitted during the peak traffic hours of 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:30 p.m. weekdays. If construction requires, intermittent flagging will be allowed from 8:30 a.m. to 4:00 p.m., if approved by City, Engineer, and Right-of-Way inspector, to facilitate access for heavy construction equipment. The Contractor's specific request will need to be part of the detailed Traffic Control Plans and comply with the City's noise ordinance.

Traffic Control Plans

The Contractor shall submit a traffic control plan for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan shall be professionally drawn on a reproducible medium and shall be submitted to the Engineer two weeks prior the contract start time or at the Pre-Construction conference, whichever occurs first.

Holiday Season Requirements

Restrictions near retail shopping areas on Major or Collector streets during the Holiday Season from November 23rd to January 1st will not be approved without pre-approval from the RMP Inspector. Contractor shall plan and coordinate their work schedule around this holiday season requirement.

Temporary Traffic Control Zone and Safety

At the Pre-Construction conference, the Contractor will designate an employee, other than the Project Superintendent, who is knowledgeable in the principles and methods of proper traffic control and safety. This employee will be available on the project site during all periods of construction to coordinate and maintain safe, acceptable and effective temporary barricading whenever construction affects traffic. This person will be authorized to receive and fulfill instructions from the Engineer and will supervise and direct traffic control. Instructions and information given by the Engineer to this person will be considered as having been given to the Contractor.

Failure to maintain temporary traffic control devices in accordance with the City of Phoenix Traffic Barricade Manual, latest edition, the approved Traffic Control Plan, and directives by the Engineer will result in suspension of work and/or civil sanctions until deficiencies are corrected to the satisfaction of the Engineer.

Safety Fencing Requirement for Trenches and Excavations

The Contractor will provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor will provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing will be securely anchored to approved steel posts located six (6) feet on centers, having a minimum height of six (6) feet, and will consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, will form an effective barrier against intrusion by the general public into areas of construction. Fencing will not create sight distance restrictions or visual obstructions. At all times when construction is not in progress, the Contractor will be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, will take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor will submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost will be considered incidental to the cost of the pipe and/or structures.

Final Signing and Striping of Roadway

The Contractor shall coordinate with the City of Phoenix for the application of final permanent pavement markings by the City following the application of micro seal and/or new pavement.

Approximately 2 months before the project is ready for permanent pavement markings/striping, the Contractor shall notify the project inspector. The inspector will fill out and submit to the Water Services Project Manager a City of Phoenix Pavement Striping Request Form 6 weeks prior to requested date of work. The City Project Manager will forward the form to: Michael Mobley and Julian Sanchez III. Striping will typically be applied 48-72 hours after a micro seal/new paving. However, the final date for striping process is dependent on the weather and the City's existing workload.

• Prior to the slurry seal/ new pavement application: - The Contractor shall provide traffic control with temporary striping or barricades, as necessary, at all times. This includes the time until the City completes the application of permanent pavement striping.

• Following the slurry seal/new pavement application is installed: - The Contractor shall not install or apply any form of temporary striping or adhesive lane delineators. The City will provide their own layout work and apply marks for the striping crews.

- The Contractor shall provide traffic control barricades, as necessary, at all times until City completes the application of permanent pavement striping.
- The City will inspect the area and its layout crews will measure and place reference marks for the striping crews.
- The City striping crews will apply permanent pavement striping.
- The Contractor shall remove the barricades following the completion of the striping.

8. **401 TRAFFIC CONTROL**, Add the following to **Subsection 401.10 PAYMENT**:

ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER

This project includes a lump sum "ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER. The amount of this allowance is determined by the Engineer and is not subject to individual bid pricing. All bidders will incorporate the amount pre-entered in the bid proposal and will reflect the same in the total amount bid for this project.

Payment for uniformed, off-duty law enforcement officers will be made from this allowance based on approved invoiced cost-plus taxes, and a maximum 10 percent markup for overhead and profit.

TRAFFIC CONTROL

Payment for traffic control will be on a lump sum basis for Traffic Control Devices.

9. Add the following new **Section 402 ADDITIONAL CONSTRUCTION REQUIREMENTS** as follows:

402.1 FIELD DOCUMENTATION

The Contractor will document existing conditions within the project area prior to construction. Documentation will be video. The video will not be made from a moving vehicle. One copy of the video will be furnished to the City and Engineer prior to the start of construction. The cost of the recording will be considered incidental to the cost of the project. No separate measurement or payment will be made for this item.

402.2 CONTRACTOR COMMUNICATION INFORMATION

The Contractor will provide a mobile phone to his on-site Project Superintendent to ensure that the Engineer can reach the Contractor's Superintendent. This mobile phone must be accessible by local land-line telephone service. The Superintendent's mobile phone will remain in service for the duration of the project, and these phone numbers will be included on the Contractor's list of emergency phone numbers submitted at the pre-construction conference.

402.3 TRENCH PLATING

In paved areas where vehicles will be driving over trench plating, the plates will be set to match flush with existing pavement on all sides. Setting plates on top of the pavement surface and installing temporary asphalt ramps around them will not be allowed.

402.4 TRENCHING IN RIGHT OF WAY

The Contractor will not be allowed to stockpile trench material or store any equipment other than the mainline track hoe within the project limits right-of-way. The Contractor will secure temporary 6' chain link fence around the track hoe during non-working hours.

402.5 MAXIMUM OPEN TRENCH

No more than 330 linear feet of open trench will be allowed on the project. Trenches across driveways will be plated to maintain access. The cost of these plates will be considered incidental to the project.

402.6 CAST-IN-PLACE PIPE RESTRICTION

Cast-in-place pipe will not be allowed as an alternate on this project.

402.7 POWER BROOM

The Contractor may be instructed by the Engineer to provide additional pavement cleaning (in parking lots, or other locations) above and beyond the normal expected cleanup and dust control required by MAG Section 104.1.3. If requested by the Engineer, the Contractor will clean the requested areas with a power pick-up broom. No separate measurement or payment will be made for this item.

402.9 PUBLIC INFORMATION SERVICES

The City of Phoenix will provide a public information specialist for the community relations program on this project.

The Contractor will cooperate with the City's public information specialist firm in the preparation of newsletters, advanced notification for service disruptions, answering questions from the public, etc. He will also provide schedule update information to the specialist.

The Contractor will provide representatives as needed for all meetings with the public throughout the contract period.

The City will pay public information service costs associated with approved contract time extensions; however, if the Engineer determines that delays were caused by the Contractor, the additional costs for public information services will be deducted from the Contractor's final pay request.

10. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.6 Grading and Stockpiling** after the first paragraph:

During excavation, material suitable for backfilling will be piled in an orderly manner, a sufficient distance back from the edges of trenches, to avoid overloading and to prevent slides or cave-ins. Material unsuitable for backfilling, or excess material, will be hauled from the job site and disposed of by the Contractor at no additional cost to the City. No Separate payment will be made imported trench backfill material. This is considered incidental to the cost of the pipe.

11. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.7 Shoring and Sheeting:**

The Contractor will do such trench bracing, sheathing or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheathing or shoring will not be removed in one operation, but will be done in successive stages as determined by the Engineer to prevent overloading of the pipe during backfilling operations. The cost of the bracing, sheathing or shoring and the removal of same will be included in the unit price for the pipe.

12. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.2.8 Open Trench**:

Except where otherwise noted in the special provisions, or approved in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion (excavation, pipe laying or backfilling), will not exceed 1,320 feet in the aggregate at any one location.

Any excavated area will be considered open trench until all ABC for pavement replacement has been placed and compacted. With the approval of the Engineer, pipe laying may be carried on at more than one separate location, the restrictions on open trench applying to each location. Trenches across streets will be completely backfilled as soon as possible after pipe laying.

Substantial steel plates with adequate trench bracing will be used to bridge across trenches at street crossings where trench backfill, and temporary patches have not been completed during regular work hours. Safe and convenient passage for pedestrians will be provided. The Engineer may designate a passage to be provided at any point he deems necessary.

13. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.2.9 Pavement and Concrete Cutting and Removal**:

601.2.9 Pavement and Concrete Cutting and Removal: Where trenches lie within the Portland cement concrete section of streets, alleys, driveways or sidewalks, etc., such concrete will be sawcut to neat, vertical, true lines in such a manner that the adjoining surface will not be damaged. The minimum depth of cut will be 1 ½ inches or ¼ of the thickness, whichever is greater.

Asphalt pavement will be clean-cut with approved equipment and by approved methods in accordance with the requirements of Section 336.

No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed will be hauled from the job site immediately and will not be permitted in the backfill.

14. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.4.3 Bedding for Storm Sewers Maintained by the City of Phoenix**:

All Controlled Low Strength Material (CLSM) will be provided by a commercial source. No on-site mixing or addition of cement to aggregate base course slurry in transit mixers will be allowed.

15. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.4.4 Backfill**:

BACKFILL TYPE REQUIREMENTS FOR PIPE TRENCHES

Type "B" backfill, as shown on City of Phoenix Detail P1200, will be used for all mainline pipe installations across major, collector, or other signalized intersections. At a minimum, the extent of the Type "B" backfill will be from curb-return-to-curb-return through the intersection, unless noted otherwise on the plans or in the special provisions. Type "B" backfill will also be used for all lateral pipe connections in ALL streets. Type "A-Modified" backfill (suitable native material as specified in City of Phoenix Supplement to MAG Specification Section 601.3.2, except that no piece larger than 3 inches will be allowed), as shown on City of Phoenix Detail P1200, may be used at all other locations, from the top of bedding to the specified pavement subgrade level, unless noted otherwise on the plans or in the special provisions. There is no separate measurement or payment for pipe backfill. The cost is considered included in the bid price for furnishing and installing the pipe. The pavement replacement section will be as specified on the plans and in the special provisions and will be paid for by the square yard.

See Details on plans for additional information.

16. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.4.5 Cutting Newly Placed Pavement for Pipe Installation**:

601.4.5 Cutting Newly Placed Pavement for Pipe Installation: In the event temporary or base course pavement must be cut in order to install pipe, the cost of sawcutting, removing and replacing the asphalt will be considered incidental to the cost of the pipe.

17. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.6 PROTECTION OF EXISTING UTILITIES:**

601.6.1 Utilities: Unless otherwise shown on the plans or stated in the specifications, all utilities, underground or overhead, will be maintained in continuous service throughout the entire contract period. The Contractor will be responsible and liable for any damages to, or interruption of service caused by the construction.

If the Contractor desires to simplify his operation by temporarily or permanently relocating or shutting down any utility or appurtenance, he will make the necessary arrangements and agreements with the owner and will be completely responsible for all costs concerned with the relocation or shut down and reconstruction. All property will be reconstructed in its original or new location as soon as possible and to a condition at least as good as its previous condition. This cycle of relocation or shut down and reconstruction will be subject to inspection and approval by both the Engineer and the owner of the utility.

The Contractor will be entirely responsible for safeguarding and maintaining all conflicting utilities that are shown on the plans (Sections 107 and 105 apply). This includes overhead wires and cables and their supporting poles whether they are inside or outside of the open trench. If, in the course of work, a conflicting utility line that was not shown on the plans is discovered, the Contracting Agency will either negotiate with the owner for relocation, relocate the utility, change the alignment and grade of the trench or as a last resort, declare the conflict as “extra work” to be accomplished by the Contractor in accordance with Section 104.

601.6.2 Irrigation Ditches, Pipes and Structures: The Contractor will contact the owners of all irrigation facilities and make arrangements for necessary construction clearances and/or dry-up periods.

All irrigation ditches, dikes, headgates, pipe, valves, checks, etc., damaged or removed by the Contractor, will be restored to their original condition or better, by the Contractor at no additional cost to the Contracting Agency.

601.6.3 Building, Foundations and Structures: Where trenches are located adjacent to building, foundations and structures, the Contractor will take all necessary precaution against damage to them. The Contractor will be liable for any damage caused by the construction.

Water settling of backfill material in trenches adjacent to structures will not be permitted.

There will be no separate measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

601.6.4 Permanent Pipe Support Options and Encasements: Where 18-inch or larger mainline pipes (or other pipes as directed by the Engineer) cross under existing sanitary sewerlines (vitrified clay pipe 12-inches or smaller), the Contractor will permanently support the sanitary sewerline per MAG Detail 403-1, 403-2 or 403-3. If the ductile iron pipe replacement option is used (403-3), and the required crossing length is more than one joint of pipe, concrete pipe supports as detailed in MAG Details 403-1 or 403-2 will be used in addition to the ductile iron pipe. For a single joint of standard 20-foot-long ductile iron pipe replacement, the maximum trench width allowed at the point of the sewer line crossing will be 9-feet, unless otherwise directed

by the Engineer. Mechanical or restrained joints will be required on all multiple-joint ductile iron pipe crossings.

Where waterlines, reclaimed waterlines or sanitary sewer lines (new or existing) cross over or under each other, pipeline encasements will be provided as necessary in accordance with MAG Detail 404.

Sanitary Sewer lines shall not be replaced with ductile iron on this project.

Upon completion of a sanitary sewer line support or encasement, including backfilling and compacting, but prior to permanent pavement replacement, the Contractor will request, through the Engineer, a televising of the line by the City Water Services Department to ensure proper line and grade of the sanitary sewer pipe. If the pipe is out of alignment, it will be the Contractor's responsibility to remedy the situation at no cost to the City.

If the sanitary sewer line is less than 8-inches in diameter, the Contractor will provide the necessary equipment and televise the line to determine proper pipe alignment. The Engineer will be present during the televising, and a video of the televising will be made for the City Water Services Department for confirmation that the pipe is properly aligned. The cost of televising the line and preparing the video tape will be included in the bid price paid for the pipe installation.

Permanent pipe supports will be incidental to the cost for pipe installation regardless of type. Encasements will be paid for at the unit price bid per linear foot installed regardless of type. The unit price bid for either item of work will be compensation in full for providing complete and satisfactory permanent pipe supports or encasements, including ductile iron pipe and fittings, concrete, reinforcing steel, forming, vibrating, any required earthwork, televising and videotaping, and any other incidental items necessary.

601.6.5 Electronic, Telephonic, Telegraphic, Electrical, Oil and Gas Lines: During trenching operations, underground facilities such as electronic, telephonic, telegraphic, electrical, oil and gas lines will be supported and protected by the Contractor. Support for plastic pipes will be continuous along the bottom of the pipe. Support for metal pipe and electrical conduit may be continuous or nylon webbing may be used for suspension at no greater than ten-foot intervals.

The Contractor will avoid damaging any pipes, conduits or duct bank facilities during excavation, foundation and bedding placement, and trench backfilling and compaction.

601.6.6 Measurement and Payment:

There will be no measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

18. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following new **Subsection 601.7 CONTRACTOR CERTIFICATION OF INSTALLATION PROCEDURES**:

601.7 CONTRACTOR CERTIFICATION OF INSTALLATION PROCEDURES

When requested in the Special Provisions or by the Engineer prior to installation, the Contractor will furnish to the Contracting Agency an affidavit (certification) from the pipe manufacturer (or his designee) stating that the Contractor is familiar with the manufacturer's suggested installation methods and procedures and the installation complies with those procedures and is consistent with MAG requirements.

Also, when required in the Special Provisions or requested by the Engineer, the pipe manufacturer or his designee will review the Contractor's methods and procedures for pipe installation in the field. The Contractor

will make any adjustments in the installation as recommended by the manufacturer or his representative. If necessary, the Contractor may be required to reinstall or provide corrections to pipe installed prior to the field review at no cost to the Agency. Once the manufacturer or his representative has reviewed the Contractor's installation methods and the Contractor has adjusted his installation methods as recommended by the same, the manufacturer or his representative will furnish to the Contracting Agency an affidavit (certification) that the Contractor's installation methods and procedures, at the time of the review, complied with the manufacturer's installation practices. The affidavit must provide the name of the manufacturer's representative witnessing the pipe installation.

19. **610 WATERLINE CONSTRUCTION**, Add the following to **Subsection 610.4 CONSTRUCTION METHODS**:
WATER MAIN REALIGNMENT (CONTINGENT ITEM)

In the event of unavoidable conflict between proposed construction and an existing water main, the Contractor will vertically and/or horizontally realign the water main in accordance with COP Detail P1370 and Section 610. No concrete thrust blocks will be allowed. All pipe will be ductile iron with restrained joints.

The water main realignment will include, but not be limited to, excavation, backfill, compaction, DIP pipe, V-bio polywrap, fittings, offsets, couplings, sleeves, joint restraint and hardware. The realigned water main will be visually inspected for leaks under line pressure prior to backfilling.

The Contractor will arrange with the Engineer to have the line shut down in order to perform the work. At no cost to the Contractor, the City Water Services Department will provide necessary valve cut-ins, take the line out of service and flush the relocated line prior to placing it back in service.

For water mains noted on the plans as a fireline, the Contractor shall coordinate with the property owner and the local Fire Department at least 4 weeks prior to fireline being taken out of service. The Contractor shall provide the Fire Department with the shutdown dates.

While the fireline is out of service, the Contractor shall have an extra employee on site to conduct a fire watch. A FIRE WATCH involves a person continually monitoring the building and property for a fire or fire related incident. This activity must be conducted while the suppression systems are offline. If a fire is observed the Contractor shall notify the Fire Department Immediately.

Materials for water main realignment will be ductile iron in accordance with COP Supplement to MAG Subsection 750.2 DUCTILE IRON WATER PIPE.

Measurement and Payment

Measurement will be made per each realignment constructed for the various water main sizes encountered.

Payment for realignment of water mains will be made at the unit price bid per each under proposal items "WATERLINE REALIGNMENT, 6" AND 8", CONTINGENT ITEM"; and "WATERLINE REALIGNMENT, 10" AND 12", CONTINGENT ITEM".

20. **610 WATERLINE CONSTRUCTION**, Add the following to **Subsection 610.4 CONSTRUCTION METHODS**:
REMOVAL AND REPLACEMENT OF ASBESTOS CEMENT PIPE (ACP) (CONTINGENT ITEM)

In the event where trenching operations crosses under existing 12-inch or smaller asbestos cement water pipes and exposes four (4) feet or more of pipe, the Contractor shall remove and replace with ductile iron pipe (DIP) per COP Supplement to MAG Specification 601.2.8 and MAG Standard Detail 403-3. No concrete thrust blocks will be allowed. All pipe will be polywrapped ductile iron with restrained joints.

Furnish and install water main in conformance with COP Supplement and MAG Specification 610. Work includes all excavation (COP Supplement and MAG Specification Section 601), ductile iron pipe (DIP) (COP Supplement and MAG Specification Sections 610), bends, couplings installation, metallic locating tape, flushing, cleaning, disinfecting (COP Supplement and MAG Specification Section 611), pressure testing, bedding, backfill, V-bio polywrap, compaction, thrust restraint, disposal of excess excavation materials, and temporary and permanent crossing utility supports. The replaced water main will be visually inspected for leaks under water main pressure prior to backfilling.

As described in section 610.10, arrange with the City to have the water main shut down in order to perform the work. Materials for water main replacement will be ductile iron in accordance with COP Supplement to MAG Subsection 750.2 DUCTILE IRON WATER PIPE.

For water mains noted on the plans as a fireline, the Contractor shall coordinate with the property owner and the local Fire Department at least 4 weeks prior to fireline being taken out of service. The Contractor shall provide the Fire Department with the shutdown dates.

While the fireline is out of service, the Contractor shall have an extra employee on site to conduct a fire watch. A FIRE WATCH involves a person continually monitoring the building and property for a fire or fire related incident. This activity must be conducted while the suppression systems are offline. If a fire is observed the Contractor shall notify the Fire Department immediately.

Measurement and Payment

Measurement will be made per each replacement constructed. Payment for replacement of water mains will be made at the unit price bid per each under proposal item “ACP WATERLINE REPLACEMENT, CONTINGENT ITEM”

separate bid item for that work.

21. **610 WATER LINE CONSTRUCTION**, Add the following to **Subsection 610.10 CONNECTION TO EXISTING MAINS**:

WATER MAIN SHUTDOWN

For shutdowns that are necessary to accomplish the work, the Contractor will make written request to Water Distribution at least three (3) calendar weeks before the shutdown. Requests will specify location, size of line, duration, date, and time for each shutdown. Within one (1) week, Water Distribution will schedule shutdown and give written notification to the Contractor. Any schedule revisions requested by the Contractor must be in writing. Water Distribution's revised schedule will be available within one (1) week. The City does not guarantee a totally dry line. The Contractor will be prepared to de-water as necessary to accomplish the work.

The Contractor will be responsible for maintaining accessibility to the valve operating nuts for all valves within the project boundaries. Failure to maintain accessibility to valves will be cause for canceling shutdown, and the Contractor will be required to request a revised schedule.

The Water Services Department is indemnified for any and all resultant costs incurred by the Contractor such as, but not limited to traffic control, delays, loss of incentives, standby and penalties if the Contractor did not properly request a shutdown; failure to maintain accessibility to valves; or if the Contractor's scheduled work did not progress to the anticipated shutdown schedule.

22. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.2 MATERIALS:**

Per City of Phoenix Water Services Department, "MAG Standard Detail 425: 24" Aluminum Manhole Frame and Cover" is **not approved** and will not be used in the City of Phoenix.

23. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.3.1 MANHOLES:**

If steps are inadvertently installed, they will be removed, and the holes will be filled with epoxy or Class "B" concrete.

24. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.3.1, MANHOLES**:

SANITARY SEWER MANHOLE ADJUSTMENTS

On all existing sewer manholes adjusted to new finish grade, the entire new portion of the adjusted manhole will be seal coated in accordance with COP Supplement to MAG Specification Sections 626 and 627.

25. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Delete the first paragraph in **Subsection 625.5 PAYMENT** and replace with the following:

Manholes will be paid for at the unit price bid for each type, as represented by the respective bid item, regardless of dimensional or other differences occurring within a particular type. The unit price to be paid under these items will be compensation in full for furnishing and placing manhole structures as shown on the plans and as specified, including concrete, reinforcing steel, forming, vibrating, finishing, curing, cast iron manhole frame and cover, frame adjustment to grade, structural excavation, backfill, compaction and any pavement replacement in excess of the applicable pay widths assigned to the adjacent pipes.

26. **626.3 EXECUTION, Replace Subsection 626.3.1.B MANHOLE CLEANING with the following:**

The Contractor shall prepare all concrete substrates (including pre-cast) to a minimum ICRI CSP 5 roughness by either dry abrasive, water abrasive blast or High-Pressure Water Cleaning using a rotating nozzle (5,000 to 10,000 psi). Contractor shall also be responsible for any additional surface preparation required by the coating system manufacturer. Where additional preparation is required, the Contractor shall provide all labor materials and equipment as necessary at no additional cost to the Agency.

27. **626 CORROSION PROTECTIVE COATING OF SANITARY SEWER MANHOLES AND ACCESS STRUCTURES**

Delete SECTION 626 in its entirety and replace with the following:

626.1 GENERAL:

626.1.1 Description:

(A) Scope: Unless otherwise approved by the Owner, Engineer, or as called for on the plans, all new concrete manholes and access structures constructed on 15-inch and larger diameter sanitary sewers, plus those extending to and including one upstream manhole regardless of lateral size, shall have an internal corrosion protective coating applied as specified herein. Drop manholes and force main manholes on 8-

inch or larger diameter lines shall also be coated. When specified, existing sanitary sewer manholes shall be repaired as necessary and similarly coated. For this document, the terms manhole and access structure will be used interchangeably.

(B) Requirements:

(1) The Contractor shall furnish all labor, materials, and equipment required to clean, repair (if necessary), and coat the manholes.
(2) The Contractor shall comply with the local authority(ies) and all Occupational Safety and Health Administration (OSHA) requirements for confined space entry.
(3) All materials specified by name brand or manufacturer shall be delivered unopened to the job site in original containers.
(4) All safety precautions recommended by the manufacturer in printed instructions or special bulletins shall be obtained and followed. Safety data sheets (SDS) shall be kept on-site.
(5) For existing manholes, application of coating shall be carried out after all required cleaning, surface preparation, and repairs to cone, walls, pipe penetrations, bench, and invert are completed and meet all required Quality Assurance/Quality Control (QA/QC) inspections and tests.
(6) The Contractor shall ensure that any underlayment products, including repair materials, fillers, and primers, are compatible with the specified coating product.
(7) The Contractor's coating applicator shall be certified by the coating and underlayment material manufacturers and properly trained for applying the manufacturer's coating and underlayment products. This certification and training requirement applies to both the applicator firm and individually to all of the firm's field personnel who will be directly involved with the application of the underlayment and/or coating products.
(8) Approved Water Service Vendors and Products: The approved vendors and products are provided on the Water Services Department Approved Products List. (https://www.phoenix.gov/waterservices/publications). Approvals shown are not necessarily exclusive. If approval of a similar product, believed to be comparable and equal, is desired, a request should be submitted supported by appropriate information and data.

626.1.2 Warranty:

(A) Standardization: Materials and supplies provided shall be the standard products of manufacturers as approved by the Owner and specified by the Engineer. The standard products of manufacturers other than those specified shall be reviewed by the Engineer and approved by the Owner.

(B) Warranty:

(1) The Contractor shall provide a non-prorated five-year warranty for all materials and the installation of protective coatings or systems applied to sanitary sewer manholes and/or access structures. If the protective coating fails within five years from the date of substantial completion and Letter of Acceptance by the Owner, the Contractor will repair or replace the defective coating at no cost to the Owner, including all materials and labor. The repair or replacement shall be completed within 30 days of notice from the Owner.
(2) A coating failure is defined as blistering, cracking, embrittlement, softening, peeling, pitting, or adhesion failure to the substrate. The warranty shall cover the products, installation, and workmanship of the entire coating system, including all repair materials, defect fillers, primers, and all intermediate and finish coats. The warranty shall include but is not limited to all labor, equipment, permitting, traffic control, bypass pumping, third-party quality control inspection, and installer General Conditions required to repair or replace defective or failed coatings. Any testing performed during construction, including but not limited to spark testing and adhesion testing, shall

not in any way modify the warranty or relieve the Contractor from its responsibility to repair or replace failed coatings. Mechanical damage due to maintenance operations or ancillary work on the coated manhole or structure by others is excluded from this warranty. The Contractor will have a list of warranted structures and the Owner's GIS Manhole number for each listed structure.

(3) The Contractor shall be the single point of contact for the Owner for all warranty issues and claims and is solely responsible to the City for the supply, administration, and execution of all repairs and replacements covered by this warranty.

(4) The Contractor shall submit a certification letter to the Engineer documenting the effective warranty date, typically after all manholes have passed testing and after any manhole adjustments are complete for the specific project. The effective warranty date may also be a mutually agreed upon date or some other established acceptance date if otherwise directed by the Engineer or the Owner.

626.1.3 Warranty Period Inspection:

The Engineer may conduct inspections before five years following substantial completion and Letter of Acceptance of new coating work and/or repaired coating work. The Contractor shall be notified of any apparent coating failures. The Contractor shall be responsible for any coordination with the coating manufacturer on the resolution and remediation of the coating failures. Defective work or coating failures shall be repaired per specifications and to the satisfaction of the Engineer. If warranty inspections are not held, the Contractor is not relieved of responsibilities under the contract documents.

626.1.4 Submittal Information Requirements:

(A) The Contractor shall submit the following for review and approval by the Engineer at least four weeks before commencement of fieldwork unless stated otherwise:

- Copy of the state of Arizona contractor license for the applicator/installer.
- Certificate/documentation from the coating system manufacturer that the applicator/installer firm is a certified/approved installer of the coating system.
- Description of coating system manufacturer training/certification program as completed by applicator/installer as a firm.
- Description of coating system manufacturer training/certification program as completed by individual employees of the applicator/installer participating in the field installation of the coating system.
- List of Individual employees of the applicator/installer assigned to the project, their roles/responsibilities, and proof of completion of coating system manufacturer certification/training/ recertification for each employee within two years of commencement of the project. Proof of certification/training/recertification is required for all individuals directly involved in the surface preparation and/or application of the coating product(s). This shall include the certified applicator, the superintendent, the foreman, and workmen who perform surface cleaning, patching, and underlayment, and workmen who mix, apply, and test the protective coating.
- Applicator/installer QA/QC plan, to include, at minimum, the level of involvement of the coating system manufacturer's representatives; documentation of compliance to the manufacturer's product storage, mixing, surface preparation, and application requirements; and quality control testing requirements and methodology.
- Project reference/installation list for the installer/applicator for the coating system for the past five years with owner contact information.
- Coating system technical product submittal includes, at minimum, manufacturer information, product data sheets, mechanical/structural properties per ASTM testing, acid and chemical resistance testing results, and SDSs. The Technical Product Submittal shall include repair

materials, underlayment/primers, and finish coat materials.

- Coating system manufacturer-approved product application plan and requirements shall include, but not be limited to, product storage requirements, maximum storage life, mixing and proportioning requirements (as applicable), substrate repair and surface preparation requirements, manhole environmental condition requirements for application, the application film thickness of underlayment and finish coat(s), and the required curing time.
- Manufacturer representative verification of compliance to coating system application plan.
- Five-year Warranty Letter/Statement covering both product and installation, including a list of asset IDs and Owner location IDs covered by the warranty (at substantial completion).
- Sample of finished product, representative of finished color and texture.
- Detailed project schedule.
- Flow bypass plan(s) (as applicable).
- Copies of federal, state, and local permits and agreements (as applicable).
- Contractor Health and Safety Plan (for information only).
- Pre-construction photos/videos of existing site conditions.
- Post-construction photos/videos of existing site conditions (at substantial completion).

