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

PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS

HEDGEPETH WATERLINE IMPROVEMENT DISTRICT
47th AVENUE TO 49TH AVENUE SOUTH OF
TONOPAH DRIVE AND BEARDSLEY ROAD
DESIGN-BID-BUILD
WS85503001
REBID

PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001429

AGREEMENT XXXXXX

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PROJECT TITLE: Hedgepeth Waterline Improvement District 47th Avenue to 49TH Avenue South of Tonopah Drive and Beardsley Road DBB
PROJECT NO.: WS85503001

CALL FOR BIDS

CITY OF PHOENIX
HEDGEPETH WATERLINE IMPROVEMENT DISTRICT
51ST AVENUE TO 47TH AVENUE
BEHREND DRIVE TO TONOPAH DRIVE
DESIGN-BID-BUILD (REBID)

PROJECT NO. WS85503001

PROCUREPHX PRODUCT CATEGORY CODE 912000000
RFx 6000001429

BIDS WILL BE DUE: TUESDAY, OCTOBER 3, 2023, AT 2:00 P.M.
TO THE CITY CLERK'S OFFICE, 15TH FLOOR
CITY OF PHOENIX CITY HALL
200 W. WASHINGTON STREET

BIDS WILL BE READ: TUESDAY, OCTOBER 3, 2023, AT 2:00 P.M.
8TH FLOOR, CONFERENCE ROOM 8 NW
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.

The Hedgepeth Waterline Improvement District project will generally include the construction of approximately 1,400 linear feet of proposed 12" water distribution main along 51st Avenue between Behrend Drive and Tonopah Drive, and approximately 1,200 linear feet of proposed 12" water distribution main along Tonopah Drive between 51st Avenue and 47th Avenue.

An Alternate Design alignment along 49th Drive is included in the Bid Package. This scope of work will be considered as a bid alternate to the work shown on 51st Avenue. The alternate scope of work includes the installation of approximate 1,500 linear feet of proposed 12" water distribution main along the 49th Drive alignment across State Route L101, and approximately 1,200 linear feet of proposed 12" water distribution main along Tonopah Drive between 49th Drive and 47th Avenue.

A Small Business Enterprise goal has been waived for this project.

PRE-BID MEETING

A pre-bid meeting will be held in person and via Microsoft Teams on Tuesday, September 19, 2023, at 2:00 p.m., at 200 W. Washington Street, City Hall Conference Room PCH8 NW. 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.

Click here to join the meeting

Meeting ID: 246 632 711 046
Passcode: GKfUoT

REQUEST FOR BID PACKET

The project related documents are classified as Protected Critical Infrastructure Information (PCII) and are protected under Critical Infrastructure Information Act of 2002. Please be aware that the marking, handling and storing of PCII documents and material shall be in accordance with the provisions of the Critical Infrastructure Information Act, 6 U.S.C. §§ 131 et seq. Unauthorized release may result in criminal and administrative penalties. It is to be safeguarded and disseminated in accordance with the Critical Infrastructure Information Act, 6 U.S.C. §§ 131 et seq., the implementing Regulation, 6 C.F.R. Part 29 and PCII Program requirements. All bidders are responsible for following the PCII Program with respect to marking, handling and storing the project related documents and materials upon receipt from the City.

In addition, all bidders' personnel who are going to access the project documents must first pass City of Phoenix Water Services Department background clearance check before being granted access to the project documents. Bidders will be responsible for the cost of completing the background clearance check.

Bidders can access the online Background Screening Authorization Form at the following address:

https://truviewbsi.com/wsdrecords/

If you or your staff do not currently have the Water Services Departments clearance, or if your clearance status has expired, please fill out the form. Please be aware the typical background check processing time takes about two weeks.

Once a background clearance check has been completed, bidders will need to fill out the Water Services Department Plans Ordering form and email a completed copy to arlene.torres.guevara@phoenix.gov

On Thursday, September 7, 2023, 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 Heather Roye at (602) 261-8894 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 Heather Roye at (602) 261-8894 or heather.roye@phoenix.gov.