626.2 PRODUCTS:

626.2.1 Coating Material:

(A) Approved Materials: The coating material shall be an Owner-approved product or system.

(B) Dry film thickness of epoxy/polymer coatings shall be a minimum of 1/8-inch (125 mils) thick, or per the manufacturer's recommendation, whichever is greater.

(C) Cured underlayment thickness shall equal or exceed the minimum thickness recommended by the manufacturer but shall provide a uniform finished surface for the surface coating application.

(D) An underlayment process and material recommended by the manufacturer shall be used to repair and reprofile corroded areas of manhole surfaces. Manhole surfaces shall be cleaned and prepared per the manufacturer's recommendations and requirements of this document before applying any underlayment and coating. The Engineer may require a separate adhesion pull test to verify the integrity of any underlayment repairs.

626.3 EXECUTION:

626.3.1 Manhole

Cleaning:

(A) Cleaning shall remove all sediment, rocks, debris, roots, grease accumulations, and obstructions from the manholes. Cleaning the manhole walls, bench, and channel shall remove all grease, scale encrustation, and loose mortar so that no foreign intrusion shall cause imperfections in the coating. Cleaning methods shall include high-pressure water jetting, dry or wet abrasive blasting, mechanical abrading, or other methods approved by the Engineer.

(B) The Contractor shall prepare concrete surfaces per NACE No. 6/SSPC-SP13 Joint Preparation Surface Standards and ICRI Technical Guidelines. The Contractor shall use abrasive blasting, high-pressure water jetting, or mechanical abrading to remove all laitance, curing compounds, hardeners, sealers, and

other contaminants from the concrete surface. A minimum ICRI-CSP 5 surface profile shall be provided before applying the coating. The Contractor shall also be responsible for any additional surface preparation as the coating system manufacturer requires. Where additional preparation is required, the Contractor shall provide all labor materials and equipment as necessary at no additional cost to the Owner.

(C) The surface must be clean before the coating system's installation. Excess water shall be blown from the surface using compressed air equipment with oil-trapping filters. Suitable heaters shall be used as needed to produce a dry surface condition. The surface shall be vacuumed to ensure that loose particles are not present.

(D) No sediment or debris from the cleaning operations is allowed in the sewer. Any sedimentation deposited into the sewer system, as determined by the Engineer, shall be removed at no cost to the Agency.

626.3.2 Coating Installation and Repair:

(A) With the Engineer's approval, new manholes may have corrosion coating applied at the manhole manufacturer's facility. Still, all final acceptance testing shall be performed in the field following the installation of the manhole. If a new manhole is coated at the manufacturer's facility, all joints will require sealing and coating in the field after manhole assembly. After the joint is assembled in the field, the Contractor shall prepare the coated surface above and below the joint to receive the protective coating per the manufacturer's recommendations. Typically, a light abrasion blast to 2 inches above and below the joint will clean the surface and give the coating a suitable surface to adhere to.

(B) If the new manhole is coated at the manufacturer's facility, coating of joints, concrete adjustment rings, bench, and invert, and any necessary repairs to barrel or cone shall be performed in the field after successful leakage testing per Section 611.

(C) New manholes that do not have corrosion coating applied at the manhole manufacturer’s facility shall be fully coated in the field, including barrels, cones, joints, concrete adjustment rings, and bench, and invert after successful leakage testing per Section 611.

(D) Where specified for corrosion coating, existing manholes shall be prepared per these specifications and the manufacturer's recommendations. Weak and deleterious material shall be removed down to the sound substrate. Repairs shall be made with the coating manufacturer's recommended underlayment. The Contractor shall verify that the atmospheric conditions, including the ambient and substrate temperatures, are within the coating manufacturer’s requirements for application. If the atmospheric conditions are unsuitable, the Contractor shall, with the approval of the Engineer, either delay the coating application or take appropriate steps to bring the conditions to within requirements. The coating shall be applied to barrels, cones, joints, concrete adjustment rings, and bench and invert. If flows cannot be bypassed or diverted with a flow-through plug, the Engineer may waive coating of invert.

(E) If the frame and cover of an existing coated manhole are adjusted in the field, the existing or added concrete adjustment rings shall be coated or have coating repaired as necessary per the manufacturer's recommendations.

626.3.3 Inspection Milestones

The Contractor shall inform the Owner of its progress in rehabilitating each manhole. At each manhole, the Owner may inspect the work after each milestone listed below before the Contractor shall commence work on the next milestone.

(1) Completion of required cleaning and surface preparation activities.
(2) Completion of all void-filling activities and underlayment application before surface coating application, with the associated adhesion testing of the underlayment layer.
(3) Testing the pH of the surface following cleaning and void-filling underlayment activities before surface coating application.
(4) Completion of the surface coating installation before testing.
(5) Adhesion/bond testing of the finished coating system.
(6) Holiday spark testing of the final surface coating.

Following final clean-up and inspection, the Contractor shall digitally prepare and submit a table documenting the testing results that include, at a minimum, the GIS manhole number, pull test locations with corresponding test results, and spark test pass/fail results.

626.3.4 Inspection and Testing Requirements:

(A) The Contractor shall give the Engineer at least two business days advance notice before any surface preparation work, underlayment application work, coating application work, or testing.

(B) All work and testing shall be performed in the presence of the Engineer or a designated representative of the Engineer unless the Engineer has granted prior approval to perform portions of the work in their absence.

(C) An independent testing agency or laboratory approved by the Engineer may witness the acceptance for holiday and adhesion testing. Documentation shall be per the Engineer's requirements. The Cost of this inspection and testing shall be the Contractor's responsibility.

(D) Additional illumination, scaffolding, and confined space entry equipment and support shall be provided by the Contractor as necessary to facilitate inspection by the Engineer or the Engineer's representative and/or testing agency when requested at no additional cost to the Agency.

(E) The Contractor shall furnish appropriate equipment and supplies for pH testing, holiday testing, dry and wet film thickness testing, and coating adhesion testing. The Contractor shall provide trained personnel for performing required acceptance testing, including the operation of holiday detection devices.

(F) Holiday testing equipment and procedures shall be performed per NACE SP0-188 Discontinuity (Holiday) Testing of New Protective Coatings on Substrates. Areas containing holidays shall be marked, repaired, re-coated, and re-tested per the coating manufacturer's printed instructions. High-voltage pulse-type holiday detectors shall be adjusted to operate at the voltage required to cause spark jumps across air gaps equal to twice the specified coating thickness. The minimum applied voltage for 125 mils coating shall be 12,500 volts or at a setting as the coating manufacturer requires. The inspection equipment shall be in good working order and annually certified by the equipment manufacturer. Certificates of calibration shall be provided to the Engineer upon request.

(G) The Contractor shall report the wet film thickness measurement to the Engineer. The information shall be presented after underlayment top coating operations are completed and shall state the number of manufacturer's product units used and the total square footage of surface area covered. The Engineer shall have the option of requiring the Contractor to document the number of units (coating materials) on hand before and after coating operations to verify the actual minimum dry film thickness applied. All film thicknesses not meeting the required minimums will be re-coated per the manufacturer's recommendations to the required minimum 125 mils thickness.

(H) The Contractor shall perform adhesion tests on 30% of the manholes coated on any project (at least one manhole if 30% is less than 1.0). Adhesion tests shall conform to ASTM D7234, and the minimum pull-off strength shall be 200 PSI on concrete and 100 PSI on brick. Some portion of the substrate shall be adhered to the coating and dolly. A minimum pull-off strength of 150 PSI on concrete will be acceptable if the substrate is attached to the coating and dolly on more than Yi the area of the dolly. Fifty mm dollies shall be used for adhesion testing.

(I) Adhesion tests shall be required at a minimum of three underlayment adhesion tests and three finished coating system adhesion tests per manhole tested.

(J) For each manhole tested, one adhesion test will be performed on the cone, wall, and bench. The Owner or Owner's representative shall select specific test locations within each manhole. The Owner or Owner's representative shall be present to observe all adhesion testing.

(K) The Contractor shall measure the coating thickness on the three adhesion test dollies and report the average measurement to verify the applied coating thickness.

(L) In the event of a failure, the Engineer and Contractor shall determine the limits of failure through additional investigation, sounding, and pull tests. Failed areas shall be removed and repaired per these specifications and the manufacturer's recommendations. The Repaired area(s) shall be re-tested per these requirements. The Engineer shall be allowed to increase the testing frequency depending on the number or percentage of failed test results.

(M) The pH of the surface of the manhole wall shall be tested per ASTM D4262 and reported.

626.4 MEASUREMENT:

Measurements shall be per each treated manhole as required by the contract documents.

626.5 PAYMENT:

No separate payment shall be made for coating new manholes. Cleaning, surface preparation materials, application, testing, and any incidentals in conformance with the plans and specifications shall be considered incidental to the cost of installing new manholes.

28. **<u>702 BASE MATERIALS</u>** Add the following to **<u>MAG Section 702 BASE MATERIALS</u>**:

All Select Material specified on the plans and Standard Details will be Type "A" in accordance with Table 702-1.

CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN

Add the following new Section, **233 STORM WATER POLLUTION PREVENTION PLAN SUBMITTAL PROCESS**

233.1 DESCRIPTION

The Contractor will use the Arizona Department of Environmental Quality (ADEQ) Smart NOI program for all submittals located at this web address:

https://az.gov/app/smartnoi/

The location of this process may change, and it is the responsibility of the Contractor to verify the correct web address. All fees are the responsibility of the Contractor. The Contractor will apply for a "Stormwater Construction General Permit" with the project type "MUNICIPAL/PUBLIC".

Before any construction on site begins, the Contractor will submit the Notice of Intent (NOI) and the SWPPP through the Smart NOI program as the sole permitee. The Contractor will not commence any construction activities until the ADEQ send a written Notice Of Intent assigning an AZCON number.

As required by ADEQ the Contractor will submit a Notice of Termination (NOT) through the Smart NOI program. The Contactor will receive final payment only after receiving a written Notice of Termination Acknowledgement from ADEQ.

Projects Impacting Impaired Waters

Projects that will have any construction taking place within ¼ mile of the Salt River between 23rd Avenue and the confluence of the Gila River will impact "Impaired Waters". These projects will require the Contractor to design, implement, and evaluate a Monitoring Plan for stormwater runoff from their construction activities. The Monitoring Plan must be site specific and will be submitted to ADEQ as an appendix to the SWPPP. ADEQ is the final authority in the approval of the monitoring plan. A copy of the SWPPP and the Monitoring Plan will be kept on-site at all times. Additional copies of the Monitoring Plan should be made available to all personnel who anticipate participating in stormwater monitoring activities. The Contractor will have a copy of the monitoring plan, approved SWPPP, NOI, and ADEQ Authorization to Discharge posted at the jobsite prior to ground disturbance.

Subcontractors

All subcontractors will comply with all AZPDES requirements under the supervision of the General Contractor, and will submit a completed, signed subcontractor certification form, thereby designating themselves as co-permittees.

233.2 SAMPLE SWPPP STRUCTURE

The following is a sample outline of the City requirement for a SWPPP submittal modeled after the ADEQ Construction General Permit Checklist. It will be the Contractor's responsibility to meet all the ADEQ requirements for a SWPPP and retain a qualified consultant to complete the SWPPP, if necessary, at no additional cost to the City.

1 SITE DESCRIPTION

1.1 Project Name: **CONTRACTOR WILL FILL IN PROJECT NAME**

Project No(s): **CONTRACTOR WILL FILL IN PROJECT NUMBER**

1.2 Project Location: **CONTRACTOR WILL FILL IN FOR PROJECT SITE LOCATION**

1.3 Owner's Name:

City of Phoenix, Water Services Department

1.4 Owner's Address:

200 West Washington Street, 8th Floor, Phoenix, Arizona 85003

1.5 Project Description: **CONTRACTOR WILL FILL IN PROJECT DESCRIPTION**

1.6 Runoff Coefficient and Soils Information:

A. Overall runoff coefficient of upstream drainage area will be unchanged by project.

B. Surface Soils Information : **(EXAMPLE ONLY, CONTRACTOR WILL FILL IN FOR PROJECT SITE LOCATION)**

SOIL UNIT	SOIL TYPE (USDA TEXTURE)	PERMEABILITY (IN./HR.)
Laveen	Loam	0.6-2.0
Mohall	Clay Loam	0.2-0.6
Tucson	Clay Loam	0.2-0.6
Vecont	Clay	0.06-0.2

1.7 Name of Receiving Water:
EXAMPLE: SALT RIVER, CONTRACTOR WILL FILL FOR PROJECT SITE LOCATION

2 CONTROLS

2.1 Erosion and Sediment Controls

2.1.a Stabilization Practices:

Stabilization practices on this site include:

- Permanent planting.

- Save selected existing trees.
- Decomposed granite
- **CONTRACTOR WILL ADD OR REMOVE STABILIZATION PRACTICES AS NECESSARY**

2.1.b Structural Practices:

May include:

- Temporary retention areas (subgrade excavation areas).
- Temporary catch basin inlet protection.
- Silt fence.
- Gravel filter berm.
- Temporary diversion dike.
- Straw bale barriers.
- Sandbag berm
- **CONTRACTOR WILL ADD OR REMOVE STABILIZATION PRACTICES AS NECESSARY**

2.1.c Narrative: Sequence of major activities.

CONTRACTOR WILL COMPLETE NARRATIVE

2.1.d Storm Water Management: **(CONTRACTOR WILL EDIT AS NECESSARY)**

Storm water drainage on will be provided by curb and gutter, catch basin inlets, and storm drains. No appreciable changes in runoff coefficients or in finished roadway grades will take place as a result of this project; therefore, no significant alterations of storm water drainage patterns or runoff quantities are expected.

During construction, storm water runoff will be managed by the following means, as conditions require:

- Temporary retention will be provided during roadway construction in areas excavated for subgrade.
- Silt fence, straw bales, sandbag berms, temporary diversion dikes, gravel filter berms or other BMP's as necessary to eliminate erosion may be used to prevent storm runoff from entering open storm drainpipes in excavated trenches. Temporary catch basin inlet protection may also be provided to remove sediment from drainage water before it enters the drainage system. Straw bale protection at outfall pipe locations may be employed during construction.

3 OTHER CONTROLS

3.1 Waste Disposal:

Waste Materials:

All waste materials including trash and construction debris from the site will be either disposed to a designated area immediately or collected and stored in securely lidded metal dumpsters. The dumpsters will meet all local and State solid waste management regulations. The dumpsters will be emptied a minimum of once per week, or more often if necessary, and the trash will be hauled to an acceptable dump site. Lids will be closed at all times after work hours and during rain events. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted on site, and the site superintendent who manages the day-to-day site operations, will be responsible for seeing that these procedures are followed.

ENTER PHONE NUMBER AND NAME OF SITE SUPERINTENDENT

Concrete washout will only be allowed in designated areas. The hardened waste will be disposed of weekly and before final inspection of the project.

Hazardous Waste:

All hazardous waste materials will be disposed of in the manner specified by local or State regulations or by the manufacturer. Site personnel will be instructed in these practices, and the site superintendent who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

Sanitary Waste:

All sanitary sewage generated on-site will be collected from the portable units a minimum of twice per week or as required by local regulations. Units will have a berm placed around them to ensure no spillage can occur.

3.2 Off-Site Vehicle Tracking:

Traffic will be maintained on paved roadway throughout construction in order to reduce vehicle tracking of sediments. The paved street beyond the start and end of the project will be swept as often as necessary to remove any excess mud, dirt, or rock that may be tracked from the site by construction vehicles, but not less than once per week. Dump trucks hauling material to or from the construction site will be covered with tarpaulin before leaving the site.

4 DEMONSTRATION OF COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The following Federal, State, and City regulations are followed in the preparation of this storm water pollution prevention plan:

- Section 402(p) of the Clean Water Act.
- Amended Section 405 of the Water Quality Act.
- “ADEQ Arizona Pollutant Discharge Elimination System General Permit for Discharge from Construction Activities to Waters of the United States, Permit AZG-2008-001.”
- Flood Control District of Maricopa County "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control."
- City of Phoenix Code 32C, "Storm Water Quality Protection."
- City of Phoenix "Grading and Drainage Ordinance for Purpose of Fulfilling NPDES Requirements."

5 MAINTENANCE/INSPECTION PROCEDURES

5.1 Erosion and Sediment Control Practices:

The following is a list of erosion and sediment controls to be used during the construction period:

5.1.a Stabilization practices for this site include:

- Permanent planting.

- Save selected existing trees.
- Decomposed granite.
- **CONTRACTOR TO ADD/DELETE AS NECESARRY**

5.1.b Structural practices for this site will include:

- Silt fence/straw bale barriers.
- Temporary diversion dike/gravel filter berm.
- Sandbag berm.
- Storm drain, curb and gutter, catch basins.
- Temporary catch basin inlet protection.
- Temporary retention in subgrade excavation areas.
- **CONTRACTOR TO ADD/DELETE AS NECESSARY**

5.2 Erosion and Sediment Control Maintenance and Inspection Practice:

Following is a list of the inspection and maintenance practices that will be used to maintain erosion and sediment control:

- All control measures will be inspected at least once every 7 days and within 24 hours after each rain event of 0.1 inch or greater.
- All measures will be maintained in good working order; if repair is necessary, it will be initiated within 24 hours of report. All changes will be completed within 14 days after an observation.
- Built-up sediment will be removed from silt fence when it has reduced the design capacity by 50%.
- Erosion control fabric and erosion control dikes will be inspected, and any breaches promptly repaired.
- Permanent planting will be inspected for washout and healthy growth per specification requirements.
- A Compliance Evaluation Report will be made at each inspection to ensure all BMP's are functioning correctly.
- The site superintendent will be responsible for inspection, maintenance, and repair activities, and filling out the Compliance Evaluation Report.
- Personnel selected for inspection and maintenance responsibility will receive training from the site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on-site in good working order.
- Only one side of roadways will be excavated for subgrade preparation at a time. This area will serve as temporary retention while traffic is maintained on the paved other half of the road. This will serve to control storm water and minimize tracking of sediments.

6 INVENTORY FOR POLLUTION PREVENTION PLAN **(CONTRACTOR TO EDIT AS NECESSARY)**

The materials or substances listed below are expected to be present on-site during construction:

- Concrete
- Asphaltic Concrete
- Fertilizers
- Petroleum-Based Products
- Cleaning Solvents/Agents
- Sealants
- Wood
- Paints
- Herbicide/Pesticide
- Soil Treatment Products
- Other Building Materials
- Water Used in Dust Control

6.1 Spill Prevention

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff:

6.1.a Good Housekeeping:

The following good housekeeping practices will be followed on-site during the construction period:

- An effort will be made to store only enough product required to do the immediate job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under proper cover and palletized.
- Liquid products will be placed on secondary containment pallets.
- Fuel tanks will be double walled.
- Drip pans will be used under all spigots unless on secondary containment.
- Products will be kept in their original containers with the original manufacturers' label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials.
- Concrete washout will only be allowed in designated areas. The hardened waste will be disposed of weekly and before final inspection of the project.

6.1.b Hazardous Products:

These practices are used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets will be retained.
- If surplus product must be disposed of, manufacturers', or local and State recommended methods for proper disposal will be followed.
- Products will be monitored, an inventory will be conducted regularly, and documentation of all use and disposal will be maintained.

6.2 Product Specific Practices:

The following product specific practices will be followed on-site:

6.2.a Petroleum Products:

All on-site vehicles will be monitored for leaks and receive regular preventative maintenance to reduce any chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum substances used on-site will be applied according to the manufacturer's recommendations. Spills and leaks from vehicles will be stopped immediately. Any leaking vehicle will have a drip pan placed under the leak until the unit is repaired. Secondary containment will be provided for all petroleum products stored onsite.

6.2.b Fertilizers, Herbicide, Pesticide, Soil Treatment:

All materials used will be applied only in the minimum amounts recommended by the manufacturer or as per specification. Once applied, materials will be worked into the soil to limit exposure to storm water.

On-site storage will be covered and palletized to limit contact with storm water. The contents of any partially used bags or containers will be transferred to a sealable plastic bin to avoid spills.

6.2.c Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm drain system or on the ground but will be properly disposed of according to manufacturers' instructions or State and local regulations.

6.2.d Concrete Trucks:

Concrete trucks will not be allowed to wash out or discharge surplus concrete or dump wash water other than in a designated wash-out area. The hardened waste will be disposed of weekly and before final inspection of the project.

6.3 Spill Prevention Practices:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically designed for this purpose.
- All spills will be cleaned up immediately after discovery using dry cleanup methods.
- The spill area will be kept well-ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size—ADEQ Hotline: (602) 771-4505; City of Phoenix Hazardous Spills Emergency: 911; City of Phoenix Hazardous Spills Safety Section: (602) 262-7555.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and procedures to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
- The site superintendent will be responsible for the day-to-day site operations, will be the spill prevention and cleanup coordinator. He will designate other site personnel who will receive spill prevention and cleanup training.

6.4 Documentation:

Documentation of all inspections, failed BMP’s, corrective action and training will be maintained onsite with the SWPPP at all times during the project and will be maintained for not less than three (3) years after the project is complete.

OTHER REQUIRED CERTIFICATIONS

The Contractor will complete and submit the following certification forms to the City before construction begins:

- Permitee Certification
- Contractor Certification
- Subcontractor Certification (for all Subcontractors as necessary)
- Operator's Compliance Evaluation Report

PERMITTEE'S CERTIFICATION

As Contractor of the **35th Avenue and Camelback Road Relief Sewer** project, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Company

Name: _____

Title: _____

Signature: _____

Date: _____

CONTRACTOR CERTIFICATION

I certify under penalty of law that I understand the terms and condition of the General Arizona Pollutant Discharge Elimination System (AZPDES) Permit that authorizes the storm water discharges associated with industrial activities from the construction site identified as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the subcontractors signing such certifications, to the general (AZPDES) Permit for the storm water discharges associated with construction activities of the **35th Avenue and Camelback Road Relief Sewer** project. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under the AZPDES Permit and the terms of the AZPDES Permit.

General Contractor and Responsibility

Name: _____

Title: _____

Signature: _____

SUBCONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the General Arizona Pollutant Discharge Elimination System (AZPDES) Permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the general AZPDES permit for the storm water discharges associated with construction activities of the **35th Avenue and Camelback Road Relief Sewer** project. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under the AZPDES permit and the terms of the AZPDES permit.

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Construction Activities: _____

_____

_____

_____

Verification of Completion and Acceptance of Subcontractor's Work

All work to be performed by
_____ (Subcontractor) as part of the _____ (Project) has been completed and accepted. Execution of this form absolves said subcontractor from liability for AZPDES violations which may occur subsequent to this date as a result of activities of the general contractor or other subcontractors.

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Verified by (General Contractor): _____

Authorized Representative of General Contractor: _____

Signature: _____ Date: _____

AZG-2008-001 General Permit for Construction Activities
Operator's Compliance Evaluation Report

This project requires inspection of storm water pollution controls (BMPs) on a choice of frequency described in the General Permit, Part IV. H. Attach sheets if more space is needed.

Project: _____ Date: _____

Name & Title of Inspector: _____

Qualifications of Inspector: ☐ Attached; or ☐ Shown in Sec. _____ of the SWPPP.

☐ Periodic Inspection; or ☐ Rain Event inspection
Relevant weather information: _____

1. Location(s) of discharge from the site: ☐ None; or ☐ Description: _____

---

2. Location(s) of and identification of BMPs that need to be maintained; failed to operate or proved to be inadequate: ☐ None; or ☐ Description: _____
_____

---

3. Location(s) where additional BMPs are needed: ☐ None; or ☐ Description: _____
_____

---

4. Corrective actions required, including changes and target dates: ☐ None; or ☐ Description: _____
_____

---

5. Identify all sources of non-storm water and the associated pollution control measures: ☐ None; or ☐ Description: _____
_____

---

6. Identify material storage areas and evidence of, or potential for pollutant discharge from these areas: ☐ None; or ☐ Description: _____
_____
_____

7. Identify any other apparent incidents of non-compliance: ☐ None; or ☐ Description: _____
_____

8. If no incidents of non-compliance are identified in items 1 through 7 above, the inspector certifies that .the construction project is being operated in compliance with the SWPPP and the General Permit.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certifying Signature: _____ Date: _____

Printed Name: _____

BID PROPOSAL
CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER
PROJECT NO.: WS90500303
BOND ISSUE OR BUDGET PROJECT

PROPOSAL to the City Engineer of the City of Phoenix.

In compliance with the Advertisement for Bids, by the City Engineer, the undersigned bidder:

_____

(Print or Type Contractor Name)

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

Understands that construction of this project will be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision and the City of Phoenix Supplements, latest revision to the MAG Uniform Standard Specifications and Details, except as otherwise required by the project plans and specifications.

No proposal may be withdrawn for a period of 50 days after opening without consent of the Contracting Agency through the body or agent duly authorized to accept or reject the proposal except in the case of federally assisted projects.

Understands that his proposal will be submitted with a proposal guarantee of certified check, cashier's check or surety bond for an amount not less than ten (10) percent of the amount bid, as referenced in the Call for Bids.

Agrees that upon receipt of Notice of Award, from the City of Phoenix, he will execute the contract documents within 10 calendar days.

Work will be completed within 280 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary materials and/or equipment and approvals.

The bidder will acknowledge all addenda in writing. By writing the addendum number(s) below, the bidder agrees that this proposal is computed with consideration of the specification book(s) plus any addenda.

ADDENDUM NO.	DATE	ADDENDUM NO.	DATE

CITY OF PHOENIX
BID PROPOSAL

PROJECT NO. WS90500303

Item	Bid Item #	Description	Unit	Sum	Unit Cost	Item Cost
		Sewer Installation and Construction Items				
1	M6255021	Install 48" Manhole with Type 'A' Top, MAG Std. Det. 420-1, 422-1, 423-1, and COP Std. Det.	EA	1		
2	M6255022	Install 60" Manhole with Type 'A' Top, MAG Std. Det. 420-1, 422-1, 423-2, and COP Std. Det.	EA	19		
3	M6151008	Install 8" VCP Sewer Line, Trench Per Det. 1, Sheet 17	LF	76		
4	M6151021	Install 21" VCP Sewer Line, Trench Per Det. 1, Sheet 17	LF	5415		
5	M6020049	Install 48" Steel Casing By Jack and Bore Methods Per Det 5, Sheet 19	LF	41		
6	M3360115	Asphalt Concrete For Permanent Pavement Replacement, Type D 1/2, 2" Thick	SY	1559		
7	M3360335	Asphalt Concrete For Permanent Pavement Replacement, Type C 3/4, 6" Thick	SY	648		
8	M3360365	Asphalt Concrete For Permanent Pavement Replacement, Type C 3/4, 7" Thick	SY	911		
9	M3361306	Asphalt Concrete For Permanent Pavement Replacement, Type C 3/4, 3" Thick Over 6" ABC (Alley)	SY	3221		
10	M3362100	Micro Seal Per MAG 331	SY	12365		
11	M6257001	Reconnect Existing Sewer Line to Sewer New Manhole	EA	7		
12	M6257000	Connect New Sewer Line to Existing Manhole, Det 4, Sheet 19	EA	3		
13	M6012000	Replace Existing ACP Water Line With DIP Per COP Supplement to MAG 601.2.8 and MAG STD Det. 403-3 Where 4' or More of ACP Water Line is Exposed, Contingent Item	EA	6		
14	M6181015	Realign Exiting Sewer Storm Drain Connector Pipe	LF	126		
15	M6153100	Abandoned Existing Sewer, Fill With Low Strength Grout Per Specifications	LF	2918		
16	M3506032	Abandon Existing Manhole Per MAG Std. Det. 450	EA	5		
17	M6257015	Reconstruct Manhole Channel, Det 3, Sheet 19	EA	2		
18	M4005102	Reinstall Steel Ornamental Fence, Restore Finish Per Specifications	LF	333		
19	M3402200	Construct Vertical Curb & Gutter, Type 'A' Per MAG Std Det. 220-1	LF	10		
20	M3400400	Construct Concrete Sidewalk Per COP Std. Det. P-1230	SF	100		
21	M3400240	Construct Valley Gutter Per MAG Std. Det. 240	SF	50		
22	M3402222	Construct Single Curb Type 'B' Per MAG Std. Det. 222	LF	20		
23	-	Install Gate Track	LF	18		
24	-	Plug End of Sewer with One Foot or One Pipe Diameter of Concrete Whichever is Greater	EA	13		
25	M6151021	Install 21" No Dig VCP Sewer Line, See Detail 5, Sheet 19	LF	48		
26	M6153550	Sewer Bypass Pumping	LS	1		
27	M3513400	Replace Traffic Signal Loops Per Specifications	LS	1		
28	M6103706	Waterline Realignment, 6" and 8", Contingent Item	EA	1		
29	M6103710	Waterline Realignment, 10" and 12", Contingent Item	EA	1		
		Sewer Removal Items				
30	M3500041	Remove Existing 15" Sewer	LF	2322		
31	M3500041	Remove Existing 18" Sewer	LF	260		
32	M3500005	Remove Existing Manhole	EA	11		
33	M3500010	Sawcut, Remove Curb & Gutter, Remove to Nearest Joint	LF	10		
34	M3500020	Sawcut, Remove Concrete Sidewalk / Driveway, Remove to Nearest Joint	SF	100		
35	M3500020	Sawcut, Remove Valley Gutter, Remove to Nearest Joint	SF	50		
36	M3500110	Remove & Store Existing Steel Ornamental Fence. Secure Area with Temporary Fencing Until Permanent Fence Can be Reinstalled	LF	333		
37	M3500010	Sawcut & Remove Single Curb, Remove at Nearest Joint	LF	20		
38	M3500041	Remove Abandoned 8" Sewer	LF	8		
39	-	Remove Existing Gate Track	LF	18		

General Items						
40	M1002005	Mobilization/Demobilization	LS	1		
41	M4015005	Traffic Control & Barricades	LS	1		
42	M1058000	Construction Surveying and Layout	LS	1		
Allowances						
43	E6992000	Allowance for Storm Water Pollution Prevention Best Management Practices (BMP's)	JOB	1	$5,000	$5,000
44	M4013000	Allowance for Uniformed, Off-Duty Law Enforcement Officer	JOB	1	$20,000	$20,000
45	M1042005	Allowance for Extra Work	JOB	1	$50,000	$50,000
				Grand Total		

NOTES:

1. Contractor's OH & Profit, taxes, bonding, as well as other incidental costs are incorporated into and included in the construction unit costs.

Alternate No. 1

Item	Bid Item #	Description	Unit	Sum	Unit Cost	Item Cost
1	M6255021	48" Polymer Concrete Manhole With Type 'A' Top, MAG Std. Detail 419-1, 422-1, 423-1, and COP Std. Detail P1424	EA	1		
Alternate No. 1 Total						

Alternate No. 2

Item	Bid Item #	Description	Unit	Sum	Unit Cost	Item Cost
1	M6255022	60" Polymer Concrete Manhole With Type 'A' Top, MAG Std. Detail 419-1, 422-1, 423-2, and COP Std. Detail P1424	EA	19		
Alternate No. 2 Total						

PROPOSAL SUBMITTAL

35TH AVENUE AND CAMELBACK ROAD
RELIEF SEWER
PROJECT NO.: WS90500303

THIS PROPOSAL IS SUBMITTED BY _____

a corporation organized under the laws of the State of _____

a partnership consisting of _____

_____

a joint venture consisting of _____

_____

or individual trading as _____

_____

_____

of the City of _____

FIRM _____

ADDRESS _____

CITY _____ STATE ___ ZIP CODE _____

PHONE _____ VENDOR NO. _____

BY _____
Officer and Title (signature)

_____
Officer and Title (print or type)

_____
Date

_____
WITNESS: If Contractor is an individual
(signature)

_____
ATTEST: If Contractor is Corporation or Partnership
(signature and title)

SURETY BOND

City of Phoenix Project No.: WS90500303

That we, _____, as Principal, (hereinafter called the Principal) and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety) are held and firmly bound unto the City of Phoenix as Obligee, in the sum of ten (10) percent of the total amount of the bid of Principal, submitted by him to the City of Phoenix for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents and in conformance with A.R.S. #34-201.

WHEREAS, the said Principal is herewith submitting its proposal for 35th Avenue and Camelback Road Relief Sewer__

_____

_____

NOW, THEREFORE, if the City of Phoenix will accept the proposal of the Principal and the Principal will enter into a contract with the City of Phoenix in accordance with the terms of such proposal and give such Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such Bonds and Certificates of Insurance, if the Principal will pay to the City of Phoenix the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal, then this obligation will be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____ A.D., 2023

_____
Principal

_____
Title

_____
Mailing Address

_____

_____
Surety

_____
WITNESS:

_____

A.M. BEST RATING:

City of Phoenix

To: Breanna Connolly
Project Manager
Water Services Department

Date: 11/30/2023

From: Amy Thomas, Co-Chair
Tiana Madrid, Co-Chair TM
SBE Goal Setting Committee

Subject: SBE GOALS FOR 35TH AVE AND CAMELBACK RD RELIEF SEWER PROJECT: WS90500303 (DBB)

Attendees: Eric Froberg, Amy Thomas, Tiana Madrid, Karina Matthiessen, Breanna Connolly, Nico Zavala

A Small Business Enterprise (SBE) goal of **13.5%** was established for the above referenced project in accordance with Chapter 18 of the City's Ordinance, A.R. 1.89.

The goal was derived from the current availability of certified SBE firm(s) in the following specified scope(s) of work:

- Piping
- Painting
- Manholes
- Asphalt
- Trucking
- Street Lighting
- Concrete
- Traffic Control
- Fencing

Only SBE subcontractors certified by the City of Phoenix under Chapter 18, Article VII of the Phoenix City Code are eligible to fulfill the participation goals as stated. A firm's certification must be current and in force at the date and time of the bid. The most current electronic listing of all certified firms can be accessed through the Internet at: www.phoenix.diversitycompliance.com/

If you have any questions or concerns regarding the goal for this project, please contact us at Small.Business.Enterprise@Phoenix.Gov.

Thank you for your continued support of the City's SBE Program.

c: Eric J. Froberg, City Engineer
Patty Kennedy, Deputy Water Services Director
Equal Opportunity Division Office
Design and Construction Procurement Section Office

City of Phoenix

Small Business Enterprise Program

SBE – DESIGN BID BUILD (DBB) CONTRACT CLAUSE

PROJECT #: WS90500303 CONTRACT #: TBD

PROJECT TITLE: 35th Ave and Camelback Rd Relief Sewer

The City of Phoenix Small Business Enterprise Program (SBE) is managed and administered by the Equal Opportunity Department, Contract Compliance Division. Phoenix is one of the fastest growing, multicultural cities in the country and has shown a historical commitment to business diversity. The City strives to advance the economic growth of businesses through its Small Business Enterprise (SBE) Program.

Through a coordinated effort among several city departments, the SBE Program provides SBE certification, procurement opportunities, construction subcontracting utilization, small business management and technical assistance and educational services and networking opportunities.

The Small Business Enterprise (SBE) participation goal for this project is as follows:

SBE Required Goal = 13.5%

An annual SBE subcontracting participation goal has been established under this Contract. The Prime Contractor is required to demonstrate good faith efforts to utilize certified SBE firms to achieve this goal during the life of this contract.

For purposes of determining the Contractor's actual SBE utilization during and at the end of the project, the Contractor shall meet or exceed their **Proposed SBE Goal Percentage (as indicated on the Submitter's received SBE Utilization Form with their bid submittal)** for the contract, for ***ALL*** work performed on the project, including any amount paid for contingencies and allowances, and selected alternates. **The Proposed Goal shall meet/or exceed the Required Goal.**

For purposes of calculating the Contractor's "Proposed SBE Goal Percentage" on the Contractor's Statement of Proposed SBE Utilization form, bidders must not propose SBE subcontractors from areas identified on the bid form as contingencies and allowances or proposed alternates. Any SBE participation proposed from these areas will be not counted towards meeting the SBE goal requirement necessary for contract award.

The "Total Bid" shall be defined as the total of all the unit prices, or the lump sum total, including alternates and contingencies and allowances. The "Base Bid" shall be defined as the "Total Bid" minus "all proposed alternates" as determined by the project manager. Any additional dollars paid under this contract, including any selected alternate(s), shall be subject to the **Proposed SBE Goal Percentage** listed on the Contractor's Statement of Proposed SBE Utilization form.

SBE PROGRAM DEFINITIONS

Broker, Packager, Manufacturers' Representative, or Jobber means a firm that is not a manufacturer or regular dealer as defined herein.

Commercially Useful Function (CUF) means that a SBE firm is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. A SBE must perform at least 75% of the total cost of its contract with its own work force in order to be determined to be performing a CUF on the contract.

Contract is a written agreement obligating the seller or business enterprise to furnish goods or services as submitted and the Purchaser or Buyer to pay for such goods or services.

Contractor is an individual, partnership, joint venture, corporation or firm that executes a contract with the City to perform services requested by a solicitation or procurement. The Contractor may be direct or through an authorized representative.

Joint Venture (JV) is an association between two or more persons, partnerships, corporations, or any combination thereof, formed to carry on a single business activity. The JV is limited in scope and duration to this contract. The resources, assets and labor of the participants must be combined in an effort to accrue profit.

Manufacturer means a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract.

Purchaser for purposes of this contract means the City.

Regular Dealer or Supplier means a business that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

Small Business Enterprise (SBE) means a small business that has been determined to meet the requirements for SBE certification with the City of Phoenix and whose certification is in force at the time of the award of business by the City. A directory of currently certified SBE firm is located at https://phoenix.diversitycompliance.com.

Subcontract a contract at any tier below the prime contract, including purchase orders.

Subcontractor is an individual, partnership, joint venture, corporation or firm that holds a contract at any tier below the prime contract, including purchase orders.

Successful Submitter is a Submitter who has been selected to perform services requested by a solicitation or procurement.

SECTION I. SBE CERTIFIED FIRMS

Only firms certified by the City of Phoenix under Chapter 18, Article VIII of the Phoenix city code are eligible to fulfill the participation goal stated above. A firm's ***certification must be in the trade areas listed on the proposed utilization form and current and in force at the date and time of the bid opening deadline***.

The most current electronic directory of all certified **SBE** firms can be accessed at:
https://phoenix.diversitycompliance.com

If you need to verify certification status, please contact the Equal Opportunity Department at (602) 262-6790 and identify yourself as a prime contractor bidding on this project. Prime contractors should verify that the certifications of the SBE firms are current prior to bid opening. ***If a firm's certification expires and is not renewed prior to the bid-opening deadline, that firm will be ineligible to satisfy the goal.***

SECTION II. SBE BID PROCEDURES

The bid envelope shall contain all information and documents related to the SBE requirements of this section. ***Failure to properly complete the "Contractor's Statement of Proposed SBE Utilization" and "Letter of Intent to Perform as a Subcontractor/Supplier" forms, or submit a fully documented waiver request as described below, will result in bid rejection.*** The required documentation includes:

1. **A Contractor's Statement of Proposed SBE Utilization** - The form shall document the name of each SBE firm that will be awarded a subcontract; services to be performed by each subcontractor; dollar amount to be paid for those services; and the total dollar amount that is being proposed in SBE participation.

2. **A Letter of Intent to Perform as a SBE Subcontractor/Supplier** (required for each SBE subcontractor/supplier proposed) The form shall be completed by the SBE firm that will be awarded the subcontract. The form documents services to be performed by the subcontractor/suppler and the total dollar amount of the subcontract that will be awarded to the SBE. Only the services performed in the area(s) described by the SBE's certification description can be counted towards the SBE goal requirement.

The bidder's proposed utilization of SBE firms to fulfill the participation goal must be submitted on the "Contractor's Statement of Proposed SBE Utilization" form included in the specification packet. Additionally, each of the **SBE** subcontractors/suppliers the bidder is proposing to use to meet the goal requirement on this contract must complete the "Letter of Intent to Perform as an SBE Subcontractor/Supplier" (LOI) form. Both forms must be completed and submitted as part of the bid packet by the bid-opening deadline.

Failure to submit a completed "Contractor's Statement of Proposed SBE Utilization" and signed "Letter of Intent to Perform as an SBE Subcontractor/Supplier" form for each of the proposed SBE firms will result in a bidder being declared non-responsive to the requirements of these specifications and the bid will not be considered. The forms must contain the following:

1. The Certified SBE firm name and the certified trade or services to be performed.
2. The dollar amount of the proposed subcontract to be awarded to each SBE firm.
3. The total dollar amount of all SBE proposed subcontracts.

In instances where an exact dollar amount to be subcontracted with a SBE firm cannot be determined, the bidder shall indicate on Columns 3 and 4 of Part B Section 1 of the "Letter of Intent To Perform as a SBE Subcontractor/Supplier" form the minimum guaranteed hours/units and dollar amount that will be paid to the SBE firm. This situation applies only when a Contractor proposes to utilize a SBE firm that engages in work

related to a broker, supplier or; a bid that is based on a per hour charge as in hauling/trucking or construction site security. Please note that this exception does not permit the Prime contractor to complete or modify any other part of the LOI document. Both, the SBE and the bidder must sign the LOI document prior to bid submittal. By signing the document, the bidder affirms that it has not altered or modified the document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

If a bidder proposes to utilize a firm not certified by the City of Phoenix and/or not certified in the proposed scope of work at the time of bid, the proposed utilization amount for that firm will be deducted from the total proposed SBE utilization amount used for determining if the bidder is responsive to the requirements of this section. Bidder shall not include any amount the SBE firm has indicated in the LOI document as work it will sublet or is not covered in their certification description in the Contractor's Statement of Proposed SBE Utilization form. Only amounts associated with the work to be performed by the SBE, and indicated in the SBE's certification description, may be counted towards the SBE participation goal requirement of this section.

If the reduced proposed SBE utilization is insufficient to meet the established participation goal required for this contract, and no waiver documentation has been submitted, the bidder shall be determined to be **non-responsive** to the requirements of this section and the bid will not be considered.

A certified SBE firm bidding as a Prime Contractor cannot count the work it will self-perform towards meeting the required SBE subcontracting goal.

A "Letter of Intent to Perform as a Subcontractor/Supplier" will be used in determining compliance with the requirements of this section. **The proposed subcontract dollar amount listed for each SBE firm on the "Contractor's Statement of Proposed SBE Utilization" must match the SBE dollar amount indicated in the boxed areas in Parts C, D or E of the signed "Letter of Intent to Perform as a Subcontractor/Supplier."** Failure to submit a completed LOI document with the SBE's and bidder's signatures shall be determined to be **non-responsive** to the requirements of this section and the bid will not be considered.

SECTION III. IF THE BIDDER IS UNABLE TO MEET THE GOAL

A fully documented waiver request detailing why the bidder has been unable to meet the SBE utilization goal in whole, or in part, and the "good faith" effort of the bidder to obtain SBE participation. In order to be viewed as good faith efforts, a bidder's activities must be consistent with all activities that could reasonably be expected from a bidder who was actively and aggressively seeking to meet the SBE goal. To show proof of having exercised good faith efforts in trying to obtain bids from SBE firms to meet the utilization goals. The following factors are illustrative of those matters that shall be considered when judging whether the bidder made "good faith efforts".

1. A cover letter addressed to the Street Transportation Procurement Section clearly indicating whether a full or partial waiver is being requested, the percentage to be waived, and the reasons the waiver is being sought.
2. If a partial waiver is being requested, a Bidder's Statement of Proposed Utilization listing firms that will satisfy the portion of the goal that will be met must be included with the bid proposal. Additionally, a Letter of Intent to Perform as a Subcontractor/Supplier from each SBE firm that is proposed to be utilized must be included with the bid proposal.
3. Proof of contact with SBE firms, including but not limited to, fax logs, telephone logs, mail receipts, etc, including documentation of the number of times that firms were contacted, the dates of contact, and the name, phone number, fax number, and address of the contact person associated with each SBE firm. Solicitation of SBE subcontractors must be consistent with the solicitation of all subcontractors and must clearly demonstrate that SBE firms had sufficient time to submit an effective response.
4. Copies of the documents submitted to all subcontractors requesting their bid. This should include the scope of work to be bid and performed on the project.

5. Copies of bid responses/quotes from all subcontractors who bid to perform work on the project in the areas that SBE firms were also bidding on, including information as to why SBE bids were not considered.
6. Documentation that shows efforts made to provide assistance to SBE firms in the areas of bonding, insurance, or other contracting requirements.
7. Documentation of attendance at the pre-bid conference held for the project.
8. Documentation of contact made with City personnel seeking assistance in identifying eligible SBE firms for contracting opportunities on the project.

SECTION IV. SBE WAIVER PROCEDURES

Requests for a partial or full waiver of the SBE goal for the project including all Good Faith Documentation shall be submitted as part of the bid packet. The request will be reviewed to ensure compliance with the requirements of this section. If the request is determined to meet the requirements, a waiver hearing will be scheduled and the bidder notified of the date, time, and place of the hearing. All waiver hearings are open to the public. However, only the designated representative for the contractor and City staff may participate in the proceedings.

The contractor requesting the waiver may appear at the hearing to present their request and answer questions from the Waiver Review Committee regarding their submittal. The Committee will consider the information and documentation that was submitted at the time of bid. The bidder may not present additional or new information at the hearing. At the conclusion of the hearing process the Committee will make independent recommendations on the request for waiver. The presiding officer, on behalf of the Committee, will provide a written summary of the Committee's recommendations to the City Manager's designee, the City Engineer. The City Engineer will make the final decision to grant or deny the waiver request. The City Engineer's decisions shall be final. The City will notify the contractor regarding the final decision of the City Engineer.

If a partial or full waiver of the SBE goal is granted to a bidder, the bidder shall be considered to have met the project goals and their bid will be considered responsive to the requirements of this section. If a waiver is denied, the bidder is deemed non-compliant and non-responsive to the requirements of this section and their bid will not be considered.

Failure to submit the Contractor's Statement of Proposed SBE Utilization form and a LOI from each SBE firm proposed OR a fully documented waiver request at the time of bid will be cause to determine the bidder non-responsive to the requirements of this section.

SECTION V. LIMITATION OF THE USE OF SUPPLIERS AND BROKERS TO FULFILL THE SBE GOAL

Proposed expenditures to brokers and suppliers can be used to meet the utilization goal, provided that the combined applicable expenditures do not exceed 25 percent (25%) of the total SBE goal requirement. Contractors may count one hundred percent (100%) of the dollars proposed to be paid to a SBE supplier, and all costs associated with fees and commission to be paid to a SBE broker, up to the 25% limitation.

Supplier (or Wholesaler) is defined as firm that does not directly manufacture the product being supplied and has an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

EXAMPLE: *An SBE goal of 5% has been established on a project where the contractor has submitted a base bid of $1,000,000. This results in a dollar goal of $50,000 to be subcontracted to SBE's. The contractor proposes to contract with a SBE supplier for $100,000. Only $12,500, or 25 percent (25%), may be counted*

towards achievement of the SBE goal for this project. The remaining $37,500 must be achieved through the use of firms that are not suppliers or brokers.

Broker is defined as firm that arranges or expedites services or transactions through the use of individuals not directly employed by the company. Brokers are not regular suppliers. Only costs associated with the fees and commission paid to the certified firm for providing such services may be applied towards the SBE contract goal.

The following defines the expenditures to SBE firms that are NOT subject to the 25% limitation. The following expenditures may be counted in their entirety towards fulfilling 100% of the utilization goal:

1. Expenditures to certified SBE firms that operate and maintain an establishment or factory to produce, on the premises, the materials or supplies purchased for the contract.
2. Expenditures to a certified SBE fabricator that operates and maintains a factory to substantially alter materials or supplies before resale.
3. Expenditures, including fees and commissions, charged to provide bona fide technical and professional personnel recruitment for the contract. The total cost paid that shall be comparable to the industry standards customarily charged for the same or similar services.
4. Expenditures, including fees and commissions, charged for providing bonds and insurance specifically required for the performance of the contract. The total cost shall be comparable to the industry standards charged for the same or similar services.

All SBE firms proposed to participate on this contract opportunity must be SBE certified by the City of Phoenix prior to the date and time of the bid.

Participation on the contract will be calculated based on that portion (dollar value) of the contract that the SBE actually performs with its own forces. This includes the cost of supplies and materials obtained by the SBE for the work on the contract, ***except*** in cases when; it has been determined by the City *not* to be part of the firm's certification description; the SBE is certified as a "placer", "finisher", or "installer" of those materials only, or when the supplies and/or equipment it uses to perform its work is purchased or leased from the Contractor or its affiliate.

Special emphasis and care should be taken to ensure that the following types of participation are handled properly when preparing your bid packet, as failure to correctly calculate the allowable SBE participation in the following areas shall result in your bid being declared non-responsive if the SBE goal requirement is not met:

Fees & Commissions*:* SBE firms that supply a bona fide service for a fee or commission may be counted only to the extent of the fees or commissions charged by the SBE. This includes, but is not limited to, providing professional, technical, consultant, or managerial services, and bonds or insurance specifically required for the performance of a contract. Fees must be reasonable, not excessive, compared to fees customary for similar services.

EXAMPLE: *A* SBE *firm that supplies uniformed officers for security or traffic control may count only the amounts charged as a commission. The hourly amount paid to the officers may not be counted. If the "per hour" bid amount to the prime contractor is $35, and $25 per hour will be paid to the officers, only $10 per hour can be counted towards achieving the* SBE *goal. If the firm or bidder estimates that there will be 200 hours of work bid at a rate of $35 per hour, only $2,000 of the total $7,000 bid could be counted.*

Trucking & Hauling: The amount of a trucking/hauling subcontract that may be counted towards the utilization requirements may be limited. An SBE must itself own and operate at least one fully licensed,

insured, and operational truck that will be used on the contract. In addition, trucks the SBE leases without drivers under a long-term leasing agreement may be considered part of the trucking firm's workforce and

counted in full, provided the leasing agreement(s) is/are for a period of not less than 6 months and; **the leased vehicles have been recorded with the City's Equal Opportunity Department's Certification Office prior to the submittal of the LOI document.**

EXAMPLE: *A* SBE *trucking firm uses seven trucks on a job; two are owned by the* SBE *and five are leased from other firms. If two of the five trucks are leased without drivers and the remaining three are leased with drivers from another firm, then the amount paid to the* SBE *for the services provided by the trucks it owns and the two it leases without drivers and operates with its own employees can be counted in full towards meeting the* SBE *requirements. The Contractor may not count any portion of the amount the SBE receives for the two trucks it leases with drivers towards the* SBE *utilization goal.*

SECTION VI. POST AWARD SBE COMPLIANCE INFORMATION - DBB

Submittal of a bid to the City of Phoenix shall constitute an agreement by the bidder to comply with the SBE utilization requirements of this section should the bidder be awarded a contract. This includes, but is not limited to, the following compliance activities:

1. The contractor shall contract, or attempt to contract, in good faith with all SBE firms listed on the Bidder's Statement of Proposed SBE Utilization form submitted with their bid. The subcontract shall be for an amount that is equal to, or greater than, the total proposed dollar amount listed on the form, with the exception of instances where the City changes a scope of work in the contract that would reduce the available work in the subcontractor's area of performance.
2. The contractor shall not reduce any of the proposed SBE scopes of work or amounts indicated on the Bidder's Statement of Proposed SBE Utilization form without first submitting a Request for Exemption and receiving approval in writing from the City's Equal Opportunity Department (EOD), Contract Compliance Division.
3. The contractor shall notify the City of Phoenix Equal Opportunity Department immediately if any firm listed on the Bidder's Statement of Proposed SBE Utilization form refuses to enter into a subcontract or fails to perform according to the requirements of the subcontract.
4. Any reduction of retention by the City to the contractor shall result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. The contractor has 14 days from the date their retention reduction takes effect to reduce retention to the subcontractors.
5. The contractor shall return all retention monies to subcontractors at such time as the work originally proposed by the subcontractor, and expressed in the original subcontract agreement, is complete and the purchaser (City) has accepted the work and paid the prime for the work performed by the subcontractor. Retention shall be paid no later than 30 days after such payment is made by the City.
6. The contractor shall act in good faith to meet the contract SBE utilization goal and provide all necessary documentation to show proof of those efforts as requested by the City.

If for any reason the SBE firm is decertified prior to the execution of a subcontract agreement, the bidder shall find additional SBE participation in the amount equivalent to or greater than that which was originally proposed for the SBE firm. Bidder shall make every good faith effort possible in finding a SBE replacement in the proposed trade area first, before considering SBE participation in other trade areas.

SECTION VII. Subcontract Assurances

Each contract signed by the Agency and the Successful Bidder and each subcontract signed by the Successful Bidder with a Subcontractor, including Subcontractors with lower tier Subcontractors must include the following assurances verbatim:

Prompt Payment of Subcontractors *The Contractor and Subcontractor shall promptly pay its lower tier subcontractors, sub consultants, or suppliers upon receipt of payment from the City of Phoenix (Agency).*

Progress Payments: In accordance with the Arizona Revised Statues (ARS), Section 34-221(G), the Contractor(s) shall promptly pay its subcontractors, sub consultants, or suppliers within seven (7) calendar days of receipt of each progress payment from the Agency. Any diversion by the Contractor(s) of payments received for work performed on the contract, or failure to reasonably account for the application or use of such payments, constitutes grounds for a declaration of breach of the contract with the Agency.

Retention Payments: If the Agency reduces the Contractor's retention, the Contractor shall correspondingly, within 14 days, reduce the retentions held against the Subcontractors and suppliers that have performed satisfactory work.

Release of Retention: The Contractor(s) shall ensure prompt and full payment of retentions to Subcontractors and suppliers when their work is complete, the Agency has accepted the work, and the Agency has paid the Contractor for the work. The Contractor shall pay each Subcontractor's and supplier's retention no later than 30 days after the Agency pays Contractor for the completed scope of work.

Changes to Subcontracts and Values *The City of Phoenix prohibits Contractor(s) from altering the Contractor's Statement of Proposed SBE Utilization form without receiving prior, written consent from the City. The Equal Opportunity Department must be informed, in writing, and in advance of the following:*

- *Reduction to the scope of work performed by subcontractors working on the contract*
- *Changes in any of the subcontract values resulting in a reduced dollar amount*
- *Replacement and/or release of any subcontractor after contract award*

Contractor(s) and Subcontractor(s) are required to complete a Request for Exemption Form and have the written approval of the Contract Compliance Office prior to taking action on any of the above listed matters related to SBE subcontractors.

In the event that any provision of this subcontract varies from the provisions of the contract or subcontract, the provisions for SBE contract compliance as contained in Administrative Regulation 1.89, Section IX, shall provide definitive guidance.

Disclaimer: *Nothing in this section prevents the Contractor or Subcontractor from enforcing its subcontract with a lower tier Subcontractor or supplier for defective work, late performance, and other claims arising under the Subcontract.*

SECTION VIII. RECORDS and REPORTING REQUIREMENTS

1. **Records**

During performance of the Contract, the Successful Submitter shall keep all records necessary to document the participation of all subcontractors and suppliers. The Successful Submitter shall provide the records to the Agency within 72 hours of the Agency's request and at final completion of the Contract. The Agency will prescribe the form, manner, and content of reports. The required records may include but not limited to:

a) A complete listing of all Subcontractors and suppliers on the project;
b) Each Subcontractor's and supplier's scope performed;
c) The dollar value of all subcontracting work, services, and procurement;
d) Copies of all executed Subcontracts, purchase orders, and invoices: and
e) Copies of all payment documentation.

2. **Reports**

a. The contractor shall participate in all compliance reviews determined necessary by the City. This includes, but is not limited to participating in on-site reviews, providing monthly utilization reports of SBE activity, providing signed copies of subcontracts and/or purchase orders with each SBE listed on the Bidder's Statement of Proposed SBE Utilization form, and complying with any and all requests for information the City deems appropriate for effectively monitoring this contract for compliance with the SBE Program requirements.
b. The contractor shall provide regular, monthly report/audit information that will assist us in effectively monitoring your compliance with the SBE Program requirements. This shall include listing all subcontractors working on the contract and reporting payments into the Certification and Compliance System https://phoenix.diversitycompliance.com. Reporting audits shall include all payments received from the City and payments you have issued to all subcontractors and suppliers. **Copies of the first 2 pages of the Pay Request submittal are required with each report. All Monthly audit reports are to be completed online by the 15th of every month.** (https://phoenix.diversitycompliance.com).
    i. The total of all payments received from the City during the previous month.
    ii. The first two pages of each payment application submitted for those payments.
    iii. All payments made to Subcontractors during the previous month.

Before the Agency processes the Successful Submitter's final payment and/or outstanding retention held against the Successful Submitter, the Successful Submitter shall submit to the Agency a final certification of full and final payment to each Subcontractor in the form prescribed by the Agency. The form must be completed and certified by the Successful Submitter's and each Subcontractor's duly authorized agents.

SECTION IX. PERFORMANCE OF A COMMERCIALLY USEFUL FUNCTION

The prime contractor may count only expenditures to SBE subcontractors that perform a commercially useful function in the work of the contract, as defined in Chapter 18 Article VI of the City Code. A "commercially useful function" constitutes performing real and actual services related to the contract.

SBE subcontractors may enter into second-tier subcontracts consistent with normal industry practices. If an SBE subcontracts greater than twenty-five **(25)** percent of the work of their contract, the SBE subcontractor shall be presumed not to be performing a commercially useful function. In this event, the prime contractor will not be allowed to claim any expenditure to the SBE subcontractor.

SECTION X. FAILURE TO COMPLY WITH THE SBE PROGRAM REQUIREMENTS

If the Equal Opportunity Department determines that the contractor will fail, or has failed, to meet the SBE subcontracting goals, and/or has failed to act in good faith to ensure compliance with the SBE conditions of its contract; it shall deem the contractor "noncompliant" and not in good standing. A noncompliant status shall result in the rejection of all future contract bids or offers for all projects or other procurements with the City until such time that the contractor has cured its breaches and demonstrates that it has faithfully performed its approved SBE utilization plan and all other provisions of this article required to be deemed in good standing. In addition to this action, the City may also exercise its option to impose any or all of the following remedies:

1. Withholding from the contractor ten percent (10%) of all future payments on the involved eligible project until it is determined that the contractor is in compliance;

2. Withholding from the contractor all future payments on the involved project until it is determined that the contractor is in compliance

Failure to cure a non-compliance status within the time frame provided by the City may result in further action, including but not limited to imposing any or all of the following sanctions:

1. Rejection of all future bids or offers from the contractor for any eligible project with the City or any of its departments or divisions for a period of (1) year after substantial completion of the contract.