Jeffrey Barton
City Manager

Eric J. Froberg, PE
City Engineer

Published: Arizona Business Gazette
Date: September 7, 2023
Date: September 14, 2023
District: 1

City of Phoenix

WSD Plans Ordering Form

DATE: _____

COMPANY NAME: _____ PHONE #: _____

REQUESTOR NAME: _____ PHONE #: _____

ID/DL : _____ ADDRESS ON ID: _____

LIST ALL Q.S./AS-BUILT NUMBERS (INDICATE WATER (W), SEWER (S), OR BOTH (WS)

FILE NAME	PAGE NUMBERS	NUMBER OF SHEETS
WS85503001_Bid_Set_Drawings_2022.07.25	1 THROUGH 19	19

TOTAL IMAGES: 19

Email completed form to arlene.torres.guevara@phoenix.gov

For Official Use Only:

SENT BY SFTP: _____

PROCCESSED BY: _____

DATE: _____

This request form will be used by contractors and other construction professionals to request access to the plan set

listed above as part of the solicitation for bids of project WS85503001 - Hedgepeth Waterline Improvement District 51st Avenue to 47th Avenue

SFTP Link and file to be provided to customer at no additional cost.

Additional questions, please contact Arlene Torres Guevara.

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: Heather Roye, Design and Construction Procurement
ADDRESS: 200 W. Washington Street, 8th Floor, Phoenix, AZ 85003-1611
PHONE: (602) 261-8894 E-MAIL: heather.roye@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 Heather Roye, 8th Floor, Phoenix City Hall, 200 W. Washington Street, Phoenix, Arizona 85003-1611 or via email to heather.roye@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: Hedgepeth Waterline Improvement District 47TH Ave to 49th Ave south of Tonopah Dr and Beardsley Rd DBB
City of Phoenix Project Number: WS85503001

Sealed bids will be submitted to the bid box located on the 15th 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-10 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 List of Major Subcontractors and Suppliers form? (Page L.O.S.-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 heather.roye@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.

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. City's Project Management Information System

1. The City provides an Application Service Provider (ASP) web-based project management database that the Consultant must utilize in performing all Work under the contract requirements. All project related documents are to be uploaded to UNIFIER. The following information provides a guideline for utilization. Any questions related to the requirements of

UNIFIER should be directed to the City Project Manager.

2. The City requires the Consultant to maintain all project records in electronic format. To fulfill this requirement, the Consultant shall provide all necessary equipment to perform the functions necessary to generate, convert, store, maintain, connect to the web- based ASP and transfer electronic data.

3. The Consultant shall use this ASP to process all documents related to the Work, including, but not limited to: requests for interpretation/information, change orders, design meeting minutes and submittals.

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

   UNIFIER training will be provided through the City. 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.

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 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.

6. **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 contracts 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, (telephone 602-534-5813), will schedule a Pre-Construction Conference. This will be held at 200 W. Washington Street, Phoenix, Arizona.

Construction administration will be provided by Carollo Engineers, a consultant of the 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.

7. **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. The contractor will submit six (6) hard copies of each shop drawing for review. **Email or FAX submittals will not be accepted.**

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.

8. **105 CONTROL OF WORK**, Add the following to **Subsection 105.7 COOPERATION BETWEEN CONTRACTORS**

Other Contractors are expected to be working in or near the area of this contract. Other construction projects for the City of Phoenix, City of Glendale and Arizona Department of Transportation may be under construction while this project is being constructed. In addition to these, the Contractor will conduct his work as specified in MAG Section 105.7. The contractor is also made aware of the upcoming Loop 101 (Agua Fria Freeway), 75th Avenue to I-17 Improvements to begin during calendar year of 2024.

9. **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 by the Engineer.

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 Engineer.

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 Engineer will provide control points for establishing an accurate construction centerline and will establish bench marks adjacent to this line for the proper layout of the work. Control points will be located on monument line and/or construction centerline at the beginning and ending points of the project. Control points will also be located on the appropriate centerline at all point of curve (PC), points of tangent (PT), and angle points. No less than three (3) bench marks will be provided; one (1) at the beginning of the project, one (1) at the midpoint, and one (1) at the end of the project. Additional bench marks may be provided at other convenient locations, but no more than one (1) additional bench mark will be provided for each 1,320 feet of the project length. Control points set by the Engineer will be identified in the field to the Contractor.