2. Cancellation of the contract.

City of Phoenix

Small Business Enterprise Program

CONTRACTOR'S STATEMENT OF PROPOSED SBE UTILIZATION (DBB)

PROJECT NUMBER/TITLE: 35th Ave and Camelback Rd Relief Sewer **Required SBE Goal:** 13.5%

SBE FIRMS	COMPANY NAME	SERVICES TO BE PROVIDED	SUPPLIER- (YES or NO) May not satisfy more than 25% of the Goal	SBE $ AMOUNT from LOI Tables - Sections C, D, or E	Countable SBE $ Amount (towards proposed goal)

($_____) - **($_____)** - ($_____) = ($_____)
Total Bid - **Allowances & Contingencies** - **Alternates** = **Base Bid**

Total Proposed SBE Dollars

$_____

($_____) ÷ $_____) **X 100 =** _____**% (NO ROUNDING)**
Total Proposed SBE Dollars ÷ Base Bid X 100 = Proposed SBE %

Proposed SBE Percentage must equal or exceed the Required SBE Goal Percentage.

Do **NOT** propose SBE dollars in scopes related to Alternates, Allowances, or Contingencies as part of meeting the required SBE %.

All additional contract dollars, including selected alternates, contingencies, and allowances paid after award of contract, will be subject to the SBE contract goal %.

I hereby certify by signing below the foregoing SBE firms shall be contracted to work on the trades identified above and/or supply material/equipment for this project.

*The information shown above is a **true reflection of the proposed subcontracts**.*

COMPANY NAME: _____ EMAIL: _____ PHONE: _____

NAME : _____ TITLE: _____

SIGNATURE: _____ DATE: _____

City of Phoenix

Small Business Enterprise Program

Letter of Intent (LOI) To Perform as an SBE Subcontractor

(THIS FORM ***MUST*** BE COMPLETED BY THE SBE SUBCONTRACTOR – BOTH SBE SUBCONTRACTOR & PRIME SIGNATURE ARE REQUIRED)

Project Number: WS90500303 **Contract #:** TBD	**Project Description:** 35th Ave and Camelback Rd Relief Sewer

TO: _____ (Insert Name of Prime Contractor)

FROM: _____ (Insert Name of SBE Firm)

A. The undersigned declares that the firm bidding to perform the work described herein, has been granted certification by the City of Phoenix (COP) as a Small Business Enterprise (SBE) in the area(s) of:

(COP) Certification Description:

B. The undersigned is bidding to perform the following scope(s) of work on the above referenced project:

SECTION 1 - COMPLETE THIS PORTION IF THE SCOPE OF WORK IS BEING BID BY UNIT PRICE OR HOURLY RATE SUPPLIER, BROKER, TRUCKING, HAULING, UNIFORMED OFFICERS MUST USE THIS SECTION

Scope of Work	Unit/Hourly Rate	# of Units/Hours	Total Quote Amount
			$

SECTION 2 - GENERAL OR SPECIALTY CONSTRUCTION TRADE AREAS MUST USE THIS SECTION

Scope of Work	Total Quote Amount
	$

C. Of the Total Quote Amount reflected in Part B-SECTION 2, the following scope(s) of work with the given amount **will not** be performed by the SBE or **is/are not** covered under the SBE's certification description:

Scope(s) of Work _____ **Amount $**_____

Subtract Amount in Part C above from the Total Quote Amount in Part B-Section 2 =* $_____

* ***Only this amount shall be reflected on the Bidder's Statement of Proposed Utilization.***

D. If trucking services are included in Part B - SECTION 1 above, SBE **MUST** complete the following:

Of the Total Quote Amount noted in part B-Section 1, the SBE affirms that the amount of * $_____ shall be performed by drivers the firm employs, and trucks the SBE owns and leases without drivers.

(*The amount referenced above is transferred from Step 9 of the Worksheet (L.O.I.W.-1). *Only this amount shall be on the Statement of Proposed Utilization)*

E. All subcontractors providing Broker or Traffic Control/Security Services indicated in Part B-SECTION 1 above **MUST Complete the Following:**

Rate of the SBE's fees/commissions _____%; for a Total Amount in fees/commissions of: $_____

The Percentage and Total Amount referenced above is transferred from Steps 2 and 3 of the Worksheet (page L.O.I. W.-1).
Only the Total Amt in fee/commissions shall be reflected on the Bidders Statement of Proposed Utilization.

Should the prime contractor receiving this form be selected for award of the contract, the undersigned affirms that he/she will enter into an agreement to perform the work bid herein.

_____ _____

(SBE Subcontractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

By signing this LOI document, the Prime Contractor affirms that it has not altered or modified this document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

_____ _____

(Prime Contractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

City of Phoenix
Small Business Enterprise Program

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR/SUPPLIER INSTRUCTIONS AND WORKSHEET - *L.O.I. W.-1*

A Letter of Intent to Perform as a SBE Subcontractor/Supplier (required for each SBE subcontractor/supplier proposed). The form documents services to be performed by the subcontractor/suppler and the total dollar amount of the subcontract that will be awarded to the SBE. Only the services performed in the area(s) described by the SBE's certification description can be counted towards the SBE goal requirement.

Part I. Trucking and Hauling: SBEs should indicate on Part B-Section 1 and Part D, of the LOI form, the information regarding trucks to be used in executing the contract. The City allows the counting of all payments for services provided by trucks which the SBE owns. Trucks which the SBE leases on a long-term basis and are operated with drivers the SBE employs may also be counted in full. The payments for short-term leased trucks, with or without SBE employed drivers cannot be counted.

Only trucks for which leasing agreements have been submitted and approved by EOD as part of the SBE firm's current certification file shall be considered eligible for counting towards the goal.

STEP ONE	STEP TWO	STEP THREE
Value of work expected to be performed by trucks owned by the SBE (2 Trucks)	Value of work expected to be performed by trucks leased (**with drivers**) by the SBE on a long-term basis (2 Trucks)	Combined value of work expected to be performed by other trucking firms and/or trucks leased (**without drivers**) by the SBE (3 Trucks)
$20,000	**$20,000**	**$33,000**

STEP FOUR	STEP FIVE	STEP SIX
Estimated value for services provided by all trucks the SBE will use on the contract. **(Add Steps One, Two, and Three)**	Expected value of work performed by trucks not eligible for counting as SBE participation **(Value in Step Three)**	Total estimated value that can be counted for SBE participation **(Subtract Step Five from Step Four)** **$73,000 - $33,000**
$73,000	**$33,000**	**=$40,000**

Part II. Fees and Commissions: Insert the information from below under Step Three-Commission/Fees Percentage and the Countable Amount for SBE Participation into Part E of the LOI form. This part is applicable for the use of uniformed officers to provide traffic control and security and other services provided at an hourly rate by non-employees of the SBE contractor.

(The following information is provided as a sample only)

STEP ONE		
Total Number of Hours	Per Hour Bid Amount	Calculation Formula: Total Gross Bid Amount
200	**$35**	**200 × $35 = $7,000**

STEP TWO			
Per Hour Bid Amount	Officers Hourly Rate	SBE Firm Commission/Fee	Calculation Formula: Fees/Commissions Percentage
$35	**$25**	**$10**	**(10 / 35) * 100 = 28.57%**

STEP THREE		
Gross Bid Amount (from Step One)	Commission/Fee % (from Step Two)	Calculation Formula: Amount Countable for SBE Participation
$7,000	**28.57%**	**$7,000 × .2857 = $2,000**

Part III. Construction Trade Areas: SBE must indicate in the Scope of Work of Part B-Section 2 of the LOI form, ***all*** scope(s) of work associated with the Total Quote Amount. The SBE must complete Part C of the LOI form by entering the Scope of Work and amount not expected to be performed by the SBE or which is not covered under the SBE's certification description. Subtracting this amount from the Total Quote Amount in Part B-Sect. 2 will result in the portion of work that can be counted as SBE participation.

CITY OF PHOENIX

LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: WS90500303 PROJECT TITLE: 35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF-PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/ SUPPLIER COMPANY NAME (IF NOT SELF-PERFORMED)	CONTACT PERSON	PHONE NUMBER	DOLLAR VALUE OF WORK OR MATERIALS IN BID
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project for an **equal to or greater than 5% of the base bid**. These companies will not be removed or replaced without prior written approval by the City of Phoenix Project Manager. The City requires that ALL vendors providing work equal to or greater than 5% of the base bid are listed or you will be disqualified. If you are self-performing work, you must still list any suppliers for materials or list any subcontractors with whom you will directly contract.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

CITY OF PHOENIX

LIST OF ALL SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: WS90500303 PROJECT TITLE: 35TH AVENUE AND CAMELBACK ROAD RELIEF SEWER

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF-PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/ SUPPLIER COMPANY NAME (IF NOT SELF-PERFORMED)	CONTACT PERSON	PHONE NUMBER	DOLLAR VALUE OF WORK OR MATERIALS IN BID
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				
	☐YES ☐ NO				

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project. These companies will not be removed or replaced on the project without prior written approval by the City of Phoenix Project Manager. The City requires that ALL vendors providing work are listed or you will be disqualified. If you are self-performing work, you must still list any suppliers for materials or list any subcontractors with whom you will directly contract.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

BIDDER'S DISCLOSURE STATEMENT

Authorized Contact for this Disclosure Statement

Name:_____

Title:_____

E-mail:_____

Phone number:_____

List any EIN, DBA, trade name, or other identity used in the last five years, the state or country where filed, and the status (active or inactive): (if applicable):_____

_____

_____

Business Characteristics

Business entity type – Please check appropriate box and provide additional information:

☐	Corporation	Date of incorporation: _____
☐	Limited Liability Company	Date organized: _____
☐	Limited Liability Partnership	Date of registration: _____
☐	Limited Partnership	Date established: _____
☐	General Partnership	Date established: _____
☐	Sole Proprietor	How many years in business?_____
☐	Other (explain)	Date Established: _____

Was the business entity formed in the State of Arizona? Yes_____ No_____

If no, indicate jurisdiction where Business Entity was formed: _____

Business License Number and Classification: _____

Business Transaction Privilege License Number: _____

Special Use or other zoning permits required for Bidder's operation and performance of the services under this Agreement:

_____

Is the Business Entity currently registered to do business in Arizona with the Arizona Corporation Commission? Yes_____ No_____ Not required _____ (if sole proprietor or general partnership)

Does the Business Entity have a City of Phoenix business privilege license? Yes_____ No_____ If "no" explain and provide detail such as "not required" or "application in progress" or other reason.

Is the Business Entity publicly traded? Yes_____ No_____

Is the responding Business Entity a Joint Venture? Note: If the Submitting Business entity is a Joint Venture, also submit a questionnaire for each Business Entity comprising the Joint Venture. Yes_____ No_____

Is the Business Entity's Principal Place of Business/Executive office in Phoenix? If "no" does the Business Entity maintain an office in Phoenix? Yes_____ No_____

Provide the address and phone number for the Phoenix office. _____

Is the business certified by Phoenix as a Small Business Enterprise? Yes_____ No_____

Identify Business Entity Officials and principal Owners:

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Affiliates and Joint Venture Relationships

Does the Business entity have any Affiliates? Yes_____ No_____ Attach additional pages if necessary.

Affiliate name: _____

Affiliate EIN (if available):_____.

Affiliate's primary Business Activity:_____

Explain relationship with Affiliate and indicate percent ownership, if applicable. _____

Are there any Business Entity Officials or Principal Owners that the Business Entity has in common with this Affiliate?_____
Individual's name:_____

Position/Title with Affiliate:_____

Has the Business Entity participated in any joint Ventures within the past three years? Yes_____ No_____
(Attach additional pages if necessary)

Joint Venture Name:_____

Joint venture EIN (if applicable):_____

Identify parties to the Joint Venture:_____

Contract History

Has the Business Entity held any contracts with the city of Phoenix in the last three (3) years? Yes_____ No_____ If "yes" attach a list.

Integrity – Contract Bidding

Within the past three (3) years, has the Business Entity or any Affiliate been suspended or debarred from any government contracting process or been disqualified on any government procurement? Yes_____ No_____

Been subject to a denial or revocation of a government prequalification? Yes_____ No_____

Been denied a contract award or had a bid rejected based upon a finding of a non-responsibility by a government entity? Yes_____ No_____

Agreed to a voluntary exclusion from bidding/contracting with a government entity? Yes_____ No_____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes_____ No_____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes_____ No_____

For each "Yes" answer above, provide an explanation of the issues.

Integrity – Contract Award

Within the past three (3) years has the Business Entity or any Affiliate been suspended, cancelled, or terminated for cause on any government contract? Yes_____ No_____

Been subject to an administrative proceeding or civil action seeking specific performance or restitution in connection with any government contract? Yes_____ No_____

For each "yes" answer, provide an explanation. (Attach explanation on a separate sheet of paper).

Certifications/Licenses

Within the past three (3) years, has the Business Entity or Affiliate had a revocation, suspension, or disbarment of any business or professional permit and/or license? Yes_____ No_____

If “yes” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Legal Proceedings

Within the past three (3) years, has the Business Entity of any Affiliate:

Been the subject of an investigation, whether open or closed, by any government entity for a civil or criminal violation? Yes_____ No_____

Been the subject of an indictment, grant of immunity, judgment or conviction, (including entering into a plea bargain for conduct constituting a crime)? Yes_____ No_____

Received any OSHA citation and Notification of Penalty containing a violation classified as serious or willful? Yes_____ No_____

Had a government entity find a willful prevailing wage or supplemental payment violation? Yes_____ No_____

Been involved in litigation as either a plaintiff or a defendant involving a copyright or patent infringement violation or an anti-trust violation? Yes_____ No_____

Other than previously disclosed, for the past three (3) years:

(i) Been subject to the imposition of a fine or penalty in excess of $1000 imposed by any government as a result of the issuance of citation, summons or notice of violation, or pursuant to any administrative, regulatory, or judicial determination? Yes_____ No_____

(ii) Been charged or convicted of a criminal offense pursuant to any administrative and/or regulatory action taken by any government entity? Yes_____ No_____

If “yes” provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Leadership Integrity

If the Business Entity is a joint Venture Entity, answer “N/A – Not Applicable” to questions below:

Within the past three (3) years has any individual previously identified, or any other Business Entity Leader not previously identified, or any individual having the authority to sign, execute, or approve bids, proposals, contracts or supporting documentation with the City of Phoenix been subject to:

A sanction imposed relative to any business or professional permit and/or license? Yes_____ No_____

An investigation, whether open or closed, by any government entity for a civil or criminal violation for any business-related conduct? Yes_____ No_____

DLB/dlb/828671V3

City of Phoenix

AFFIDAVIT OF IDENTITY

Your completion of this form is required by Arizona state law. A.R.S. §§ 1-501 and -50 only if you are a sole proprietor.

I, _____(print full name exactly as on document), hereby affirm, upon penalty of perjury, that I presented the document marked below to the City of Phoenix, that I am lawfully present in the United States, and that I am the person stated on the document. (*select one category only*)

☐Arizona driver license issued after 1996.
Print first four numbers/letters from license: | | | | |

☐Arizona non-operating identification license.
Print first four numbers/letters: | | | | |

☐ Birth certificate or delayed birth certificate issued in any state, territory or possession of the U.S.
Year of birth: _____; Place of birth: _____

☐ United States Certificate of Birth Abroad.
Year of birth: _____; Place of birth: _____

☐United States Passport.
Print first four numbers/letters on Passport: | | | | |

☐Foreign Passport with United States Visa.
Print first four numbers/letters on Passport: | | | | |
Print first four numbers/letters on Visa: | | | | |

☐I-94 Form with a photograph.
Print first four numbers on I-94: | | | | |

☐USCIS Employment Authorization Document (EAD).
Print first four numbers/letters on EAD: | | | | |
***or* Perm. Resident Card (acceptable alternative):** | | | | |

☐Refugee Travel Document.
Date of issuance: _____; Refugee country: _____

☐U.S. Certificate of Naturalization.
Print first four digits of CIS Reg. No.: | | | | |

☐ U.S. Certificate of Citizenship.
Date of issuance:_____; Place of issuance: _____

☐Tribal Certificate of Indian Blood.
Date of issuance: _____; Name of tribe: _____

☐Tribal or Bureau of Indian Affairs Affidavit of Birth.
Year of birth: _____; Place of birth: _____

Signed: _____ Dated: _____

TECHNICAL SPECIFICATIONS

1. CONSTRUCTION SCHEDULE

Prior to commencement of the work, the Contractor shall prepare and submit to the Engineer a written phasing plan and work schedule for the project. This plan and work schedule shall be submitted to the Engineer at the Pre-construction Conference for review.

Orderly procedure of all work to be performed under this contract shall be the full responsibility of the Contractor. The work schedule shall include the hours per day and the days per week that the Contractor plans to work on the project site.

2. PUBLIC CONVENIENCES AND SAFETY

The safety and convenience of the general public and property shall be provided for by the Contractor, in accordance with the requirements of state and local laws.

The Contractor shall submit a safety plan to the Engineer at the Pre-construction Conference detailing the procedures the Contractor will implement to satisfy OSHA and the State Occupational Safety Guidelines related to worker as well as public safety in the construction of excavations, structures and confined air spaces as identified by OSHA or the Engineer. The Contractor's safety plan shall include the requirement that all workers and visitors wear hard hats and safety jackets while within the project limits.

In addition to the stipulations of MAG Section 105.6 and City of Phoenix Supplements to MAG Specifications, the Contractor shall coordinate with overhead utility owners in the area to meet on site and verify clearance requirements from equipment prior to construction. There will be no separate measurement of payment for the coordination with utility owners. The cost will be considered incidental to the cost of installation of the new sewer pipe.

Contractor shall be responsible for the safe cleanup of the alley between 31st Avenue and 35th Avenue prior to and during construction as needed. There will be no separate measurement of payment for the safe cleanup of the alley. The cost will be considered incidental to the cost of installation of the new sewer pipe.

3. REMOVAL AND RESET OF EXISTING IMPROVEMENTS

Do not damage or remove existing roadway, curb, gutter, sidewalk, or other existing improvements unless noted otherwise. Existing improvements that are damaged or removed shall be replaced in kind. Where necessary to remove or damage existing improvements including concrete medians, curbs, gutters, sidewalks etc., the Contractor prior to the removals shall perform a topographical survey of the entire area surrounding the existing improvements to be removed. Roadway, curb, gutter, and sidewalk cross sections shall be surveyed at not less than 50 feet on center and shall include all necessary data as required to completely replace the existing improvements including medians and roadway and gutter and curb and sidewalk in kind to match the existing improvements. Surface elevations of all new improvements shall match the surface of elevations of the removed features prior to removal.

Where existing water services, meters, or appurtenances are damaged or require replacement, then the replacement shall comply with MAG and City Supplement Subsection 610.13 Meter Service Connections. The cost of this work is not paid separately and shall be included for the cost of the project.

Where existing improvements are required to be removed, existing improvements including fences, mailboxes, street signs and lights, and others shall be removed and reset in same location and same type. The item includes all labor, material, tools, and equipment necessary to complete the removal and reset of the items specified on the plans, MAG Standard Specifications, and the City of Phoenix Supplement thereto and other work of a minor nature which may develop during the course of construction.

All other existing improvements, damaged or removed by the Contractor, shall be restored to their original condition or better at no additional cost to the City.

The Contractor shall video the condition of existing improvements along the sewer alignment prior to construction activities per Special Provision 9 – 402.1 Field Documentation. Video will be used to compare preconstruction conditions to post construction conditions for acceptance.

4. REMOVAL AND RE-INSTALLATION OF EXISTING ORNAMENTAL FENCE

Where indicated on plans Contractor shall remove existing ornamental fencing and securely store until re-installation. Removal of ornamental fencing shall be performed in such a manner as to not damage fencing. The Contractor shall provide and install temporary fencing to secure areas where ornamental fencing is removed. Upon completion of the installation of the new sanitary sewer the contractor shall remove temporary fencing and re-install the ornamental fencing to preconstruction configuration and conditions. As required the Contractor shall restore fence finish to match existing finish including type and color.

The Contractor shall video the existing condition of ornamental fencing to be removed prior to construction activities per Special Provision 9 – 402.1 Field Documentation. Video will be used to compare preconstruction conditions to post construction conditions for acceptance.

5. REMOVAL OF EXISTING SEWER PIPES AND MANHOLES

Removal and Disposal of existing sewer pipe and manholes shall be made as shown on the project plans. Where complete manhole removal is required, removal shall include removal of the frame and cover, cone section and all portions of the manhole riser and base.

All by-pass pumping and dewatering required for this work is included under Section “SEWER BYPASS PUMPING”.

All frames and covers removed from manholes scheduled for removal shall be removed with due care so that the frames and covers may be salvaged. The Contractor shall contact the City of Phoenix Water Services Department to arrange for the delivery of the salvaged frames and covers to the City Yard. Arrangements must be made prior to delivery of the salvaged material.

All removed existing sewer pipes and manholes shall be backfilled with ABC material in accordance with MAG Section 702, Table 702-1 and compacted.

The Contractor should note that sanitary manhole and sewer line materials may be considered contaminated material and must be properly disposed of. All sanitary manhole materials removed, including cones, riser and base material shall be hauled off site and disposed of in accordance with federal, state, and local regulations. The Contractor shall keep daily logs of the quantity and type of material removed and the location of its disposal and provide the City Construction Manager or representative of the City Construction Manager with a copy of all such logs.

Removal of sanitary sewer manholes shall include all labor, materials, tools, and equipment required to salvage the frames and covers, remove, transport and properly dispose of all manholes and shall include all materials, equipment and labor required to install, grade and compact any required backfill in accordance with these specifications and the project plans.

Removal of sanitary sewer pipes shall include all labor, material, tools, and equipment necessary to complete the removal of the items specified on the plans.

6. ABANDONMENT OF EXISTING SEWER MAINS

All abandoned-in-place sewer lines shall be flushed prior to abandonment. Sewer plugs shall be placed at terminal ends of the sewer pipe segment to be abandoned. Pipes to be abandoned shall be filled with 26 pcf mixture, average compressive strength 40 to 80 psi, as manufactured by Elastizell Corporation or approved equal controlled low strength material.

7. SITE DEWATERING

The Contractor is responsible for becoming familiar with the Geotechnical Report and actual site conditions and for determining dewatering and other measures required to complete construction, no matter what conditions may be encountered.

8. EARTHWORK FOR PIPELINES

Pipe Bedding

Pipe bedding and backfill requirements shall be in accordance with the project plans and details.

The Contractor shall not proceed with bedding placement in excavated areas until the sub-grade has been inspected and approved by the City's Construction Manager or representatives of the City's Construction Manager. The Contractor shall coordinate with the City for testing and inspection of the pipe bedding placement. The City shall be responsible for Inspection, sampling, and testing of bedding material and compaction requirements as required.

Bedding material shall be placed in the bottom of the trench, leveled and compacted. Bell holes shall be excavated at each pipe joint to permit proper installation and uniform bearing of the pipe on the bedding material. The Contractor shall exercise particular care in placing material on the underside of the pipe to prevent lateral movement during bedding.

After the pipe has been laid to alignment and grade and properly jointed, and the bedding has been placed, additional bedding material shall be placed in layers the full width of the trench and compacted to a level 12-inches above the barrel of the pipe as indicated on the plans. Bedding shall be placed simultaneously on both sides of the pipe, keeping the level of bedding the same on both sides. The material shall be carefully placed and compacted around the pipe to ensure the pipe barrel is completely supported and that no voids or un-compacted areas are left beneath or alongside the pipe.

Subsequent Pipeline Backfill

The Contractor shall not proceed with subsequent backfill placement in excavated areas until the bedding has been inspected and accepted by the City's Construction Manager or representative of the City's Construction Manager. The Contractor shall coordinate with the City for testing and inspection of the pipeline backfill placement. The City shall be responsible for Inspection, sampling, and testing of backfill material and compaction requirements as required.

The Contractor shall place subsequent backfill material to an elevation which will permit placement of the required pavement surface, including ABC where required. Backfill material will be placed in layers the full width of the trench and compacted.

9. SURFACE RESTORATION OF NON-PAVED AREA

The Contractor shall restore the ground surface of excavation made in non-paved areas to match pre-construction conditions including surface material and grade. There will be no separate measurement or payment for this work as it shall be considered incidental to the cost of the pipe installation.

The Contractor shall video existing surface conditions of non-paved areas prior to construction activities per Special Provision 9 – 402.1 Field Documentation. Video will be used to compare preconstruction conditions to post construction conditions for acceptance.

10. TYPES OF SEWER PIPE MATERIALS

Vitrified Clay Pipe

All vitrified clay pipe construction shall conform to the MAG Standard Specifications Section 615 and 743. All vitrified clay pipes must meet minimum D-load requirements as shown in the plans and details. Provide extra strength clay pipe and fittings made from materials meeting the requirements of ASTM C 700. Provide compression type joints meeting the requirements of ASTM C 425.

Complete drawings, data, and design calculations shall be submitted. Drawings and data shall include, but shall not necessarily be limited to, the following:

1. Details of joints.
2. Gasket material.
3. Pipe length.
4. Affidavit of compliance, certifying that pipe, fittings, and jointing materials are in compliance with the governing standards.
5. Design calculations by the pipe manufacturer for cover depths shown on the drawings.
6. Liner materials and lab testing results, installation procedures, and quality assurances

The Contractor shall use No-Dig VCP Jacking pipe within the 48-inch casing to be installed from STA 38+90 to STA 39+31.

The Contractor and pipe manufacturer shall review the drawings and prepare and submit to the Engineer a detailed spreadsheet or laying schedule of lengths of each wall thickness diameter pipe, referenced to stations, for each range of pipe cover depth.

11. SEWER BYPASS PUMPING REQUIREMENTS

Description

This section describes the conditions for temporary bypassing and dewatering of sewers during construction of project pipelines and manholes.

Requirements

The Contractor shall provide all labor, materials, and supervision to temporarily bypass flow around the Contractor's work in accordance with the specific needs of the project and the method of construction being utilized.

The actual design of the bypass arrangement shall be prepared by the Contractor and shall be submitted to the Engineer to determine conformance to project objectives. Means and methods of accomplishing the bypassing shall be the responsibility of the Contractor.

The Contractor shall have the entire bypassing system in place and successfully pressure tested at 1.5 times the maximum operating pressure of the system before bypassing any sewage.

The Contractor shall notify the Engineer 48 hours prior to shutting down or bypassing the pipeline. The bypassed flow shall be continuously monitored.

It is the Contractor's responsibility to arrange all necessary access and temporary construction agreements with all affected parties for the location of the bypass pumping system. The Contractor is responsible for immediate and proper cleanup should any spill occur, regardless of amount.

The Contractor shall take any and all precautions necessary to prevent backups and overflows on private property from blocked laterals during all sewer rehabilitation work. Special arrangements or supplemental bypasses may be required for some property owners.

The Contractor shall maintain public and private access along project routes. Bypass lines shall be protected from damage due to traffic and shall not impede pedestrian or vehicular traffic routes unless otherwise allowed by approved traffic control plans. Bypass lines shall be buried at street crossings and business entrances unless otherwise approved by the Engineer. Temporary steel plating with milled edges may be used with approval for buried lines. Ramps protecting bypass lines shall be a minimum level of protection at access to private residences unless otherwise approved by the Engineer.

Experience

The Contractor shall utilize staff and/or a Subcontractor that is directly responsible for completion of the project that required the bypass pumping of sewage flows that exist in these pipelines.

Submittals

At the Preconstruction Conference, the Contractor shall submit drawings and complete design data showing methods and equipment he proposes to utilize in sewer bypassing for approval by the Engineer. The submittal shall include the following information.

1. Drawings indicating the scheme and location of temporary sewer plugs and bypass discharge lines. The drawings shall also show the method and location for discharging the bypass lines.
2. Capacities of pumps, piping, and standby equipment.
3. Design calculations proving adequacy of the system and selected equipment.
4. Standby power source.
5. Staffing plan.

Protection

In areas where flows are bypassed, all bypass flows shall be discharged as approved by the Engineer. No bypassing to the ground surface, receiving waters, storm drains, or bypassing which results in soil or groundwater contamination or any potential health hazard is permitted.

Scheduling

The bypassing system shall not be shut down at any time, including between shifts, on holidays or weekends, or during work stoppages without written permission from the Engineer. The bypass system shall have an attendant around the clock whose only duty is to maintain the bypass pumping system until the bypassing of that specific pipeline is no longer required.

Sanitary sewers to be bypassed may have service lines connected to adjacent users. The known service lines have been shown on the construction drawings; however, the Contractor shall verify the locations of these lines and any other service lines not shown on the drawings. Sanitary sewer service must be maintained to all customers.

Materials

The Contractor shall provide temporary pumps, conduits, and other equipment to bypass sewer flow around the Contractor's work area as required. The Contractor shall furnish all necessary labor and supervision to set up and operate the pumping and bypass system. Critical grade sound attenuated pumps shall be provided for the

bypass pumping. The sound attenuated pumps shall be capable of achieving a noise level of 70 decibels or less, measured at a distance of 50 feet from the operating pump. Sound measurements shall be made in accordance with American National Standard S.13-1971. Pumps and bypass lines shall be of adequate capacity and size to handle the required capacity.

The Contractor shall maintain on site, sufficient equipment, and materials to ensure continuous and successful operation of the bypass and dewatering systems. The standby pumps shall be installed and fully operational at all times including all pumps, equipment and piping being in-place. Standby pumps shall be fueled and operational at all times. The Contractor shall maintain on site a sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping, and other parts of system hardware to ensure immediate repair or modification of any part of the system as necessary.

The Contractor shall also provide redundant bypass lines to allow bypass operation to continue at full capacity in the event a bypass line begins to leak. Lines should be fully connected in the bypass system to allow the system to be switched over quickly in the event of a leak. A 33% redundancy or 2 lines, whichever is less, shall be provided.

All pumps, generators, and other equipment shall be placed on a new plastic tarp to protect against gasoline, oil, and hydraulic fluid spills.

Temporary Manholes

Manholes not identified in the plans that are added as part of the Sewer Bypass Pumping activities are assumed to be temporary and will be removed by the contractor unless pre-approved by a specific RFI request.

Estimated Flows and Sewer Capacity

Flow data is available from the City of Phoenix Water Services Department at 200 West Washington Street, Phoenix, Arizona, during normal business hours. Use of this flow data in no way relieves the Contractor from his responsibilities for design, construction, and operation of an adequately and properly functioning bypass system for each project. Any additional monitoring or gathering of flow data to properly size the bypass system is the responsibility of the Contractor. The Contractor shall include considerations for increased flows due to rainfall events, fluctuations of peak flows due to holidays, civic events, etc., equipment failure risks, etc., and provide adequate reserve capacity and redundancy to maintain sewer flows within the sewer pipe upstream and downstream of the bypass.

Flow Conditions

The Contractor is responsible for obtaining current flow condition information at the time of construction. The Owner is not responsible for any deviations in quantity of sewage flow at any time during the construction period. Higher flows may be encountered depending on weather and other upstream conditions.

Service Lines

Sewer service to customers must be maintained during the course of the work. The Engineer shall provide a public information representative to accompany the Contractor when he visits customers to discuss bypass pumping of services or making alternative arrangements with the customer for service outages. No matter what arrangement is made, the Contractor must cooperate with the Engineer to provide the City of Phoenix documentation that all affected users have been contacted and arrangements made for continuous service or alternate accommodations. This documentation must be submitted prior to the start of work on the section of sewer line affected.

Notifications

The Contractor shall cooperate fully in providing the Engineer advance notice and details pertaining to work schedule and individual service arrangements. The Contractor shall notify the Engineer and the City of Phoenix of any planned service interruptions at least two weeks prior to the event. The Engineer or a local public involvement firm retained by the Engineer shall perform notification of the work to the public. At a minimum, the first notification shall be a minimum of 5 days before the interruption of service. Much greater advance notice may be required if an alternate to pumping the customer's service is proposed by the Contractor. The second notification shall be 24 hours prior to the interruption of service. Notification shall be made door to door with printed handouts or door hangers. The information provided shall include, at a minimum, the reason for the interruption, the time period of the interruption, and a local 24-hour telephone hotline number for project information.

Protections

In areas where flows are bypassed, all bypass flow shall be discharged as described above or approved by the Engineer. No bypassing to the ground surface, receiving waters, storm drains, or bypassing which results in groundwater contamination or potential health hazards shall be permitted. In addition, no backups and overflows onto private property shall be permitted.

The Contractor shall inspect the entire bypass pumping system for leaks or spills on an hourly basis. The Contractor shall also create an inspection log and shall enter the time of inspection and the condition of the piping and the name of the inspector into the log for review by the Engineer.

Noise Control

The Contractor shall perform all work in compliance with OSHA standards and in no case will noise levels be permitted which would interfere with the work of the City or others. Noise levels shall be in accordance with City of Phoenix noise ordinance.

The Contractor shall utilize sound attenuated bypass pumps with a maximum decibel rating of 70 db @ 50 feet. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without previously mentioned muffler.

Noisy portable equipment, such as generators or compressors, shall be located as far away from sensitive noise receptor areas as practicable. (Sensitive noise receptors are defined as occupied buildings with windows or doors facing the site.) Noise barriers shall be constructed around noisy stationary construction equipment such as compressors or generators that have to be utilized at locations near (within 100 feet of) sensitive noise receptors as defined above. Idling equipment not actively utilized for extended periods of time shall be shutoff.

Oder Control

The Contactor shall employ methods and procedures that mitigate the generation and discharge of objectionable odors to the surface environment at all times.

The Contractor shall add ferric chloride to the wastewater flow upstream of bypass pumping operations to reduce odor. The Contractor shall make his own determination of flow characteristic for required dosing.

The Contractor shall add the ferric chloride from a location upstream that will allow 10 to 15 minutes reaction time before the flow enters the work area. The chemical dosing shall reduce odors generated from the wastewater stream to a level acceptable to the City. If this is not accomplished by adding the ferric chloride only, an additional control may be required. If odors are still unacceptable after addition of ferric chloride, the Contractor may also add hydrogen peroxide. The Contractor shall add hydrogen peroxide downstream to the flow that has been dosed with ferric chloride. The Hydrogen peroxide shall be added to allow a 5-minute reaction

time before flow enters the work area. Any dosage combination of the two chemicals may be used to ensure continuous control of odors acceptable to the City.

Damages

The Contractor shall repair, without cost to the owner, any damage that may result from his negligence, inadequate or improper installation, maintenance, and operation of bypassing system, including mechanical or electrical failures.

Measurement and Payment

Measurement and Payment for diverting flow from the sanitary sewer shall be full compensation for all labor, material, equipment, and monitoring required to temporarily bypass wastewater flows around the project as specified herein. Bypass shall include standby pumps and piping. Also includes installation, maintenance and removal of bypass pumps and bypass pipes, noise suppression, odor control, plugging of sewers, vactoring, excavation and backfill of any required trenches, steel plating, sawcut, removal and repair or replacement of asphalt and concrete pavement, removal and repair or replacement of concrete curb, gutter and sidewalk, construction of suction and discharge structures to facilitate bypass pumping, landscape restoration, and all other incidentals necessary to complete the work in conformance with plans and specifications.

Payment for "SEWER BYPASS PUMPING" shall be per the price bid on a lump sum basis. Intermediate payments for this work shall be made on a percentage of work completed basis. The Contractor shall be responsible for additional costs associated with an underestimate of the means required to divert sewage flows during the construction period.

12. SEWER AND SEWER STRUCTURE CLEANING

The work to be done under this Contract consists of furnishing all labor, materials, and equipment to remove the accumulated sediments and to clean the sewers and sewer structures. The Contractor shall remove existing sediment, debris, pipe supports, roots, scale, encrustations, and grease accumulations from all sewers and sewer structures. All materials removed during cleaning shall be removed from the work area and carried to disposal site approved by the City of Phoenix.

13. DISPOSAL OF SEDIMENTS

The Contractor shall be responsible for transporting and disposing, including all disposal fees, of any sediments and material removed from the sewers and sewer structures. All sediment and debris removed from the sewer shall be disposed of off-site in a lawful manner. Hauling containers shall be watertight. On-site stockpiling of removed material will not be permitted.

The Contractor is responsible for obtaining all necessary permits, fees, and approval from all regulatory agencies required to perform the work, including transport of sediments. Off-site disposal of all material removed from the sewer shall be the Contractor's responsibility.

14. COORDINATION WITH BOURGADE CATHOLIC HIGH SCHOOL

Between manholes 18-21-403 and 18-21-402 the existing sewer is located within a sewer easement located on the campus of Bourgade Catholic High School. The Contractor shall coordinate all work on and near the campus with the high school. Coordination will be required with the high school to ensure construction does not impact special events, such as graduation.

The Contractor shall ensure that the high school campus is secured at all times. There will be no separate measurement or payment for work related to this item, the cost being considered incidental to the cost of the project.

The Contractor shall obtain a letter of release from Bourgade Catholic High School stating that all restoration work of existing facilities removed or disturbed during construction have been completed to the High School's satisfaction.

15. COORDINATION WITH CITY OF PHOENIX 35TH AVENUE BUILD PROJECT

The Contractor shall coordinate the work in and near 35th Avenue with the City of Phoenix Streets Department and their contractor for the 35th Avenue Build project. The Contractor shall invite City of Phoenix Project Manager, Paul NjiRaini to the project pre-construction meeting.

Paul NjiRaini
paul.njiraini@phoenix.gov
602-206-1188

There will be no separate measurement or payment for work related to this item, the cost being considered incidental to the cost of the project.

GEOTECHNICAL STUDY
35th Avenue and Camelback Road Relief Sewer
Between 29th Avenue and 35th Avenue
Phoenix, Arizona

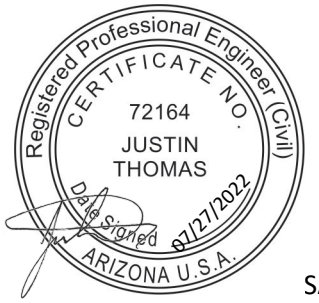
PREPARED FOR:

Project Engineering Consultants, Ltd.
2432 West Peoria Avenue
Suite No. 1246, Building 14
Phoenix, Arizona 85029

PREPARED BY:

Smith & Annala Engineering Co.
5861 South Kyrene Road,
Suite 5
Tempe, Arizona 85283
(480) 659-4101

SMITH & ANNALA
ENGINEERING CO.
SAECO



July 27, 2022
SAECO Project No. 44.22.2242 REV 1

July 27, 2022

SMITH & ANNALA ENGINEERING CO.
SAECO

Attention: Mark Mendon, P.E.

Project Engineering Consultants, Ltd.
2432 West Peoria Ave
Suite No. 1246, Building 14
Phoenix, Arizona 85029

Subject: Geotechnical Engineering Study
35th Avenue and Camelback Road Relief Sewer
Between 29th Avenue and 35th Avenue
Phoenix, Arizona
SAECO Project No. 44.22.2242 REV 1

We are pleased to submit this report of our geotechnical study for the project. Its purpose was to examine the geotechnical profile at the site in order to evaluate the subsurface soils and their engineering properties. This information was used to develop geotechnical engineering recommendations for project design and construction. This study was performed in general accordance with our proposal P44.21.009, Rev 4, dated March 18, 2022 and your authorization.

From a geotechnical standpoint, we believe the site is suitable for the proposed construction provided the recommendations contained in the report are followed. A brief summary of finding and recommendations provided in the full report are outlined below.

The explorations and laboratory testing performed as part of the investigation generally encountered:

- Pipe-trench backfill materials generally consist of clayey sand and sandy lean clay.
- Pipe bedding/shading soils surrounding the existing sewer are generally consistent with a non-plastic base course material.
- Water was not encountered in our explorations.
- Testing on remolded samples indicate the soils have variable expansion potential along the project alignment. The soils with the highest expansion material were located at B-11 and B-14.
- Based on our laboratory testing on-site soils may be moderately corrosive to buried metal, the soils appear to have low contents of soluble sulfate and should have negligible effect on concrete.

The following summary of the recommendations in our report are based on the findings from our field investigation:

- Existing pipe bedding/shading soils are consistent with base course material which may limit the effectiveness of pipe bursting. Recommendations are presented in Section 4.5.6.
- Foundations for manhole structures may bear on relatively undisturbed dense native soils.
- On-site soils generally appear suitable for use as engineered fill for trench backfill. Due to the potential expansive nature of the on-site soils, placement under rigid and/or settlement sensitive structures should be completed according to the recommendations provided in Section 4.1.

The recommendations presented in this report are based on the assumed type of construction, structural loading, and grading concepts as presented in Section 1.1 of this report. If any of these items change significantly, we should be contacted to determine if revisions to our recommendations are necessary.

We appreciate the opportunity to be of service to you during this phase of the project.

Sincerely,
SMITH & ANNALA ENGINEERING CO.

Justin A. Thomas, P.E.
Senior Project Engineer

Bryan W. Reed, P.E.
Senior Geotechnical Engineer

Distribution: (1) Addressee (via e-mail)

Appendices

Geotechnical Study

In accordance with our proposal PG44.21.009, and your authorization, we have performed a geotechnical evaluation for 35th Avenue and Camelback Road Relief Sewer located in Phoenix, Arizona (Figures A-1 and A-2 within Appendix A). The purpose of this study was to examine the geotechnical profile at the site in order to evaluate the subsurface soils and their engineering properties. This information was used to develop geotechnical engineering recommendations for project design and construction. A description of the project, the scope of our geotechnical services, a description of our findings and our recommendations are presented in the following sections.

1.0 PROJECT UNDERSTANDING

This project consists of the installation of approximately 5,475 linear feet of 18-inch sewer pipe using pipe-burst methods. The proposed alignment begins at Camelback Road and 29th Avenue (Manhole 19-22-120) and heads west to 31st Avenue, then it heads south along 31st Avenue approximately 1,290 linear feet, then heads west along an existing alley way for approximately 2,580 linear feet, then heads south on 35th Avenue approximately 260 linear feet and terminates at manhole 18-21-103. Based on email correspondence, the existing and new sewer invert will be approximately 8 feet deep.

2.0 SCOPE OF WORK

The scope of our services for this study included the following major task items:

- Reviewing readily available aerial photographs and published geologic literature, including maps and reports pertaining to the project site and vicinity.
- Coordinating our subsurface investigation activities with PEC.
- Notifying Arizona 811 of the proposed exploration locations prior to performing our field explorations.
- Hydro-vacuum potholing, logging, and sampling 8-inch-diameter exploratory borings at 14 locations. Details of this task and a log of the explorations can be found in Appendix B.
- Performing laboratory testing on selected samples obtained from the exploratory borings. The details of the laboratory testing and the results are included in Appendix C.
- Preparing this report of our study presenting our findings, and recommendations.

Our scope of services for this study did not include environmental consulting services with respect to the identification or assessment of any hazardous environmental or biological materials that may be, or may not be, present at the site. A detailed scope of services and estimated fee related to the investigation of the presence or impact of pollution, contamination, or hazardous materials related to this site can be provided upon request.

3.0 FINDINGS

This section contains the results of our evaluation of the site as determined by the scope described in Section 2.0.

3.1 Current Site Conditions

The project site is bounded by 29th Avenue and 35th Avenue from east to west. And from Camelback Road from the north to 1,560 feet south. It lies in Sections 23 of Township 2N, Range 2E of the (Gila and Salt River Meridian). At the time of our site investigation the area was densely populated with residential homes and narrow streets. The north section of our site ran parallel to a major street with the southern section outlined by a narrow dirt alley way running east to west. To the west was 35th Avenue and east 29th Avenue.

Based on the elevations from the Sunnyslope and Glendale topographic maps (USGS, 2021) the project site is on the order of 1,140 feet relative to mean sea level.

3.2 Past Site Conditions

Aerial photographs from public sources were reviewed for this project. The following table lists our observations made. The oldest photo we could obtain was taken in 1953.

Year of Photo	Site Description
1953	The oldest photograph depicts a vacant parcel of land that appears to be used for agriculture. It appears relatively flat with minimal vegetation and no visible structures. It's bounded by the outline of present-day roadways but more narrow.
1955	Residential homes are mostly complete in the same layout as present day.
1964	The north end of the site still resembles current site conditions. Walkways and structures begin to appear at the southeast end of the site.
1967	Construction appears to complete at the southeast corner. Buildings appear to be fully occupied with paved parking areas and landscape architecture complete.
2019	Most recent arial photographs show site conditions as they are today.

3.3 Subsurface Conditions

The following generalized description of the subsurface profile at the site is based upon the conditions we observed in a relatively few, widely spaced explorations. The thickness of strata described should be considered approximate and is inferred from changes observed between recovered samples or observed drilling conditions (changes in drilling effort, or from cuttings generated from auger advancement). Conditions could vary significantly between exploration locations. And although we did not observe evidence of or encounter buried structures such as underground utilities, septic tanks, dry wells, or fill materials during our site reconnaissance or within our explorations, such materials could be encountered during construction. Should different conditions be discovered during construction, when earthwork operations expose larger areas of the site, SAECO should be notified to allow revised recommendations to be provided.

- The pavement encountered ranged from 3.5-inches to 8.5-inches of asphalt over 8.5-inches of a slurry aggregate mixture for boring B-13 and B-14. Pavement encountered at B-1, B-8, B-9, B-10 and B-11 ranged from 3-inches to 5-inches of asphalt over 6-inches to 20.5-inches of aggregate base

course. The asphalt ranges from excellent to poor condition, with raveling, block cracking, alligator cracking, utility patches, etc. Borings B-2, B-3, B-4, B-5, B-6 and B-7 encountered a thinly placed layer of asphalt no greater than 1-inches along the roadway. The asphalt was a very poor condition that exhibited block cracking, alligator cracking and in some locations, it was completely absent.

- Trench backfill soils were encountered and extended to depths ranging from about 1 to about 12 feet below the surface. A base course material was encountered at depth in most borings that encased the sewer.
- The native soils encountered from the surface or below the fill soils extended to the total depths explored. These soils were generally soft to very stiff, low to medium plastic, and bordered between lean clay with varying amounts of sand and clayey sand. Some silty sand layers were also encountered across the site. Scattered caliche filaments and nodules, and weak caliche cementation, were also observed in this material.
- The approximate depth to the top of the existing vitrified clay sewer pipe ranged from 72-to 128-inches.

3.4 Groundwater

Groundwater was not encountered in any of our explorations during the field exploration. We did not perform long term monitoring of groundwater levels at the site and the observations reported in the report and on the log of explorations should be considered to only represent the groundwater conditions at the time and location of our explorations. Based on well data from the Arizona Department of Water Resources, the depth to regional groundwater has been historically measured between approximately 90 feet below the surface near the site. Groundwater levels may fluctuate due to seasonal variations in precipitation, irrigation, groundwater withdrawal, and other factors. Shallow perched groundwater zones are sometimes encountered near leaking utility lines or near stormwater retention basins.

3.5 Geologic Setting

Arizona can generally be divided into three geological provinces; the Colorado Plateau in the north, the Basin and Range in the deserts of the south and west, and a Transition Zone in between. This site lies within the Basin and Range Province.

The Basin and Range Physiographic Province is dominated by extensional tectonics, typified by broad alluvial valleys separated by steep, discontinuous, sub-parallel mountain ranges. The mountain ranges generally trend north-south and northwest-southeast. The basin floors consist of alluvium with variable thickness extending up to several thousands of feet. Intermittent volcanic activity also occurred within this region.

The Phoenix Metropolitan Area covers an area of about 14,600 square miles in a topographic basin bounded by the Transition Provence Bradshaw and Usary Mountains to the north, the McDowell and Superstitions Mountains to the east, South Mountain to the south, the Sierra Estrella Mountains to the southwest, and the White Tank Mountains to the west. The Phoenix Mountains form a predominant

range near the center of The City. Rocks found in the ranges include andesitic volcanics, limestone and sandstone sedimentary rocks, granites, and metamorphics (predominately granitic parent-rock). As is typical of the Basin and Range Province, these ranges have broad piedmont surfaces extending at fairly uniform slopes of 5 to 20 miles away from much steeper mountain fronts (bajadas). The bajadas may be erosional bedrock surfaces, called pediments, or they may be mantled by fan gravels and dissected by deep washes. The ephemeral streams of the piedmont areas convey water and sediment from the mountain fronts to the valley floors in the basin during occasional, but often intense rainstorms. Coarser gravel and boulders are deposited mainly on the piedmont, while the finer fraction of the load, including sand, silt, and clay, are conveyed to the valley floors, where significant fills, up to 9,000-feet-thick, have built up.

The floor of the basin is generally a broad and flat plain. The principal watercourses in this basin (The Salt River, Gila River, New River, Agua Fria River, and Hassayampa River) collect drainage principally off the Mogollon Rim and eastern Arizona and from within this basin, ultimately outletting the basin to the southwest. Meanders, downcutting, and flood events have left numerous terrace features and relatively unconsolidated deposits of boulders, cobbles, gravels, sands, silts and clays adjacent to the banks of the watercourses.

3.6 Subsidence and Earth Fissures

Land subsidence and earth fissures are present in numerous alluvial basins in southern Arizona. Due to historic pumping of large volumes of groundwater at rates far exceeding recharge, the alluvium has undergone consolidation, resulting in large areas of land subsidence. The primary geologic hazard associated with subsidence is the formation of earth fissures, related to tensional stress caused by differential consolidation of the alluvial materials. This differential consolidation is often related to the presence of irregular buried bedrock surfaces and/or buried bedrock ridges or pinnacles.

Based on our review of published references (Arizona Geological Survey, 2011) and based on our site reconnaissance, there are no known or documented earth fissures on the subject site. The closest documented earth fissures, based on our research, are located more than 15 miles to the northwest of the project site. If groundwater withdrawal continues, further subsidence and the formation of new fissures or the extension of existing fissures is possible. Prediction of future earth fissure locations is not possible. However, in our opinion, land subsidence and earth fissures are not anticipated to be a design or construction issue for this project.

3.7 Faulting and Seismicity

The site lies within the Arizona Mountains Zone. The zone forms a belt approximately 50 miles wide around the southern margin of the Colorado Plateau extending from the northwest to the southeastern part of the state with New Mexico. This zone appears to consist of active blocks faulting from the Colorado Plateau as a result of regional extensional activity. This zone has a higher level of seismicity compared to the rest of the state with abundant Quaternary faulting (Euge et al., 1992).

Based on our field observations, review of pertinent geologic data, and analysis of aerial photographs, faults are not located on or immediately adjacent to the site. The nearest fault is located northeast of the site. The Carefree fault zone, is located approximately 25 miles northwest of the site. The fault zone trends north and northwest with fault scarps up to 3 meters high through Precambrian granite (Pearthree, 1988).

Seismic design considerations are presented in Section 4.3 of this report.

3.8 Liquefaction

Based on the lack of near surface water, the low ground motion hazard (relatively low seismic ground accelerations), and the consistency/relative density of the surface soils, the likelihood or potential for liquefaction is considered to be negligible at this site.

3.9 Hydrocompactive Soils

Hydrocompactive (collapsible) soils generally exhibit low to moderate compressibility at existing low moisture contents. However, under increasing moisture content (such as from improper site drainage, excessive irrigation, and leaking utilities) and foundation loading, these soils can "collapse" (experience significant and rapid volume reduction when wetted). This occurs primarily as a result of the breakdown of the soil structure as light calcium carbonate cementation or bonding between sand particles softens or weakens under increased moisture content. Wetting and loading history of the soil influence the collapse potential, and a soil may collapse under even relatively low loads, such as that imposed by pavement structures or small embankments, when the soil moisture content exceeds past levels. Often, the placement of a new structure changes the drainage or evapotranspiration regime of the soil, increasing the likelihood of a collapse event (Houston, et al., 2002). Empirical identification of soils with collapse potential include some or all the following conditions (adapted from Beckwith, 1979):

- Plasticity Index (PI) less than 10
- Dry density less than 95 pounds per cubic foot (pcf)
- Moisture content less than 8 percent
- SPT N-value less than 15 blows per foot

Collapsible soils can also be identified using 1-dimensional consolidation testing (as generally described by ASTM D2435) in the laboratory. In this test, relatively undisturbed samples (typically collected from driven ring-lined samplers) are axially loaded to typical foundation stresses and then submerged in water, activating the potential collapse mechanism.

Based on the information collected from our site investigation it appears the near surface soils have a low potential for collapse. It is possible that zones of collapsible soils are present on the site and we recommend a geotechnical professional or their representative perform additional observations of the site during construction activity.

3.10 Expansive Soils

On site soils show a wide variation in swell potential across the site. In general low to medium expansive soils are located near B-1 and B-8, soils with higher swell potential are located near B-11 and B-15. Additional details concerning the use of on-site soils as fill material are provided in Section 4.1.2.

4.0 RECOMMENDATIONS

From a geotechnical standpoint, we believe the site is suitable for the proposed construction provided the recommendations included are followed. Some general geotechnical considerations for site design and construction include:

- We encountered potentially expansive soils at the site. Excessive wetting or drying of the expansive soils will exacerbate the severity of cracking and other damage so maintaining adequate drainage and plumbing systems will be critical. Although we have provided recommendations to help mitigate the effects of soil shrinkage and expansion, it is possible even with the measures implemented, movement and even some minor cracking in the pavements should be anticipated.

- Our investigation encountered base course material surrounding the existing sewer pipe. Base course material may limit the effectiveness of pipe bursting methods.

The following sections provide our recommendations for the design and construction of the project. We should be contacted for additional recommendations if the proposed construction or anticipated foundation loads are changed from the project description in Section 1.0 of this report, or if significant changes occur at the site with respect to the site conditions described in Section 3.1 of this report.

4.1 Earthwork

Recommended earthwork for pavement reconstruction and manhole structures are presented below. These recommendations should be used in conjunction with the City of Phoenix Standard Specifications for sewer construction.

4.1.1 Site Preparation

The area covered by these recommendations should cover a construction envelope that extends at least 5 feet beyond the actual limits of the structures' footprint (structures or pavements). Finished grade is defined as the lowest point within any structure's building envelope.

1. Undisturbed native soils are generally suitable for support of planned manhole structures.

2. Prepare the ground surface in pavement areas by scarifying the soils to a depth of 10 inches, moisture-conditioning, and compacting.

3. The possible re-use of on-site soil in newly compacted fill and the requirements for imported fill soil is discussed in Section 4.1.2.

4. Compact subgrade, fill, backfill, subbase fill, or base material to the relative compaction and moisture content noted in the Section 4.1.3. Lift thickness for backfill will be dependent upon the type of compaction equipment utilized but should generally be placed in lifts not exceeding 10 inches in loose thickness. Fills should be moisture conditioned and compacted by appropriate mechanical methods.

4.1.2 Fill Materials

On-site and imported soils that exhibit low expansive potential when compacted are generally suitable for re-use as fill in all areas, provided they are free of debris and organic material, and all particles are less than 3 inches in size. Ideally fill materials placed to support structures will be placed in a fairly uniform thickness beneath the structure in order to reduce the potential of differential settlement, if this cannot be accomplished due to site constraints, abrupt changes in fill thickness should be minimized.

- **On-Site Soils**

  Based on the results of our study, low- to medium-plastic clayey soils are present at the site. These soils can "swell" (expand a significant amount) with increasing moisture when recompacted and used to support: concrete flatwork, lightly loaded foundations, and concrete pavements. It may be possible to use these soils, but their placement will require strict moisture and compaction control as outlined in Section 4.1.3. Otherwise, we recommend supporting the previously described elements on a zone of moisture-conditioned and compacted engineered fill, composed of on-site or imported soils placed as outlined in Section 4.1.3.

  On the basis of our evaluation, some of the on-site soils will not be acceptable for use as engineered fill due to their potentially expansive nature. We recommend that additional soil sampling, and/or laboratory testing be conducted by the contractor during construction to evaluate unsuitable materials, if encountered, at the site during construction.

- **Imported Soils**

  Soils imported from off-site sources for use in new fills below structures or rigid concrete pavements should meet the requirements listed in the following table:

Property	Specification	Remarks
Maximum Particle Size	3 inches	None
Percent Passing No. 4 Sieve	30-100	None
Percent Passing No. 200 Sieve	2-55	None
Maximum Plasticity Index	15	None
Maximum Swell Potential	1.5%	Based on a laboratory sample compacted to 95% of the maximum density at 3% below optimum moisture content as determined by the Standard Proctor (ASTM D698)

  The geotechnical consultant should evaluate any imported materials and details of their placement prior to importation.

- **Aggregate Base Course**
  Aggregate base course used beneath pavement structures should meet the requirements of MAG 702.

4.1.3 Compaction

We recommend subgrade, fill, backfill, subbase fill, or base material be prepared and placed to the relative compaction and moisture content provided below. Lift thickness for backfill will be dependent upon the type of compaction equipment utilized but should generally be placed in lifts not exceeding 10 inches in loose thickness. Fills should be moisture conditioned and compacted by appropriate mechanical methods.

Recommendations for Compaction of On-Site Soils

Material / Location	Percent Compaction (ASTM D698)	Moisture Content Range (ASTM D698)
Below Foundations	95 min.	Opt. -1 to Opt. +3 percent
Above Foundation Level and Below Concrete Flatwork	90 min.	Opt. -1 to Opt. +3 percent[1]
Trench backfill, not deeper than 4 ft. below finished grade	95 min.	Opt. -1 to Opt. +3 percent
Trench backfill, 4 ft. or deeper below finished grade	98 min.	Opt. -3 to Opt. +3 percent
Miscellaneous Backfill (other backfill areas not used for foundation, flatwork, or utility line support)	90 min.	Opt. -3 to Opt. +3 percent

Notes:

1. Maintain in a moist condition until overlying structures, slabs, or pavements are constructed

Recommendations for Compaction of Imported Soils

Material / Location	Percent Compaction (ASTM D698)	Moisture Content Range (ASTM D698)
Below Foundations	95 min.	Opt. -3 to Opt. +3 percent
Above Foundation Level and Below Concrete Slabs or Flatwork	90 min.	Opt. -3 to Opt. +3 percent[1]
Trench backfill, not deeper than 4 ft. below finished grade	95 min.	Opt. -3 to Opt. +3 percent
Trench backfill, 4 ft. or deeper below finished grade	98 min.	Opt. -3 to Opt. +3 percent
Base Course	100 min.	Opt. -3 to Opt. +3 percent[1]
Miscellaneous Backfill (other backfill areas not used for foundation, pavement, or utility line support)	90 min.	Opt. -3 to Opt. +3 percent

Notes:

1. Maintain in a moist condition until overlying structures, slabs, or pavements are constructed

4.1.4 Workability

If site grading is performed during or subsequent to wet weather, or if ponding or leaking utilities are present, then near-surface site soils may be above optimum moisture content. This could make it difficult to achieve specified compaction, material pumping, and equipment maneuverability problems. If this occurs, disking for aeration followed by sufficient drying time (possibly several days depending upon the weather), chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be implemented to reduce excessive soil moisture or otherwise facilitate earthwork operations.