After the Contractor has verified the accuracy of the control points established by the City, 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, bench marks 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 landscape drawings showing the location of all utility services, controller, pipe, 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 Professional, 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

Construction surveying and layout will be measured as a single complete unit of work.

Two-person survey party will be measured by the hour to the nearest half (1/2) hour.

Payment

Payment for construction surveying and layout will be by the lump sum and will be made as follows:

The item of two-person survey party is a contingent item and is established for the purpose of compensating the Contractor for additional staking and layout required as a result of extra work ordered by the Engineer. Payment will be made at the predetermined unit price shown on the bidding schedule for the survey party or parties used. The Engineer will be the sole judge as to whether the additional work will be performed by the Contractor or by Department forces.

The amount per hour for a two-person survey party includes the cost of all work necessary to complete the extra work.

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

10. **105 CONTROL OF WORK,** Add the following to **Subsection 105.15 ACCEPTANCE, paragraph (B) Final Acceptance**:

A. SUBSTANTIAL COMPLETION

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.

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.

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.

11. 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. 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.

12. 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

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.

13. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to **Subsection 107.2, PERMITS**:

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.

NOTE: 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 an earthmoving permit from Maricopa

County. Information and forms can be found at:

www.maricopa.gov/aq/divisions/permit_engineering/applications/Default.aspx

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. **U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT**

This project is subject to a U.S. Army Corps of Engineers 404 Permit (or U.S. Army Corps of Engineers Nationwide Permit (NWP)). The permit (or NWP) is included in these project specifications. The Contractor will comply with all requirements of this permit.

G. **OTHER PERMITS**

The Contractor will be required to obtain other permits from other agencies, such as the Arizona Department of Transportation (ADOT), the Flood Control District of Maricopa County (FCDMC), and City of Glendale before beginning work or restricting traffic in their right-of-way. The Contractor will be required to obtain these permits and comply with their requirements. The contractor is advised that the 49th Drive alternate alignment will require additional plan review time and permitting from the above-mentioned agencies and Maricopa County of Environmental Services Department (MCESD).

14. **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.

15. **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".

16. **107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC,** Add the following to **Subsection 107.8, USE OF EXPLOSIVES**:

While geotechnical information indicates some areas of hard rock, **NO BLASTING** will be allowed on this project due to the close proximity of two critical 66-inch transmission water mains, as well as many businesses and residences in the area.

17. **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 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 (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.

18. **108 COMMENCEMENT, PROSECUTION AND PROGRESS** Replace the first paragraph of **Subsection 108.1, LIMITATION OF OPERATIONS** with the following:

The Contractor shall conduct the work at all times in such a manner and sequence that will assure the least interference with traffic and inconvenience to the public. The Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional sections if the opening of such section is essential to public convenience. All the work along 51st Avenue, including but not limited to the installation of the watermain, pavement replacement, and other ancillary construction shall be completed by July 31, 2024, within the limits of Behrend Drive to Tonopah Drive.

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

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. **108 COMMENCEMENT, PROSECUTION AND PROGRESS**, Add the following to **Subsection 108.5, LIMITATION OF OPERATIONS**:

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.

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.

Unscheduled Overtime

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.

Emergency Overtime

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**

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 109.2, SCOPE OF PAYMENT**:

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.

25. **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.

26. **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.

27. **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
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.

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. 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 will be as follows:

Tonopah Drive: 5 inches of Type C-3/4 Asphalt (Two Lifts) on 10 inches on 100% compacted Aggregate Base

Course.

51st Avenue: 5 inches of Type C-3/4 Asphalt (Two lifts) on 10 inches on 100% compacted Aggregate Base Course.

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. Where the plans identify the limits of replacement to extend up to the nearest curb, the payment limits will extend up to the face or lip of the curb and gutter.

There will be no separate measurement or payment for trench backfill or aggregate base course. The cost of the backfill and aggregate base is considered included in the cost of the pipe.

3. **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".

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.

NIGHT WORK

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.

TEMPORARY PAVEMENT (TONOPAH ROAD ONLY)

Temporary pavement will be asphalt concrete, Type C-3/4, 2-inches thick. The temporary pavement will be placed as required to maintain traffic and pedestrians on pavement at all times, or as directed by the Engineer.