Wet to saturated sandy lean clay soils could be encountered to significant depths below the existing ground. This is most likely to occur if site grading is performed during or subsequent to wet weather, or if ponding or leaking utilities are present. These soils will be difficult to process and will not be a suitable surface to place engineered fill. If unsuitable soils are encountered at the site the following options may be considered:

- Disking for aeration followed by sufficient drying time (possibly several days depending upon the weather and degree of saturation).

- Replacement with drier material.

4.1.5 Excavation Conditions

Vacuum truck drilling methods were used to advance all of the explorations to their planned termination depths.

We believe the excavation conditions encountered in our borings generally represent the conditions to be expected across the site; however, excavation conditions are dependent on many factors including:

variability of cementation, presence and size of cobbles and boulders, excavation size, excavation equipment, operator experience, and operator effort. It may not be possible to correlate all of the potential variables with the results of what we experienced during our exploration advancement in terms of the actual excavation conditions that could be encountered. Those involved with the construction of this site should use the information provided in this report as a guideline for the conditions that generally exist only at each boring location. Those using this report should have an understanding of the limitations of the methods used to obtain the data and should use the information with caution and only as a guideline.

Those involved with the construction of this site should review this report along with appropriate performance charts prepared by the manufacturer of the planned excavation equipment. This information can be used to assist in the selection of appropriate equipment that will be required to excavate the material anticipated to be encountered at this site. However, those using the interpretation of the site conditions contained in this report for any reason do so at their own risk.

Prospective contractors should exercise caution and assume the associated risks if the information provided within this report is used to determine the suitability of any equipment used for construction of the proposed project.

4.1.6 Temporary Excavations

Those involved with the construction of this project should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, and/or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations). Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

Near-surface soils consist predominantly of sandy lean clay and clayey sand. These soils could be considered a Type B soil when applying the OSHA regulations. For this soil type OSHA recommends a maximum temporary slope inclination of 1:1 (H:V) or flatter for excavations 20 feet or less in depth. Steeper cut slopes may be utilized for excavations less than 5 feet deep depending on the strength, moisture content, and homogeneity of the soils as observed in the field. Flatter slopes and/or trench shields may also be required depending on conditions encountered along the slope face. Actual safe slope conditions should be determined and monitored in the field at the time of construction by an OSHA-qualified “competent person.”

Trenches over 20 feet deep (if needed) should be designed by the contractor’s engineer based on alignment-specific soil properties and settlement-sensitive features. Excavations encountering seepage, if any, should be evaluated on a case-by-case basis. Where the stability of structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working within the excavation. Shoring, bracing, or

underpinning required for the project (if any) should be designed by a professional engineer registered in the State of Arizona. In general, heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within 1/3 the slope height from the top of any excavation, unless incorporated into the engineered design.

4.2 Foundation Design Recommendations

Recommendations for the design of structures with respect to bearing capacity, estimated settlement, resistance to lateral loading, and other geotechnical considerations are provided in this section of the report. The parameters provided below are contingent on following the earthwork recommendations provided in the previous sections, maintaining and establishing adequate site drainage during construction and for the life of the structures. If conditions are encountered during construction that significantly differ from what is described in Section 3.0 SAECO should be notified to provide additional recommendations.

4.2.1 Manhole Structures

Recommended bearing pressures for spread footings are presented in the table below. The average bearing pressure should not exceed the allowable equivalent uniform bearing pressure presented below. However, peak edge stresses may exceed this value provided the resultant passes through the middle third of the base. The allowable soil bearing pressures may be increased by one-third when considering total loads including loads of short duration such as wind or seismic forces.

Structure Depth Below Finished Grade[1] (ft)	Bearing Material	Allowable Equivalent Uniform Bearing Pressure[2] (psf)
1.5 (Min.)	Undisturbed Native Soils	1,750
2.0	Undisturbed Native Soils	2,250
3.0	Undisturbed Native Soils	2,750

Notes:

1. Finished grade is defined as the lowest point within the building envelope (the building footprint and the area extending 5 feet away from the structure).
2. The bearing pressures should be considered as gross pressures, which include the weight of any soil above footings. An estimated unit weight of 125 pcf may be assumed for compacted soil above spread footings.

Total settlements for the expected structural loading conditions are estimated to be less than about ¾-inch, provided bearing soils remain at their present, natural moisture conditions. Differential settlements should be on the order of about ½- inch or less for these estimated total settlements. Additional post-construction settlements of roughly equal magnitude could be experienced following a significant moisture buildup in the bearing soils. Therefore, drainage should be addressed to prevent or minimize water from infiltrating into the soils beneath foundations.

Structures subject to lateral loadings may be designed using the ultimate passive soil resistance and coefficient of friction provided in Section 4.4. The ultimate lateral resistance can be taken as the sum of the frictional resistance and passive resistance, provided that the passive resistance does not exceed

one-half of the total ultimate resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces. The foundations should preferably be proportioned such that resultant forces from total loads, including lateral loading, fall within the kern (i.e., middle one-third of the footing base).

4.2.2 Shallow Foundations Subject to Uplift

Concrete foundations subject to uplift may be designed using the "cone method". The resistance for foundation cast against undisturbed native soils, or properly compacted engineered fill may be determined as follows:

$$T_u = 0.4 \times \gamma_m \times D^2 \times (B + L) + W$$

Where:

T_u	Ultimate uplift capacity (lbs)
γ_m	In-situ unit weight of the native soil or compacted fill (pcf)
D	Depth to base of foundation below finish grade (ft)
B	Width of foundation (ft)
L	Length of foundation (ft)
W	Weight of foundation including soil above the footing block (lbs)

We recommend an in-situ unit weight of 115 pcf for undisturbed native soil (γ_m), and a unit weight of 125 pcf be used for engineered fill composed of on-site materials.

4.3 Seismic Design Considerations

Building structural response to seismic events is based on the structure's Seismic Design Category, which is partially dependent on the Seismic Site Classification. The seismic site classification is based on the soil properties within 100 feet of the surface and the methods outlined in the International Building Code and American Society of Civil Engineers publication ASCE-7. We recommend this site be classified as Site Class D.

The classification is based on the results of our explorations and our experience at similar sites in the region.

4.4 Lateral Earth Pressures

The following ultimate lateral earth pressures may be used for the design of shallow foundations subject to lateral loading, and for relatively small, less than 10 feet tall, unrestrained rigid retaining walls (gravity and cantilevered for example). The recommended equivalent fluid lateral earth pressures are suitable for unsaturated soils, level backfill behind and in front of retaining walls, and properly compacted backfill.

Lean Clay (Existing Undisturbed Fill Material)

Type	Equivalent Fluid Lateral Earth Pressure (pcf)
Active	45
Passive	295
At-Rest	65

Engineered Fill

Type	Equivalent Fluid Lateral Earth Pressure (pcf)
Active	35
Passive	375
At-Rest	55

Sliding resistance between the base of concrete foundation elements, or shear keys, and soil beneath concrete foundations, is evaluated using the frictional resistance, identified using the angle of friction. The angle of friction represents the relationship between the normal load acting on the sliding plane and the shearing load required to initiate sliding. Frictional resistance may also be identified using the friction factor, which is the tangent of the friction angle. An allowable coefficient of base friction of 0.32 should be used to estimate sliding resistance between the base of the foundation element and silty sand native soil or engineered fill using the dead load forces. Friction and passive earth pressure resistance may be combined without reduction.

The ultimate lateral resistance can be taken as the sum of the frictional resistance and passive resistance, provided that the passive resistance does not exceed one-half of the total ultimate resistance. The passive resistance may be increased by one-third when considering loads of short duration, such as wind, or seismic forces. Where conditions include restrained walls (basements and loading docks for example) the at-rest pressure provided should be used as acting on the wall. Where foundations are designed to resist lateral loading, they should preferably be proportioned such that the resultant force from total loads, including lateral loading, falls within the kern (i.e., middle one-third of the footing base).

Measures should be taken so that moisture does not build up behind retaining walls. Retaining walls should be provided with drainage to minimize the possibility of unbalanced hydrostatic pressures. Back drainage measures should include free draining backfill material, filter fabric to hinder particle migration, and perforated drainpipes or weepholes. In lieu of the wrapped open-graded gravel, a geocomposite drainage mat attached to the wall and discharging into the drain pipe or weepholes may be considered. Retaining walls should generally be waterproofed in accordance with the recommendations of the project civil engineer or architect.

4.5 Buried Pipeline Design and Construction

This section contains the information for the design and construction of buried rigid and flexible pipelines. We have assumed the pipelines will be constructed using pipe burst methods.

4.5.1 Soil Loads on Buried Rigid Pipelines

Soil loads on buried rigid pipes, such as clay, and reinforced concrete, can be determined using the following formula:

$$W_c = C_d \gamma_w {B_d}^2$$

Where:

W_c	Stress on pipe from trench backfill
C_d	Load Coefficient
γ_w	Moist Unit Weight of Soil (pcf)
B_d	Width of trench at top of pipe (ft)

The load coefficient C_d is affected by the type of backfill, the degree of backfill compaction, the trench width, and pipe installation depth. Where the ratio of backfill depth above the top of the pipe (H/B_d) is at least 1, and the trench width at the top of the pipe is less than 3 times the pipe diameter, the load coefficient C_d can be determined from the following:

$$C_d = \frac{1 - e^{-K_{\mu'}(\frac{H}{B_d})}}{2K_{\mu'}}$$

Where:

K	Active Earth Pressure coefficient
μ'	Friction Coefficient between backfill and trench walls
H	Height of backfill above the top of the pipe (ft)
B_d	Width of trench at top of pipe (ft)

The product $K_{\mu'}$ can generally be estimated as follows based on soil type:

Soil Type (USCS)	Maximum recommended value of $K_{\mu'}$
Granular materials without cohesion	0.190
Sand and gravel	0.165
Saturated top soil	0.150
Ordinary clay	0.130
Saturated Clay	0.110

Based on the information we collected for this study we recommend using a value of 0.140 for $K_{\mu'}$ and a soil backfill density of 125 pcf.

The soil loads on the pipeline as determined using this method do not include live loads from vehicle traffic. Loading imposed from vehicle and other concentrated surface loads may be analyzed using the information from Section 4.5.3.

4.5.2 Soil Loads on Buried Flexible Pipelines

Generally the deflection of buried flexible pipes (including pipe made of welded steel, and most plastics) from loading may be determined using Spangler's Iowa Deflection Formula:

$$\Delta x = \frac{kWr^3}{EI + 0.061E'r^3}$$

Where:

Δx	Horizontal deflection of the pipe (in)
k	Bedding constant (recommend using 0.1)
W	Load per unit length of pipe (lbs/linear-in)
r	Pipe radius (in)
E	Pipe wall elastic modulus (psi)
I	Pipe wall moment of inertia (in^4/in)
E'	Modulus of soil reaction (psi)

The bedding constant (k) relates the depth of "pipe seating" into the bedding materials beneath the pipe.

The soil load (W) in the above equation may be determined as follows:

$$W = C_P(D_{Load} + P_L)$$

Where:

C_P	Load transfer coefficient (recommend using 0.8)
D_{Load}	Soil overburden pressure (psi)
P_L	Vehicle live load (see section 4.3.3)

The modulus of soil reaction (E') relates to the stiffness of the soil surrounding the pipeline. The modulus is affected by trench width, pipe diameter, modulus of the backfill, and modulus of the trench walls. We recommend the following table be used for determining E' for this project:

Depth to pipe springline (ft)	$\boldsymbol{E'}$
Less than 5	500
5 to less than 10	1000
10 to less than 15	1500

4.5.3 Vehicle Live Loads

Vehicle loads may be analyzed as follows:

$$P_L = \frac{3I_f W_L H^3}{2\pi R^5}$$

Where:

P_L	Soil stress imposed on pipe from surface load (psf)
I_f	Impact factor
W_L	Live load (lbs)
H	Height of backfill above top of pipe
R	Distance from load to the top of the pipe (ft)

The impact load I_f can be estimated as follows:

Value of H (ft)	I_f
Less than 1	1.3
From 1 to less than 2	1.2
From 2 to less than 3	1.1
3 or greater	1.0

4.5.4 Pipeline Construction Considerations

In general pipeline trench construction and pipeline bedding and compaction should be in accordance with the requirements of Maricopa Association of Governments (MAG) Trench Excavation, Backfilling and Compaction (Section 601). Water consolidation and flooding are not considered acceptable as means of compaction for pipeline bedding or backfill.

4.5.5 Bedding/Shading Sand

We recommend bedding/shading sand for pipelines conform to the ASTM C 33, fine aggregate standard specification for concrete aggregates with the following gradation when tested in accordance with ASTM C 136 and C 117:

Sieve Size	Percent Passing
3/8-inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10

Bedding/shading shall be moisture conditioned and placed in maximum 8-inch loose lifts. Consolidation should be achieved by hand operated vibrating plate compactors or other compaction equipment suitable for the application.

At the discretion of the Owner and/or Engineer, a 3/8-inch pea gravel or CLSM may be substituted for the pipe bedding and shading material.

Where pipelines penetrate structures, CLSM material should be used as backfill from pipeline foundation to finish grade extending from the perimeter of the structure to a distance away from the structure equal to the depth of the trench.

CLSM should generally consist of 1-sack of portland cement per cubic yard concrete aggregate. The 28-day compressive strength of the material should range between 250 and 1000 psi.

4.5.6 Pipe Bursting Recommendations

Effective pipe bursting depends on the ability of in-situ soils to expand sufficiently for the increased diameter of the new pipe. Our explorations encountered base course material immediately surrounding the existing pipe. Base course material may present some difficulty for pipe bursting, especially for longer runs. In areas where difficulty pipe bursting is encountered, lubricants to reduce friction and/or increasing the power of the bursting head may be required to install the new pipe.

4.6 Pavement Structures

For the paved areas, it is our understanding that new asphalt will match the existing section thickness. The pavement sections are assumed to bear on compacted on-site soils or upon imported soils with similar or better pavement support qualities. Soils should be placed and compacted according to Section 4.1.3.

The asphalt concrete materials and mix design should conform to MAG 710. It is recommended that asphalt mix designation 1/2 inch or 3/4 inch be used for pavements. While the 3/4 mix has a somewhat rougher texture, it offers more stability. Pavement construction and lift thicknesses should be performed in accordance with applicable portions of MAG Sections 321 and 710.

AC pavements will require periodic maintenance where proper drainage is provided and maintained. Periodic maintenance needed for AC pavements includes seal coats, overlays, or patching. Should moisture penetrate to the subgrade soils or ponding occur on or adjacent to the pavement section, a significant reduction in pavement life could occur along with the need for increased maintenance. Therefore, good surface drainage is essential to achieving the desired pavement life.

4.7 Soil Corrosion and Concrete Exposure

SAECO performed laboratory testing for parameters that commonly affect the corrosion of buried metal elements. Details of the test methods used to determine the parameters and the results are presented in Appendix B. The effect of these properties on buried metal elements is complex and other factors we have not tested for may also be present at the site. The test results we have provided should be used to assist others in determining the type and degree of corrosion protection that may be required. We recommend a certified corrosion specialist be consulted to assist you with the specific needs of your project.

Laboratory chemical tests performed on samples of the on-site soils indicated sulfate contents of up to 6,996 parts per million. Based on the American Concrete Institute (ACI) 318-11 Building Code, the potential for sulfate attack is sever in the vicinity of B-1 for water-soluble sulfate contents in soils ranging from 0.2 percent to 2.0 percent by weight (2,000 ppm to 20,000 ppm). We recommend the use of Type V cement for construction of concrete structures in contact with soil at this site. The structural engineer should select the concrete design strength, water-cement ratio, slump at placement, etc., based on the project specific conditions and also based on the recommendations presented in ACI.

4.8 Site Drainage

Most of the building, pavement, and retaining wall performance issues we have observed are related to moisture infiltration into the subsurface soils. Sources we have observed include: poorly managed surface run-off, failed potable and non-potable water lines, air-conditioner condensate, inadequate roof drainage, poorly sited landscape features (planting locations, planters, leaking fountains, and leaking swimming pools), inadequate maintenance of surface and subsurface drainage features (clogged storm-drains or plugged weep-hole in retaining walls).

- The ground surface around the edges of structures, flatwork, and pavements should be graded such that water drains away without ponding. In general, pavement and lawns within ten feet of buildings should slope away at gradients of 2 to 5 percent. These surfaces will need to be maintained for the life of the structure to ensure positive drainage and prevent erosion from exposing building foundations.

- Lawns and other high-water use plantings should be kept at least 5 feet from buildings and have minimum gradients of 5 to 10 percent extending at least 10 feet from the building perimeter.

- Below-slab plumbing should be minimized and the possibility of moisture infiltration beneath a structure, in the event of plumbing leaks, should be considered in the design and construction of underground water and sewer conduits.

- Utility trenches that pass under perimeter walls structures should be backfilled with either compacted non-pervious fill material (avoid pea gravel or clean sand backfill in these areas) or lean concrete, to reduce the potential for the utility trench acting as a conduit for water infiltration into the interior of a building. This zone of impervious backfill should extend at least 2 feet outside the perimeter of the building.

- Monitor and promptly repair plumbing leaks and maintain exterior irrigation systems. Consider site-climate-adapted plants and eliminate landscaping irrigation systems once the plants are established (ensure these systems are properly abandoned).

- Roof gutters should be installed on structures. Downspouts should discharge to drainage systems that direct flows away from structures and flatwork. Air conditioning condensate should be directed away from buildings.

- Stormwater ponds and water harvesting features should be located at least 10-feet from the perimeter of any buildings. Underground stormwater disposal systems should be at least 20-feet away.

4.9 Pre-Construction Conference

We recommend that a pre-construction conference be held. Representatives of the owner, the civil engineer, the geotechnical consultant, and the contractor should be in attendance to discuss the project

plans and schedule. Our office should be notified if the project description included herein is incorrect, or if the project characteristics are significantly changed.

4.10 Construction Observation and Testing

Since the final design is not complete, we recommend that a general review of the project plans and specifications be conducted before they are finalized to verify that our geotechnical recommendations have been properly interpreted and implemented during design. The recommendations provided in this report assume an adequate program of testing and observation will be conducted during the construction phase to evaluate the compliance with our recommendations.

If another geotechnical consultant is selected to perform observation and testing services for the project, we request that the selected consultant provide a letter to the owner, with a copy to Smith & Annala Engineering Co., indicating that they fully understand our recommendations and that they are in full agreement with the recommendations contained in this report.

5.0 LIMITATIONS

Some variations in the soil conditions are anticipated between the points explored. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site that are different from those described in this report, our firm should be immediately notified so that we may make any necessary revisions to the recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, our firm should also be notified.

The exploration, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report.

This report may be used only by the client and only for the purposes stated within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land or facility use, on and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Similarly, future irrigation, broken water or sewer pipelines, or other factors may adversely influence the project. Any party other than the client who wishes to use this report shall notify SAECO of such intended use. SAECO may require that additional work be performed and that an updated report be issued. Non- compliance with any of these requirements by the client or anyone else will release SAECO from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify, and hold harmless SAECO from any claim or liability associated with such unauthorized use or non-compliance.

6.0 REFERENCES

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Smith & Annala Engineering Co., In-house proprietary information.

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APPENDIX A

APPROXIMATE BORING LOCATION

SMITH & ANNALA ENGINEERING CO.
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35TH AVE AND CAMELBACK RD RELIEF SEWER

PHOENIX, ARIZONA

0 INCHES 1
0 FEET 350

N

PROJECT MANAGER:	CHECKED BY:	PROJECT NUMBER:	SCALE:	FIGURE TITLE:	FIGURE NO.:
JAT	JKA	44.22.2242	1"=350'	EXPLORATION LOCATION MAP	A-1

CLIENT:	DATE:
PEC	07/2022

APPROXIMATE BORING LOCATION

SMITH & ANNALA ENGINEERING CO.
SAECO

35TH AVE AND CAMELBACK RD RELIEF SEWER

PHOENIX, ARIZONA

0 INCHES 1
0 FEET 350

N

PROJECT MANAGER:	CHECKED BY:	PROJECT NUMBER:	SCALE:	FIGURE TITLE:	FIGURE NO.:
JAT	JKA	44.22.2242			
CLIENT:	DATE:				
PEC	07/2022		1"=350'	EXPLORATION LOCATION MAP	A-2

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APPENDIX B

APPENDIX B

FIELD INVESTIGATION

Our field investigation was performed on June 3rd and 16th, 2022. During the field investigation a representative from SAECO:

- Noted the current site conditions from cursory observations
- Sited the explorations in the field by estimating bearings and distances from site features shown on aerial photographs.
- Estimated surface elevations at the explorations estimating from topographic maps.
- Directed the exploration subcontractor with respect to total depth of exploration and the type and depth of any sampling performed.
- Visually classified the subsurface materials exposed during the advancement of the explorations. In general accordance with ASTM D2487 (Visual Manual Procedure) with some modifications from SAECO.
- Created a log of the explorations, including subsurface materials encountered, results of field testing performed, and a record of any samples collected.
- Appropriately labeled and packaged the samples collected for transport to the SAECO laboratory.

Potholes: Potholes performed as part of the investigation were extended using a hydro-vacuum truck operated by Badger Daylighting. Upon completion the potholes were backfilled with concrete or aggregate base course.

Descriptions of the types of samples obtained during the field exploration are presented below:

Bulk Samples: Bulk samples are typically bags of loose soil or rock material obtained from auger cuttings of borings or from the walls or bottom of a test trench.

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KEY TO SOIL SYMBOLS AND TERMS

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ

UNIFIED SOIL CLASSIFICATION (ASTM D-2487)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	$C_u >= 4$ AND $1 <= C_c <= 3$	GW	WELL-GRADED GRAVEL
			$C_u < 4$ AND/OR $1 > C_c > 3$	GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	$C_u >= 6$ AND $1 <= C_c <= 3$	SW	WELL-GRADED SAND
			$C_u < 6$ AND/OR $1 > C_c > 3$	SP	POORLY-GRADED SAND
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR MH	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

PARTICLE SIZE DEFINITION FOR SANDS AND GRAVELS

SOIL FRACTION	GRAIN SIZE
Boulders	12 inches +
Cobbles	12 inches to 3 inches
Gravel	
Coarse	3 inches to 3/4 inches
Fine	3/4 inches to #4 Sieve
Sand	
Coarse	#4 to #10 Sieve
Medium	#10 to #40 Sieve
Fine	#40 to #200 Sieve

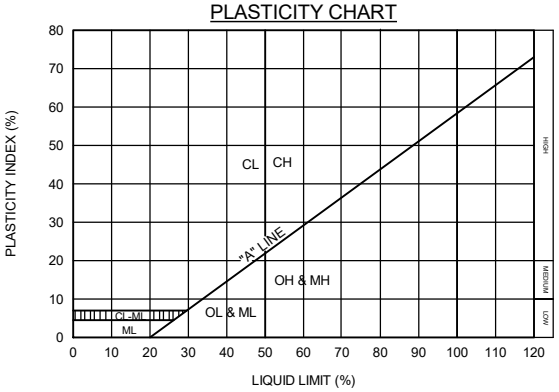
SAMPLE TYPES

- SPT - Standard Penetration Test
- RC - Rock Core, HQ Core Barrel
- RING - Ring-lined Sampler
- BULK - Bulk Sample
- UD - Undisturbed Sample

OTHER TESTS OR COMMENTS

- (NR) - NO RECOVERY
- CN - CONSOLIDATION
- DS - DIRECT SHEAR
- SW - SWELL
- UC - UNCONFINED COMPRESSION
- RV - R-VALUE
- CBR - CALIFORNIA BEARING RATIO
- EI - EXPANSION INDEX
- PP - POCKET PENETROMETER (TSF)
- pH - pH OF SOIL
- RES - MINIMUM ELECTRICAL RESISTIVITY
- CHLOR - CHORIDE CONTENT
- SULF - SULFATE CONTENT
- THRM - THERMAL RESISTIVITY

PLASTICITY CHART



CONSISTENCY / RELATIVE DENSITY DEFINITIONS

PENETRATION RESISTANCE (RECORDED AS BLOWS / FT)				
SAND & GRAVEL		COHESIVE SOILS		
RELATIVE DENSITY	N-VALUE BLOWS/FOOT*	CONSISTENCY	N-VALUE BLOWS/FOOT*	UNCONFINED COMPRESSIVE STRENGTH (TSF) **
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MEDIUM DENSE	10 - 30	FIRM	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

** VERY APPROXIMATE

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KEY TO SYMBOLS

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)


ABC: Aggregate Base Course


ASPHALT: Asphalt


CL: USCS Low Plasticity Clay


CLSM: Controlled Low Strength Material


FILL: Fill (made ground)


SC: USCS Clayey Sand

SAMPLER SYMBOLS


Bulk Sample

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
-200 - PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)

TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION


Water Level at Time Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level After 24 Hours, or as Shown

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BORING NUMBER B-1

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 3.5-inches
															AGGREGATE BASE COURSE, 20.5-inches
1105														SC	CLAYEY SAND, dark brown, moist, medium plasticity, weak cementation
	5														
1100															
	10							27	8	98	60	SW, pH, RES, CHLOR, SULF			
1095															Non plastic BASE COURSE

Bottom of borehole at 12.0 feet.

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BORING NUMBER B-2

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
1105	0													CL	SANDY LEAN CLAY, light brown, moist, medium plasticity, weak cementation
	5														
1100															Non plastic BASE COURSE

Bottom of borehole at 9.5 feet.

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BORING NUMBER B-3

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
1105														CL	ASPHALT, 1-inch SANDY LEAN CLAY, brown, moist, medium plasticity, moderate cementation
	5														
1100															Non plastic, weak cementation BASE COURSE

Bottom of borehole at 9.5 feet.

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BORING NUMBER B-4

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
1105														CL	ASPHALT, 1-inch SANDY LEAN CLAY, brown, moist, medium plasticity, moderate cementation
	5														
1100								34	15	95	68				
															Non plastic, weak cementation BASE COURSE

Bottom of borehole at 9.5 feet.

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BORING NUMBER B-5

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
1105														CL	SANDY LEAN CLAY, brown, moist, medium plasticity, moderate cementation
	5														
1100															

Bottom of borehole at 8.0 feet.

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BORING NUMBER B-6

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
1105														CL	SANDY LEAN CLAY, brown, moist, medium plasticity, moderate cementation
	5														
1100															Non plastic, weak cementation BASE COURSE
															Bottom of borehole at 7.0 feet.

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BORING NUMBER B-7

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/16/22 Completed: 5/16/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 2.25-inches
1105														CL	AGGREGATE BASE COURSE, 7-inches SANDY LEAN CLAY, brown, moist, medium plasticity, weak cementation
	5														
1100															Non plastic BASE COURSE

Bottom of borehole at 9.0 feet.

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BORING NUMBER B-8

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 3.5-inches
															AGGREGATE BASE COURSE. 8.5-inches
1105														SC	CLAYEY SAND, dark brown, moist, medium plasticity, weak cementation
	5														
1100															
	10							29	11	91	37	SW, pH, RES, CHLOR, SULF			
1095															Non plastic BASE COURSE

Bottom of borehole at 12.0 feet.

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BORING NUMBER B-9

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 3.5-inches
															AGGREGATE BASE COURSE, 20.5-inches
1105														CL	LEAN CLAY WITH SAND, dark brown, moist, medium plasticity, weak cementation
	5														
1100															
	10														
1095															Non plastic BASE COURSE

Bottom of borehole at 12.0 feet.

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BORING NUMBER B-10

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 5-inches
															AGGREGATE BASE COURSE, 14-inches
1105														SC	CLAYEY SAND, brown, moist, medium plasticity, weak cementation
	5														
1100															
	10														Non plastic BASE COURSE

Bottom of borehole at 11.0 feet.

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BORING NUMBER B-11

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 3-inches
														SC	AGGREGATE BASE COURSE, 6-inches
1105															CLAYEY SAND, brown, moist, medium plasticity, weak cementation
	5														
1100															
	10														
								34	15	97	48	SW			Caliche nodules
1095															

Bottom of borehole at 13.2 feet.

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BORING NUMBER B-12

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 8.5-inches
															AGGREGATE BASE COURSE, 8.5-inches
1105														SC	CLAYEY SAND, brown, moist, medium plasticity, weak cementation
	5														
1100															
	10														

Bottom of borehole at 11.0 feet.

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BORING NUMBER B-13

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 8.5-inches
															SLURRY MIX, 9.5-inches
1105														SC	CLAYEY SAND, dark brown, moist, low plasticity, weak cementation
	5														
1100															
	10														
1095															Non plastic BASE COURSE

Bottom of borehole at 12.0 feet.

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BORING NUMBER B-14

Client: Project Engineering Consultants, Ltd.
Project Name: 35th Ave and Camelback Road Relief Sewer
Project Number: 44.22.2242
Project Location: Phoenix, AZ
Date Started: 5/3/22 Completed: 5/3/22
Ground Elevation: 1107 ft Hole Size: 12 inches
Drilling Contractor: Badger
Ground Water Levels:
Drilling Method: Hydro-vacuum
At time of Drilling: Not Encountered
Logged By: EDM Checked By: JAT
At end of Drilling: Not Encountered
Notes:
After Drilling: Not Encountered

Elevation (ft)	Depth (ft)	Bullnose Pen. (blows / ft)	Sample type/Interval	Blows per 6 in.	N-value (blows / ft)	Dry Unit Wt. (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing No. 4 Sieve (%)	Passing No. 200 Sieve (%)	Other Tests or Comments	Graphic Log	USCS Classification	MATERIAL DESCRIPTION
															ASPHALT, 7-inches
															SLURRY MIX, 8.5-inches
1105														CL	LEAN CLAY, with sand, brown, moist, high plasticity, moderate cementation
	5														
1100															
								43	19	100	82	SW, pH, RES, CHLOR, SULF			
	10														

Bottom of borehole at 10.0 feet.

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APPENDIX C

APPENDIX C
LABORATORY TESTING

Gradation

Gradation tests were utilized to aid in soil classification. Gradation testing was performed on selected representative soil samples in general accordance with ASTM D422. These test results were utilized in evaluating the soil classifications in accordance with the Unified Soil Classification System (USCS).

200 Wash

An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D1140, to aid in soil classification.

Atterberg Limits

Atterberg Limits tests were utilized to evaluate the plasticity characteristics of the soil, aid in soil classification, and to correlate with engineering properties such as shrink-swell potential. Tests were performed on selected representative soil samples in general accordance with ASTM D4318.

Consolidation Tests

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D2435. The samples were submerged during testing to represent adverse field conditions. Specimens were typically loaded up to and beyond foundation loading pressures. For each loading cycle, the percent consolidation was recorded as the ratio of the amount of vertical compression to the original specimen height.

Swell Potential

Swell tests were performed in general accordance with ASTM D4546, Method B. The specimens were prepared by compacting a moisture conditioned sample to approximately 95% of the maximum density and at approximately 3% below the optimum moisture content as determined by ASTM D698 (Standard Proctor). The specimens were loaded with a surcharge load of approximately 100 pounds per square foot before inundation.

Laboratory Compaction Characteristics of Soil

The relationship between water content and dry unit weight of soils (compaction curve) was evaluated in general accordance with ASTM D698, to estimate maximum compacted dry density and optimum moisture content.

Resistivity and pH

Resistivity and pH tests were performed to evaluate the corrosive potential of the site soils. Tests were performed in general accordance with ADOT Test Method 236.

Sulfate and Chloride

Sulfate and Chloride tests were performed to evaluate the corrosive potential of site soils toward portland cement concrete and ferrous metals. Tests were performed in general accordance with Arizona Test Method 733 and 736, respectively.

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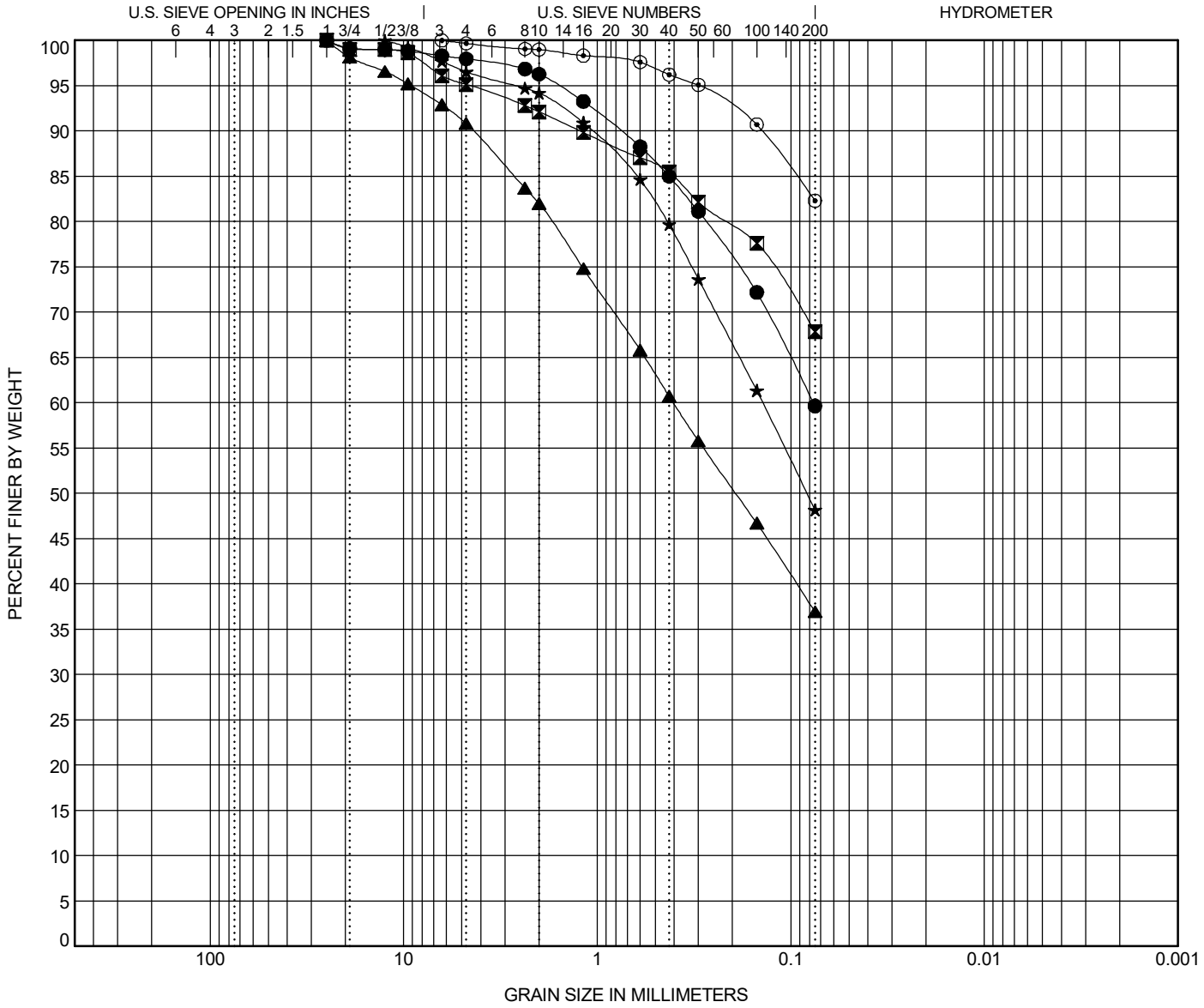
GRAIN SIZE DISTRIBUTION

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Borehole	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
●	B-1	9.0-10.0	SANDY LEAN CLAY(CL)	27	19	8		
⊠	B-4	7.0-8.0	SANDY LEAN CLAY(CL)	34	19	15		
▲	B-8	9.0-10.0	CLAYEY SAND(SC)	29	18	11		
★	B-11	10.0-11.0	CLAYEY SAND(SC)	34	19	15		
⊙	B-14	7.5-8.5	LEAN CLAY with SAND(CL)	43	24	19		

	Borehole	Depth (ft)	D100 (mm)	D60 (mm)	D30 (mm)	D10 (mm)	%Gravel	%Sand	%Silt	%Clay
●	B-1	9.0-10.0	25	0.076			2.0	38.3	59.6	
⊠	B-4	7.0-8.0	25				4.9	27.3	67.8	
▲	B-8	9.0-10.0	25	0.404			9.2	53.9	36.9	
★	B-11	10.0-11.0	12.5	0.14			3.5	48.4	48.2	
⊙	B-14	7.5-8.5	6.35				0.3	17.4	82.3	

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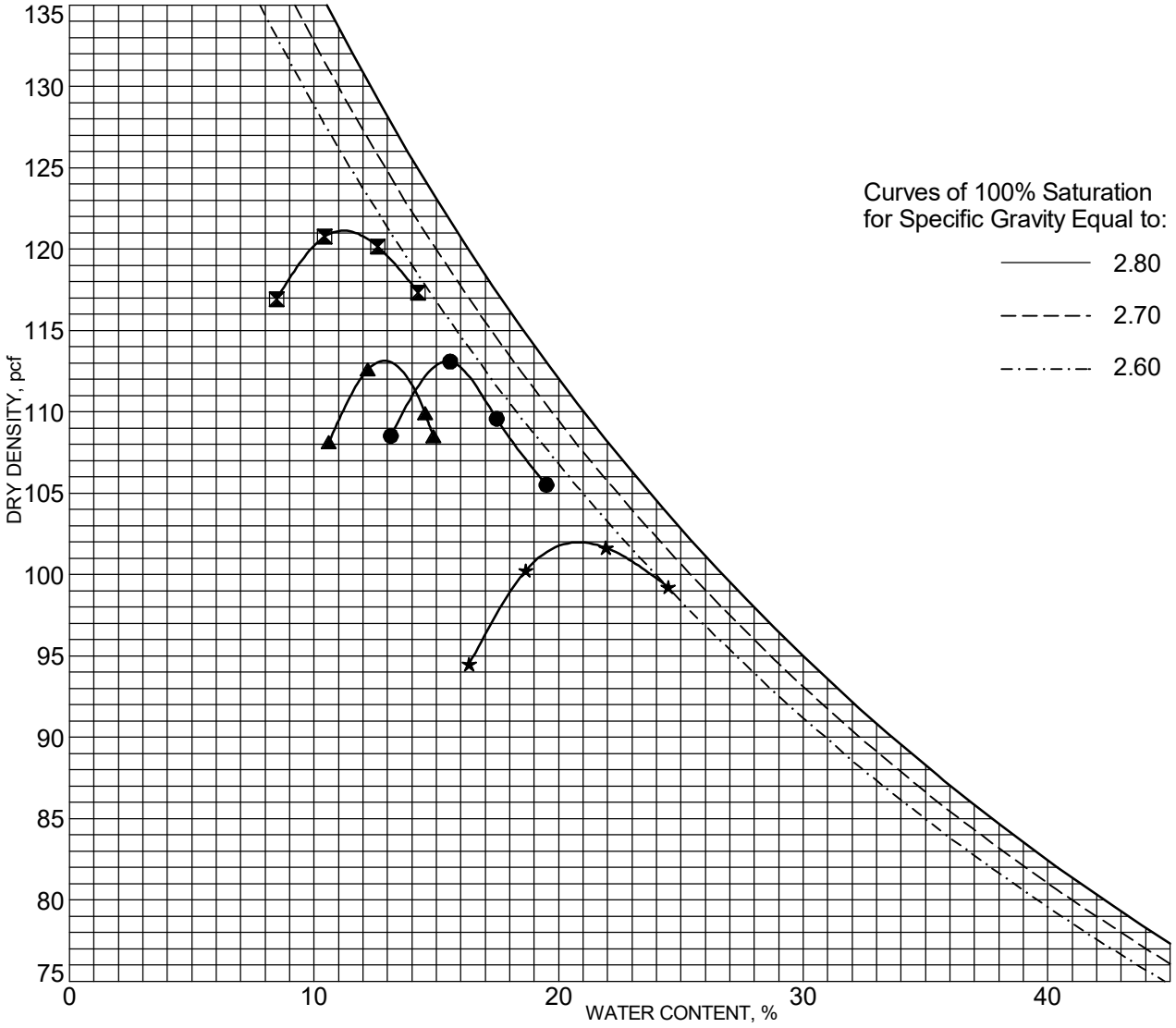
MOISTURE-DENSITY RELATIONSHIP

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ



	Borehole	Depth (ft)	Description of Materials
●	B-1	9.0-10.0	SANDY LEAN CLAY(CL)
⊠	B-8	9.0-10.0	CLAYEY SAND(SC)
▲	B-11	10.0-11.0	CLAYEY SAND(SC)
★	B-14	7.5-8.5	LEAN CLAY with SAND(CL)

	Borehole	Depth (ft)	Test Method	LL	PL	PI	Max DD	Optimum WC
●	B-1	9.0-10.0	698A	27	19	8	113.1 PCF	15.4 %
⊠	B-8	9.0-10.0	698A	29	18	11	121.1 PCF	11.2 %
▲	B-11	10.0-11.0	698A	34	19	15	113.1 PCF	12.9 %
★	B-14	7.5-8.5	698A	43	24	19	102.0 PCF	20.9 %

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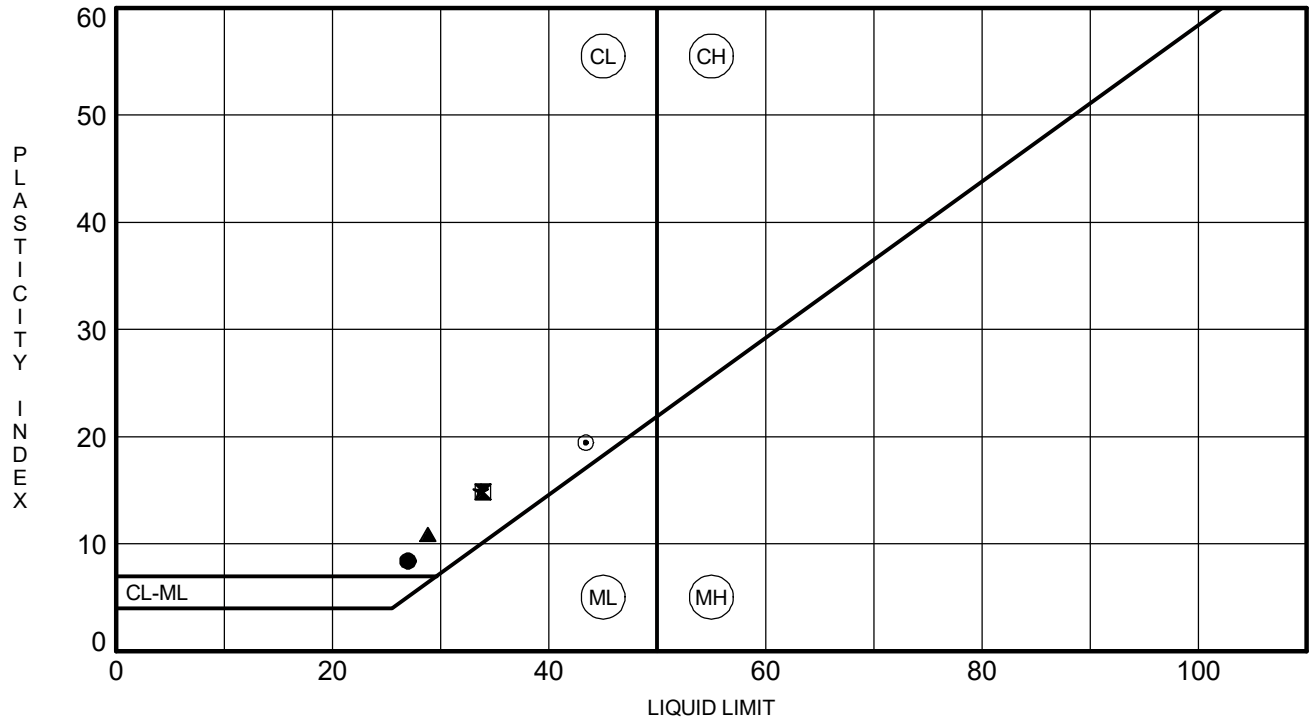
ATTERBERG LIMITS' RESULTS

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ



	Borehole	Depth (ft)	LL	PL	PI	Fines (%)	Classification
●	**B-1**	**9.0-10.0**	**27**	**19**	**8**	**60**	**SANDY LEAN CLAY(CL)**
⊠	**B-4**	**7.0-8.0**	**34**	**19**	**15**	**68**	**SANDY LEAN CLAY(CL)**
▲	**B-8**	**9.0-10.0**	**29**	**18**	**11**	**37**	**CLAYEY SAND(SC)**
★	**B-11**	**10.0-11.0**	**34**	**19**	**15**	**48**	**CLAYEY SAND(SC)**
⊙	**B-14**	**7.5-8.5**	**43**	**24**	**19**	**82**	**LEAN CLAY with SAND(CL)**

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REMOLDED SWELL TEST

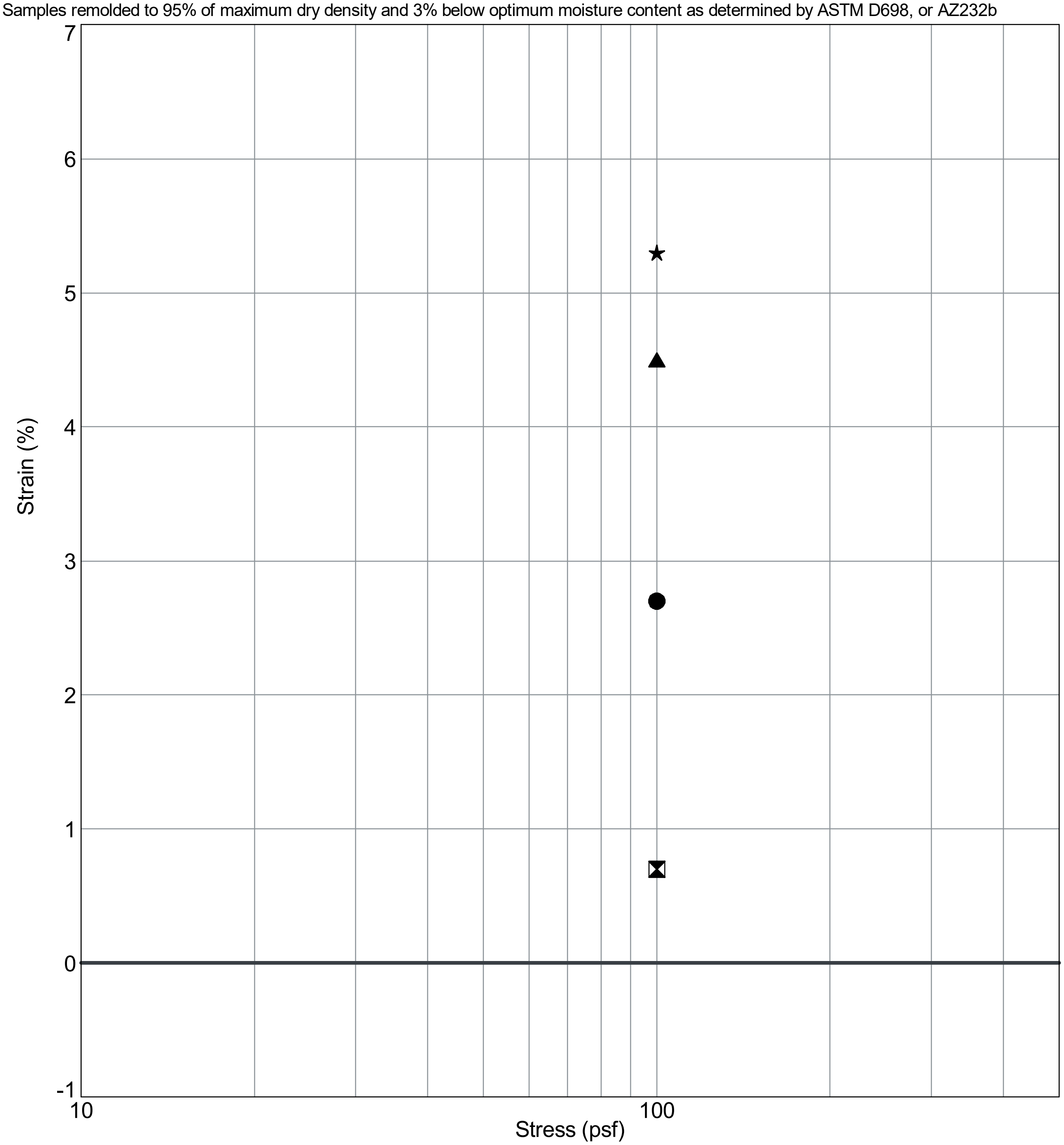
Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ

Samples remolded to 95% of maximum dry density and 3% below optimum moisture content as determined by ASTM D698, or AZ232b



	Borehole	Depth (ft)	Description of Materials	Rmld. DD	Rmld. WC	SWELL
●	**B-1**	**9.0-10.0**	**SANDY LEAN CLAY(CL)**	**107.4 PCF**	**13.4 %**	**2.7 %**
⊠	**B-8**	**9.0-10.0**	**CLAYEY SAND(SC)**	**115.0 PCF**	**9.2 %**	**0.7 %**
▲	**B-11**	**10.0-11.0**	**CLAYEY SAND(SC)**	**107.4 PCF**	**10.9 %**	**4.5 %**
★	**B-14**	**7.5-8.5**	**LEAN CLAY with SAND(CL)**	**96.9 PCF**	**18.9 %**	**5.3 %**

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SUMMARY OF LABORATORY RESULTS

Client: Project Engineering Consultants, Ltd.

Project Name: 35th Ave and Camelback Road Relief Sewer

Project Number: 44.22.2242

Project Location: Phoenix, AZ

Borehole	Depth (ft)	USCS Group Symbol	Liquid Limit	Plastic Limit	Plasticity Index	%>#4 Sieve	%<#200 Sieve	Water Content (%)	Dry Density (pcf)	Consol(-)/ Swell(+) (%)	pH	Minimum Resistivity (Ohm-cm)	Sulfate (ppm)	Chloride (ppm)
B-1	**9.0-10.0**	**CL**	**27**	**19**	**8**	**2**	**60**			**+2.7**	**4.0**	**400**	**6996**	**16**
B-4	**7.0-8.0**	**CL**	**34**	**19**	**15**	**5**	**68**							
B-8	**9.0-10.0**	**SC**	**29**	**18**	**11**	**9**	**37**			**+0.7**	**8.0**	**3000**	**10**	**7**
B-11	**10.0-11.0**	**SC**	**34**	**19**	**15**	**3**	**48**			**+4.5**				
B-14	**7.5-8.5**	**CL**	**43**	**24**	**19**	**0**	**82**			**+5.3**	**8.1**	**690**	**13**	**24**

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APPENDIX D

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

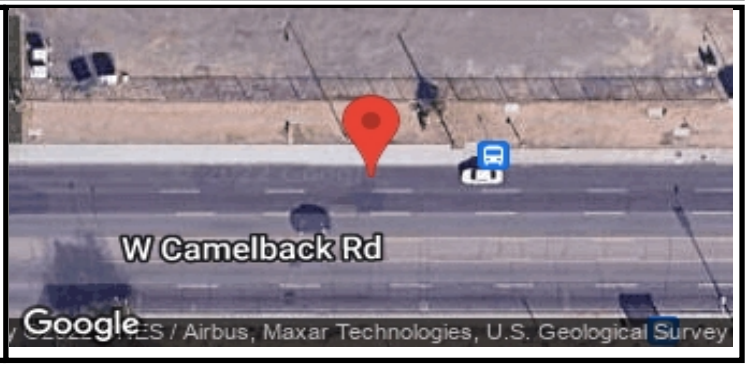
Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	1	***Depth to Top (IN):***	"
Date:	May 3, 2022	***Depth to Bottom (IN):***	"
Type:		***Elevation (Top) (FT):***	
Material:		***Elevation (Bottom) (FT):***	
Height (IN):	"	***Latitude:***	395796.9263
Direction:		***Longitude:***	3708339.447

Notes

Dug 112" no utilities found ..



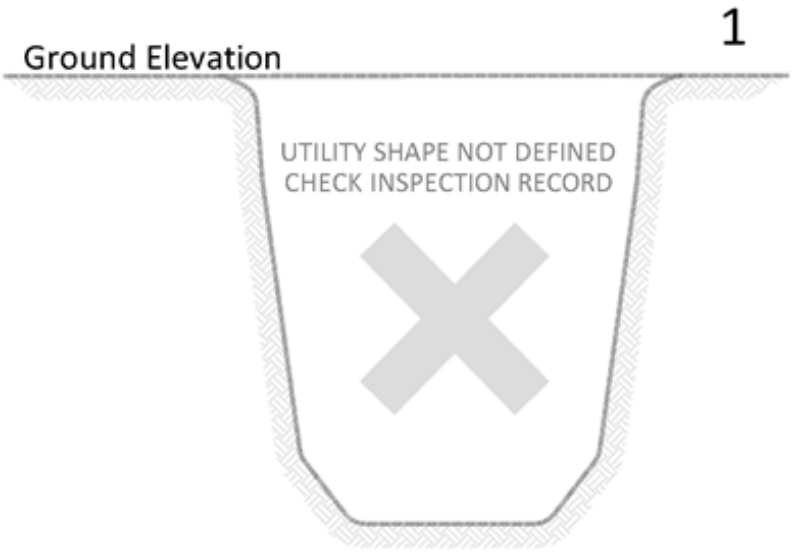


Photo No. 1
ph 1

24-hr Dispatch 480-272-3523

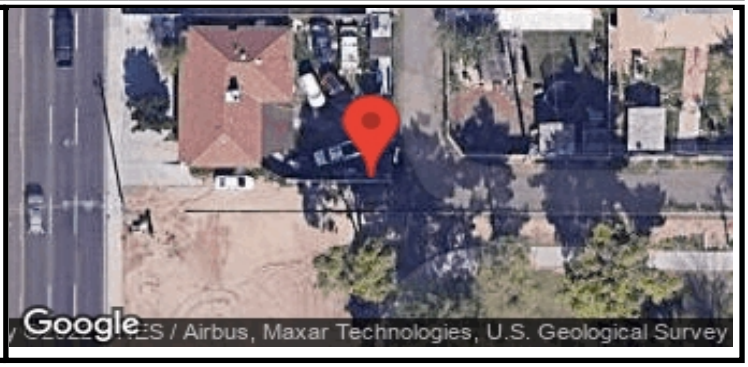
DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	1	***Depth to Top (IN):***	111.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	127.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-9.25'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-10.58'
Width (IN):	16.000"	***Latitude:***	394693.1751
Direction:	E/W	***Longitude:***	3707942.027

Notes



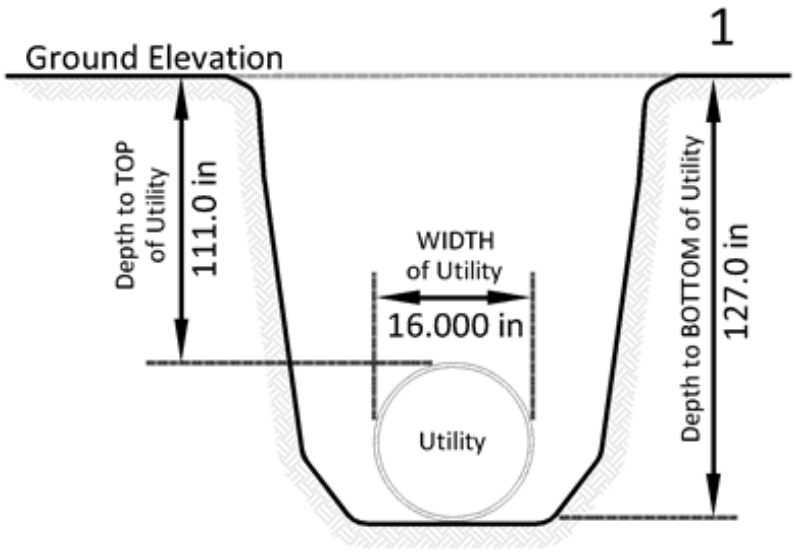


Photo No. 1
ph 1

24-hr Dispatch 480-272-3523

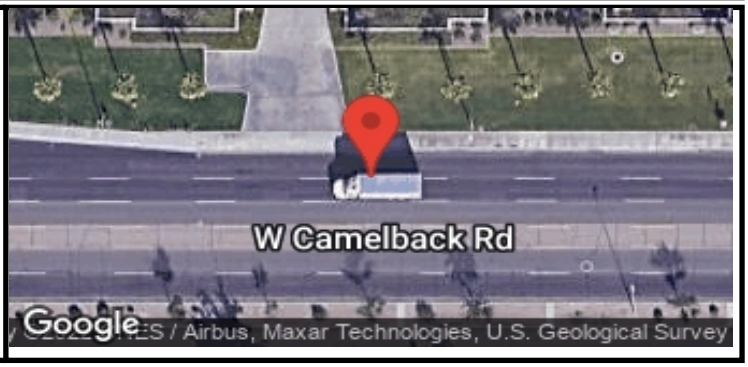
DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	2	***Depth to Top (IN):***	117.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	141.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-9.75'
Material:	Concrete	***Elevation (Bottom) (FT):***	-11.75'
Width (IN):	24.000"	***Latitude:***	395663.3826
Direction:	E/W	***Longitude:***	3708339.116

Notes



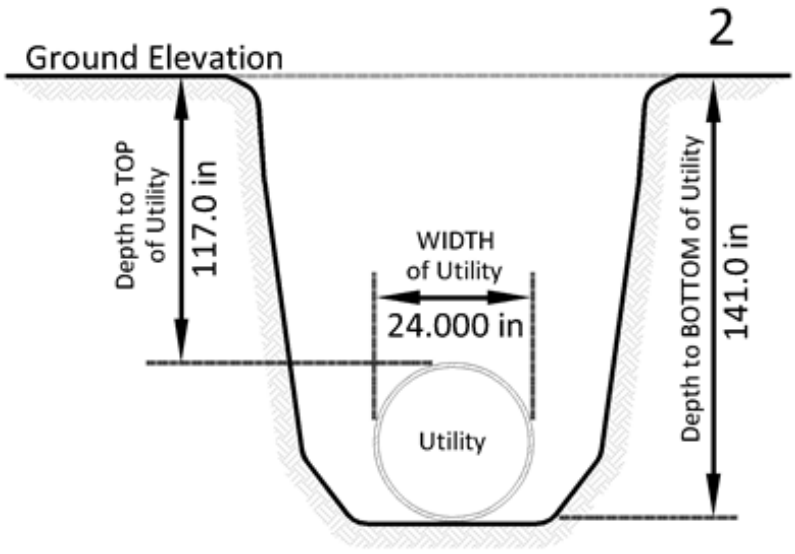


Photo No. 1
ph 2

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

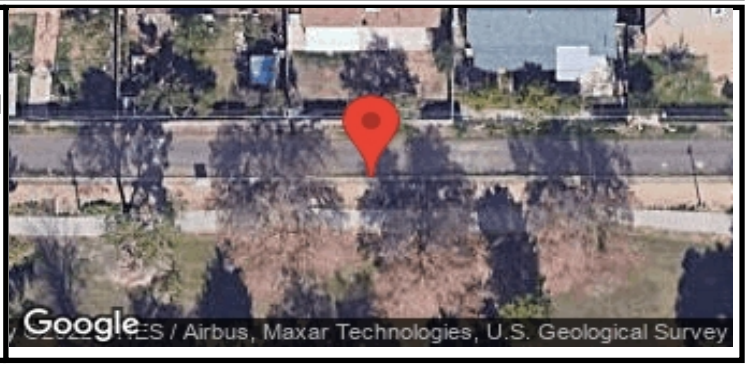
Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	2	***Depth to Top (IN):***	105.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	121.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-8.75'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-10.08'
Width (IN):	16.000"	***Latitude:***	394768.2727
Direction:	E/W	***Longitude:***	3707936.69

Notes

We found the sewer pipe at 105" but it was unable to take picture of the pipe it cave in and covert the pipe with dirt.



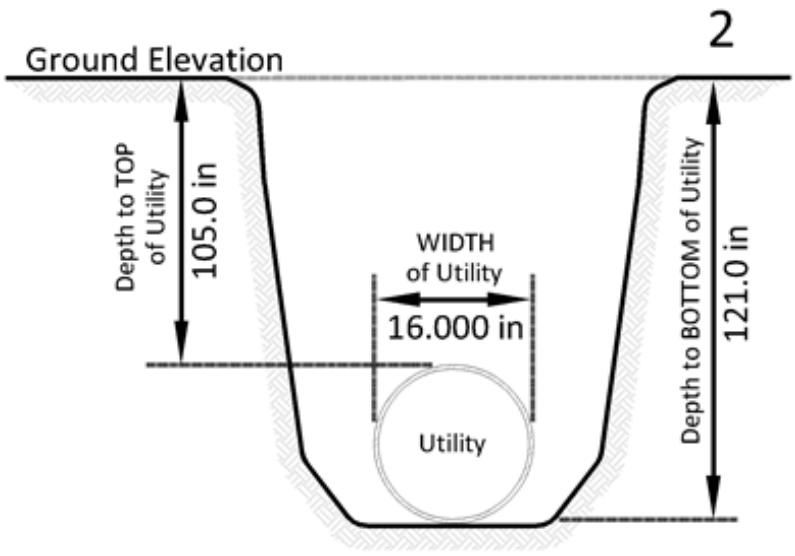


Photo No. 1
ph 2

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	3	***Depth to Top (IN):***	128.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	152.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-10.67'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-12.67'
Width (IN):	24.000"	***Latitude:***	395537.8192
Direction:	E\W	***Longitude:***	3708341.094

Notes

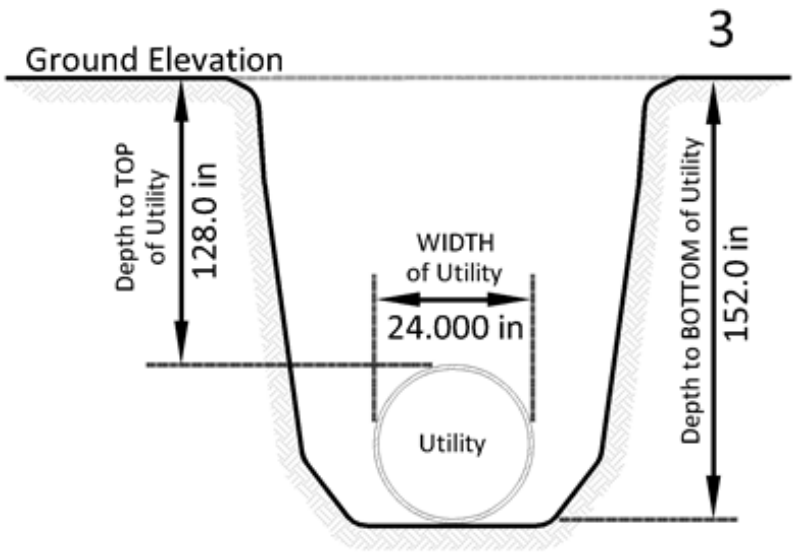


Photo No. 1
3

24-hr Dispatch 480-272-3523

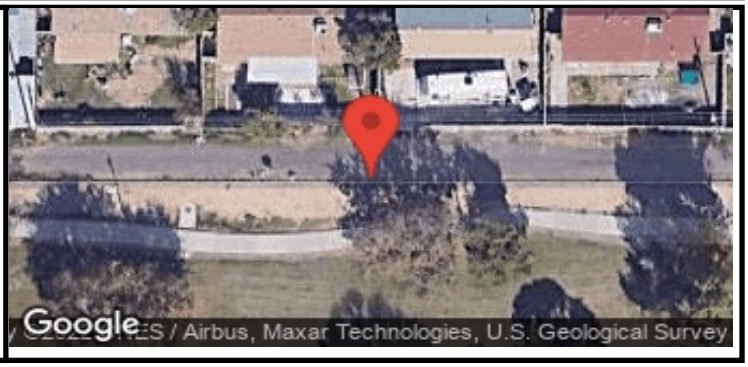
DAYLIGHTING REPORT

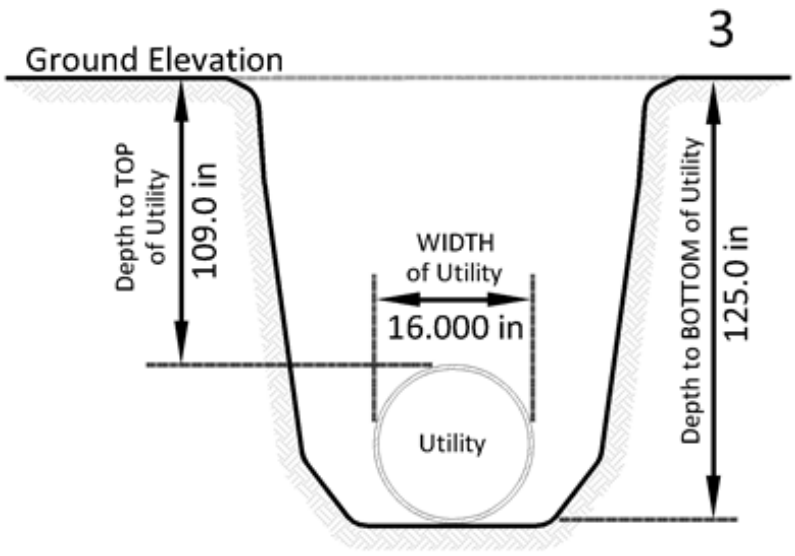
Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	3	***Depth to Top (IN):***	109.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	125.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-9.08'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-10.42'
Width (IN):	16.000"	***Latitude:***	394918.8209
Direction:	E\W	***Longitude:***	3707935.795

Notes





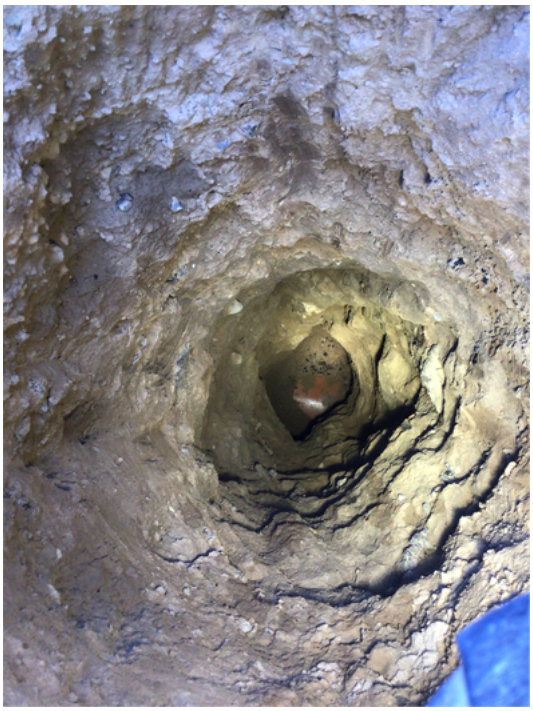


Photo No. 1
ph 3

24-hr Dispatch 480-272-3523

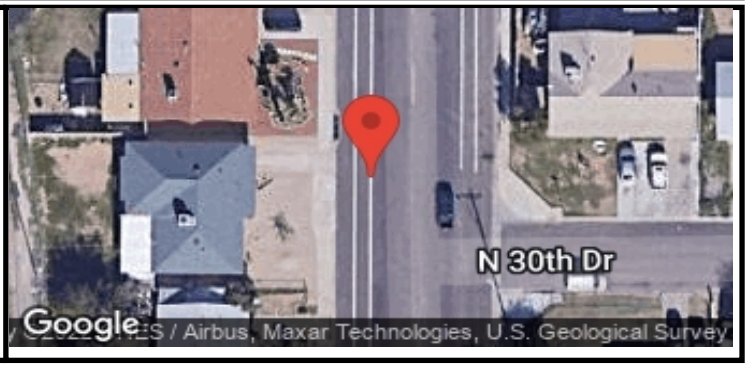
DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	4	***Depth to Top (IN):***	94.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	118.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-7.83'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-9.83'
Width (IN):	24.000"	***Latitude:***	395448.1505
Direction:	N\S	***Longitude:***	3708007.238

Notes



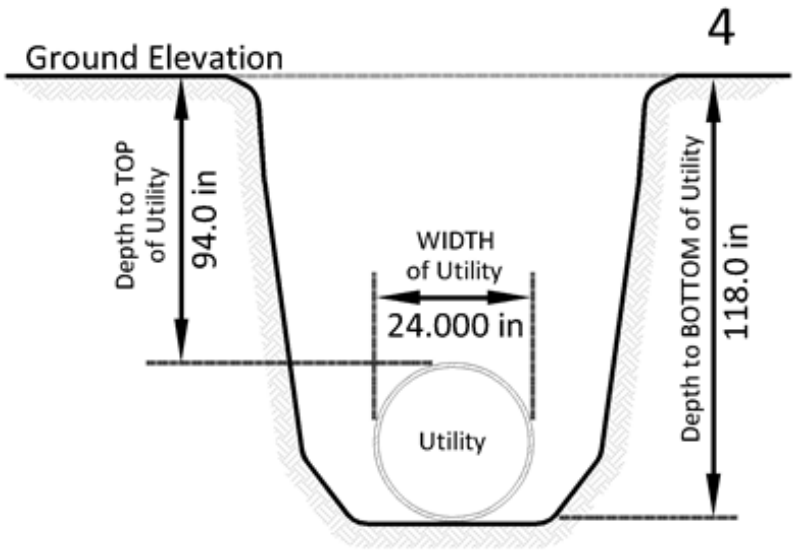


Photo No. 1
ph 4

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			

Pothole #:	4	***Depth to Top (IN):***	84.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	100.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-7.00'
Material:	clay pipe	***Elevation (Bottom) (FT):***	-8.33'
Width (IN):	16.000"	***Latitude:***	395071.1899
Direction:	E\W	***Longitude:***	3707933.801

Notes

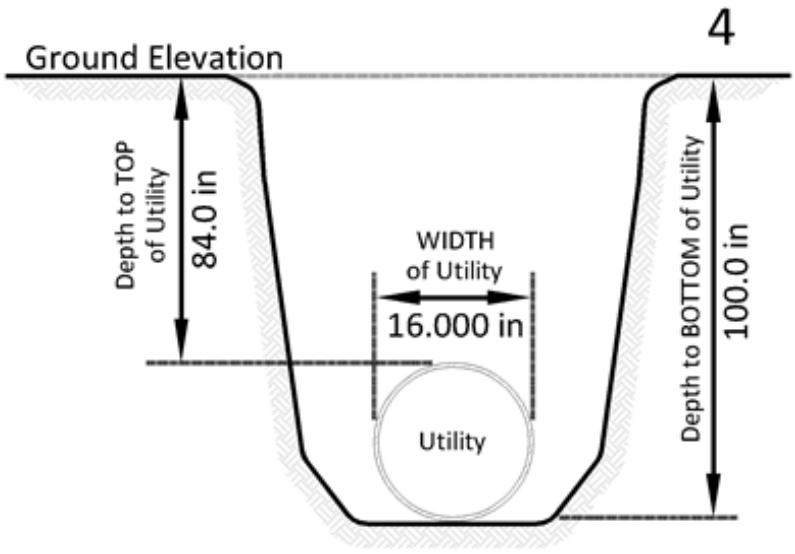


Photo No. 1
ph 4

24-hr Dispatch 480-272-3523

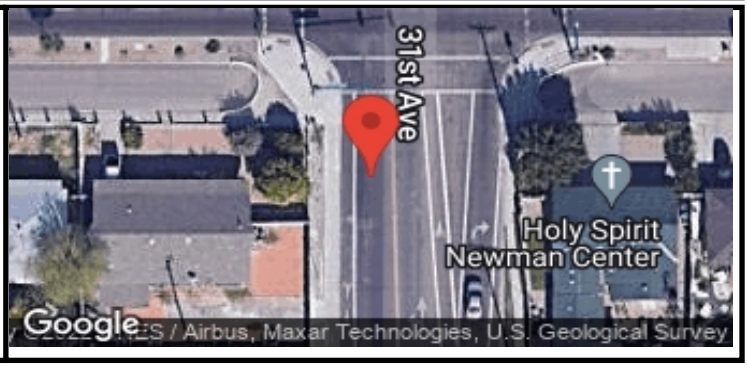
DAYLIGHTING REPORT

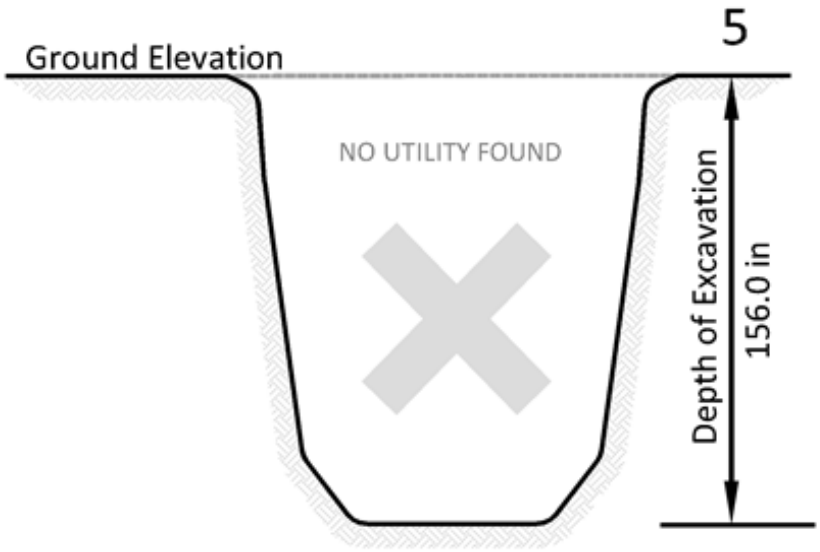
Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Richard Mendivel

Pothole #:	5	***Depth to Top (IN):***	"
Date:	May 3, 2022	***Depth to Bottom (IN):***	"
Type:	No Utility Found	***Elevation (Top) (FT):***	
Material:		***Elevation (Bottom) (FT):***	
Height (IN):	"	***Latitude:***	395451.8614
Direction:		***Longitude:***	3708307.339

Notes





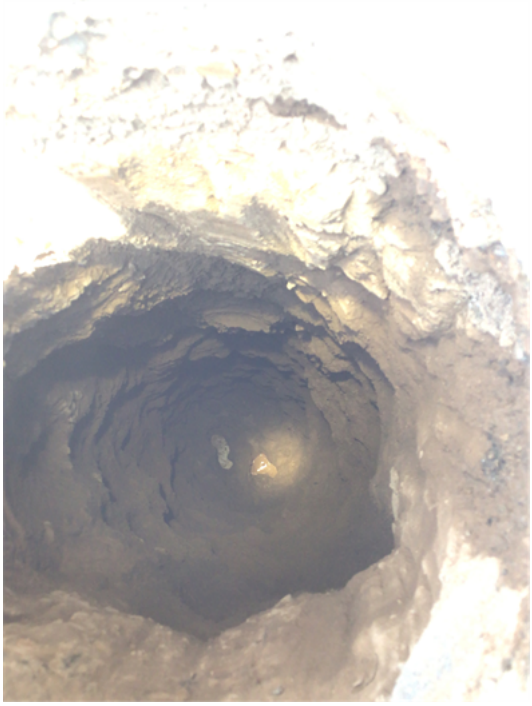


Photo No. 1

24-hr Dispatch 480-272-3523

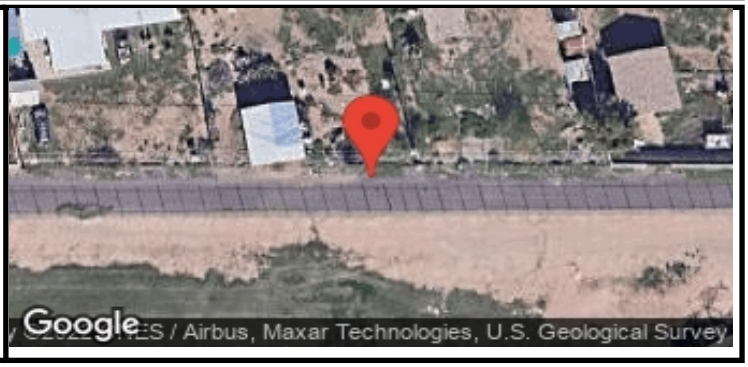
DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	5	***Depth to Top (IN):***	72.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	88.0"
Type:	sewer pipe	***Elevation (Top) (FT):***	-6.00'
Material:	clay time	***Elevation (Bottom) (FT):***	-7.33'
Width (IN):	16.000"	***Latitude:***	395192.4729
Direction:	E\W	***Longitude:***	3707937.752

Notes



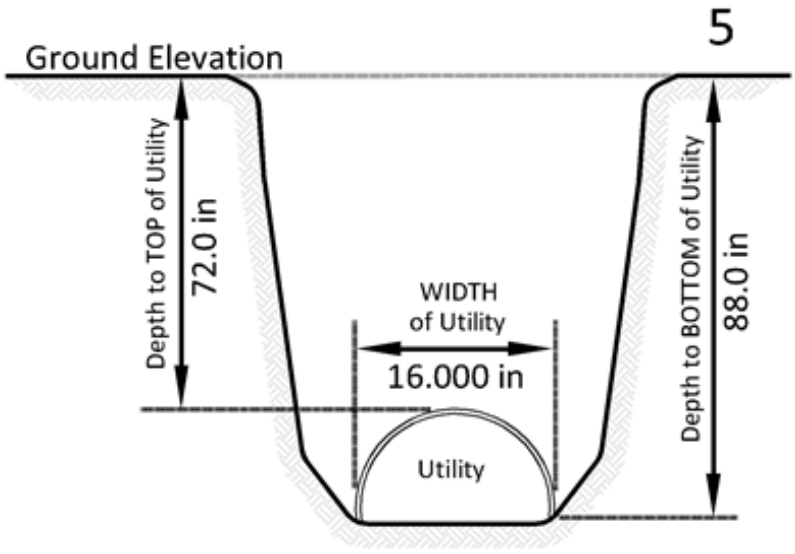


Photo No. 1
ph 5

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

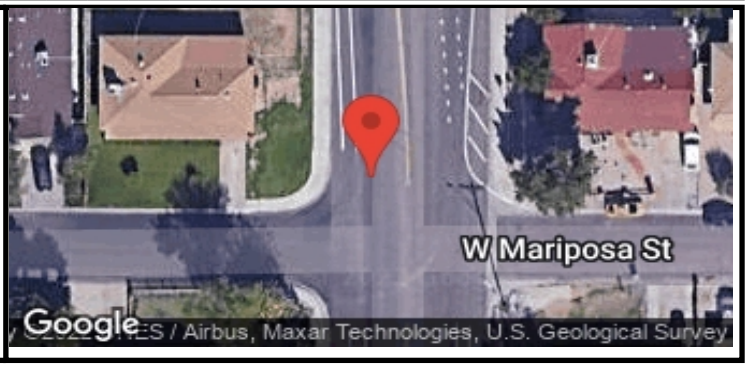
Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	PH 6	***Depth to Top (IN):***	112.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	127.0"
Type:	Sanitary	***Elevation (Top) (FT):***	-9.33'
Material:	clay	***Elevation (Bottom) (FT):***	-10.58'
Width (IN):	15.000"	***Latitude:***	395452.0935
Direction:	N/S	***Longitude:***	3708249.397

Notes

Found sewer line at 112 inches deep.



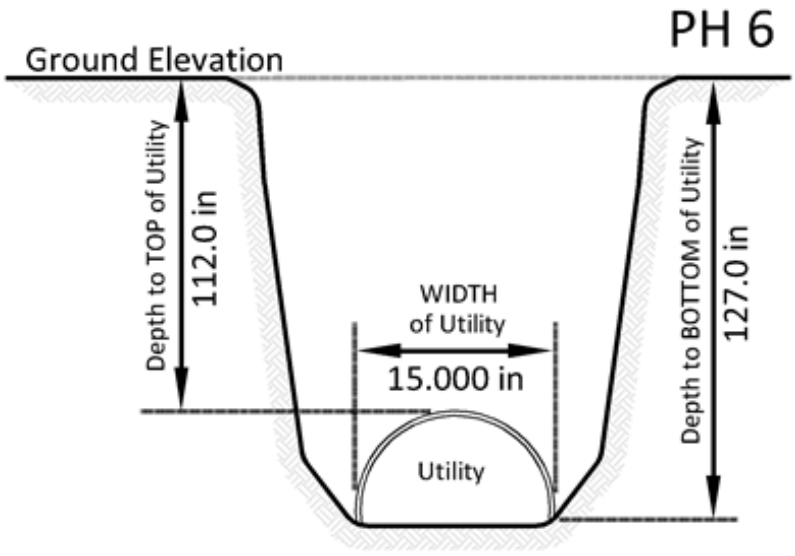


Photo No. 1
PH 6

BADGER DAYLIGHTING™

24-hr Dispatch 480-272-3523

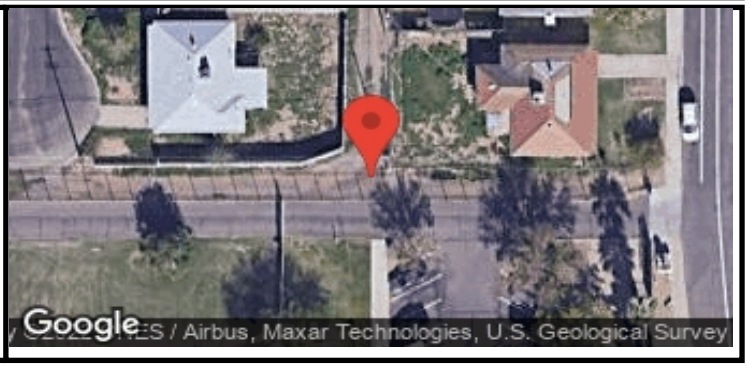
DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	4
Representative:		***Project Manager:***	Unknown
Project Location:	35TH AVE. & CAMELBACK	***Technician(s):***	Humberto Avila
Projection:			Richard Mendivel

Pothole #:	6	***Depth to Top (IN):***	102.0"
Date:	May 16, 2022	***Depth to Bottom (IN):***	118.0"
Type:	sewer	***Elevation (Top) (FT):***	-8.50'
Material:	clay	***Elevation (Bottom) (FT):***	-9.83'
Width (IN):	16.000"	***Latitude:***	395406.6817
Direction:	E\w	***Longitude:***	3707934.698

Notes



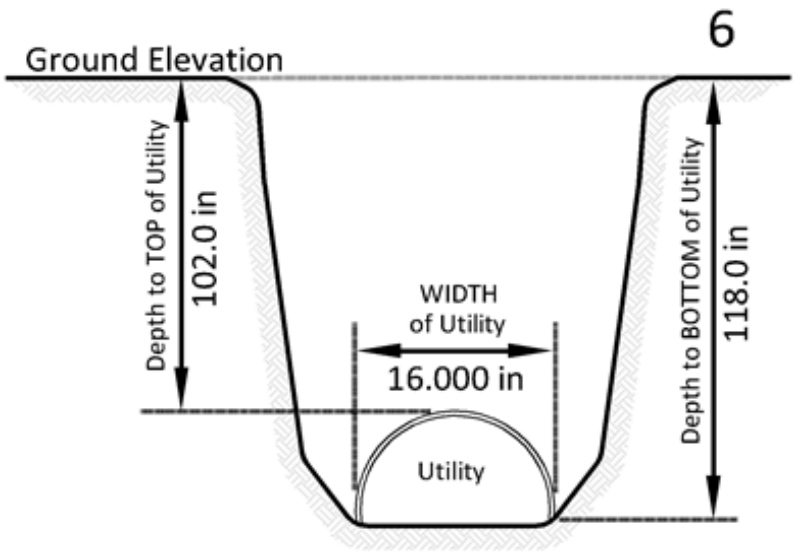


Photo No. 1

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	PH 7	***Depth to Top (IN):***	103.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	118.0"
Type:	Sanitary	***Elevation (Top) (FT):***	-8.58'
Material:	clay	***Elevation (Bottom) (FT):***	-9.83'
Width (IN):	15.000"	***Latitude:***	395447.8953
Direction:	N/S	***Longitude:***	3708134.714

Notes

Found sewer line at 103 inches deep

Photo No. 1
PH 7

24-hr Dispatch 480-272-3523

DAYLIGHTING REPORT

Project Information

Client:	SAECO	***Project Number:***	SR0000220989
Representative:		***Project Manager:***	Preston Rowe
Project Location:		***Technician(s):***	Humberto Avila
Projection:			Israel Gonzales Jr

Pothole #:	PH 8	***Depth to Top (IN):***	94.0"
Date:	May 3, 2022	***Depth to Bottom (IN):***	109.0"
Type:	Sanitary	***Elevation (Top) (FT):***	-7.83'
Material:	clay	***Elevation (Bottom) (FT):***	-9.08'
Width (IN):	15.000"	***Latitude:***	395448.0866
Direction:	N/S	***Longitude:***	3708004.462

Notes

Found sewer line at 94 inches deep

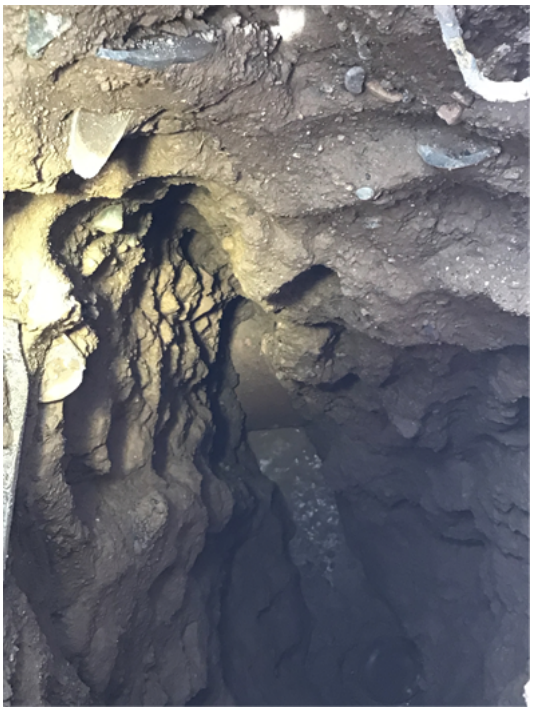
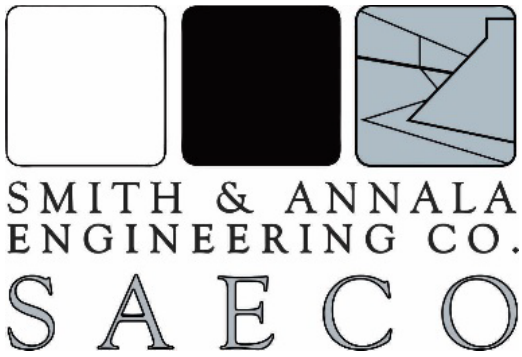


Photo No. 1
PH 8



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