On this project, it is expected that no more than **2500 tons** of Type C-3/4 temporary asphalt pavement will be required.

There will be no direct measurement or payment for furnishing, installing, maintaining, or removing the first **2500 tons** of temporary asphalt pavement, the cost being considered incidental to the cost of the project. If more than the expected amount of temporary asphalt pavement is required by the Engineer, a fair contract unit price based on actual and recent historic unit bid prices for permanent asphalt pavement will be negotiated and paid to the Contractor.

4. **401 TRAFFIC CONTROL,** add the following to **Subsection 401.5 GENERAL TRAFFIC REGULATION**:

TRAFFIC REGULATIONS

A. The following shall be considered Arterial streets:

51st Ave S/O SR 101

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

51st Ave N/O SR 101

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	Violation Description

Sanction Per Day	
$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.

SPECIAL TRAFFIC REGULATIONS

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

Any weekend closures will only be allowed with written approval and will be dependent on the impact to local agencies: City of Glendale and City of Phoenix Right of Way Department), the ADOT Central District, and ADOT Communications Group. Weekend closures, if approved, will be allowed from Friday at 10:00 p.m. to Monday at 5:00 a.m. Contractor shall remove all traffic control for temporary closure outside of those times.

There will be no lane closures or freeway closures on Arizona State public holidays or weekends which adjoin a holiday. The following holidays are generally considered Arizona State public holidays: New Years, Martin Luther King Jr. Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving (including the day after), and Christmas. Contractors shall remove all traffic control for temporary lane closures prior to holidays or weekends which adjoin a holiday.

There will be a moratorium on weekend closures from November 15th through January 15th. During the moratorium, no weekend closures will be allowed.

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

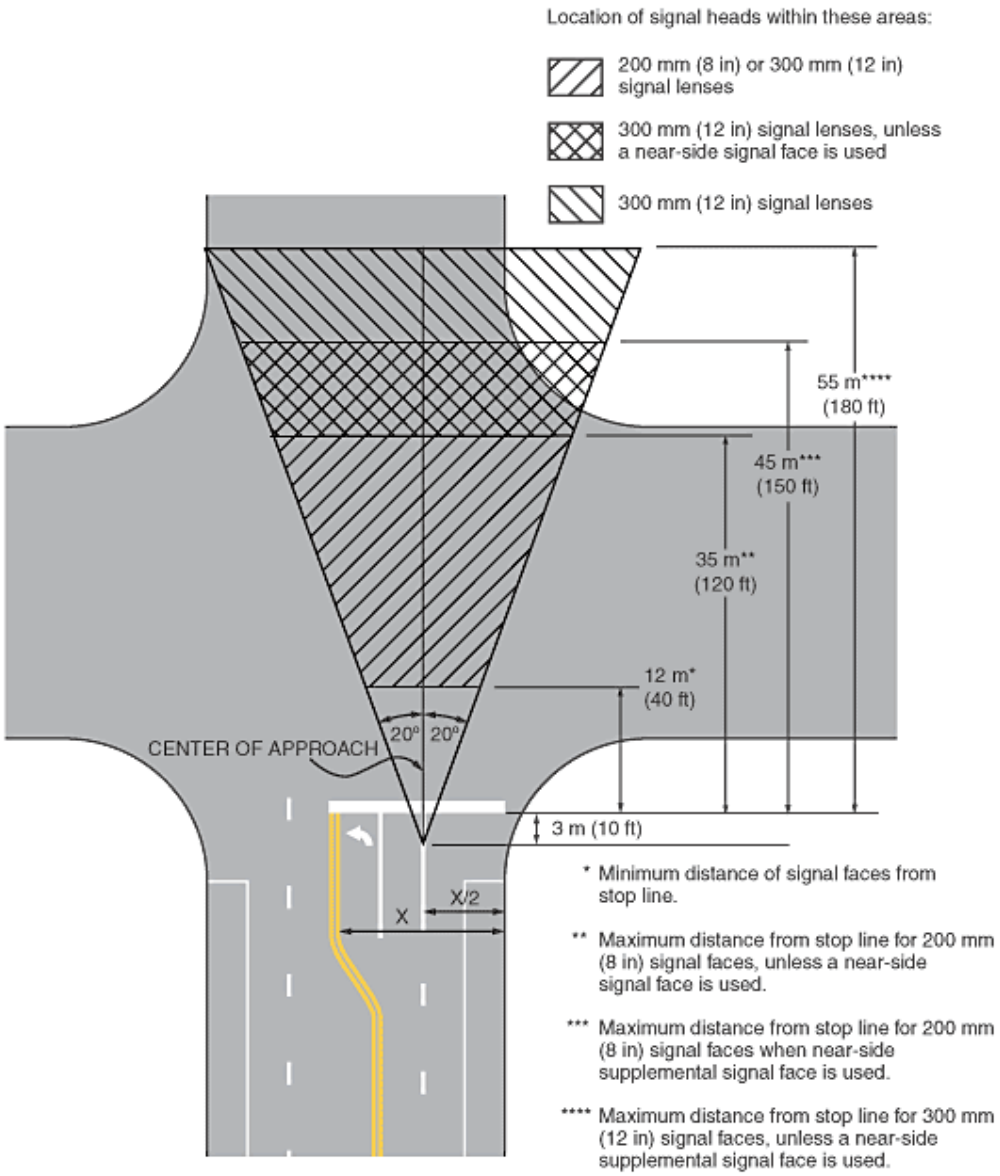
When left turns are prohibited at signalized intersections with left-turn arrow indications or when working in vicinity of a signalized intersection, the contractor will coordinate with the project inspector five days in advance and provide a written schedule indicating days, times and specific locations 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:

Coordinate with ADOT and City of Glendale, including upcoming Loop 101 (Agua Fria Freeway), 75th Avenue to I-17 Improvements. Permits and notifications impacting jurisdictions outside the City of Phoenix are the responsibility of the permit holder.

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.

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 project inspector, to facilitate access for heavy construction equipment.

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.

5. **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.

6. **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 tape. The video tape will not be made from a moving vehicle. One copy of the video tape will be furnished to the City prior to the start of construction. The cost of the video taping 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 pager and mobile phone to his on-site Project Superintendent to ensure that the Engineer can reach the Contractor's Superintendent. This pager and mobile phone must be accessible by

local land-line telephone service. The Superintendent's pager and 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 City of Phoenix right-of-way along 51st Avenue. 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 51st Avenue. Trenches across driveways will be plated to maintain access. The cost of these plates will be considered incidental to the 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.

Use of the power pick-up broom in the special requested areas only will be measured and paid for on an hourly basis under the bid item, 'POWER BROOM'. The number of hours listed in the bid proposal is only an estimate. Actual hours requested for this project may vary.

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.

7. Add the following new **Section 434 ADDITIONAL LANDSCAPING REQUIREMENTS** as follows:

434.1 PLANT SWALES AND TREE STAKING

Prior to preparing plant swales and staking trees, the Contractor will have a representative sample of tree and shrub swales, and tree staking inspected and approved by the Engineer and Landscape Architect for conformance with project plans and specifications.

The Contractor will correct any swales or staking that do not conform to the approved representative samples.

There will be no separate measurement or payment for swales or staking. The cost will be considered incidental to the cost of the plant materials.

434.2 TRIMMING NEWLY PLANTED TREES

The Contractor will trim all newly planted trees as necessary prior to staking so that low branches are removed where standard trees are required. Trees will be trimmed so that the tree is balanced and a central leader is maintained. When necessary, excess branching will be thinned so that a strong branching structure will develop. The Contractor will trim with a hand-held pruner. Trimming will be done to the satisfaction of the Engineer and the Landscape Architect.

There will be no separate measurement or payment for trimming new trees. The cost of the work will be considered incidental to the cost of furnishing and/or installing new trees.

434.3 TRIMMING EXISTING TREES AND/OR SHRUBS IN PLACE

Where there are existing trees to remain in place, the Contractor is to perform any trimming operation required to maintain pedestrian clearance to a height of 7' and to maintain sight visibility. Trimming which involves removal of branches over 3" in diameter or removal of branches which will alter the structure of the trees will be done by a person trained and Certified in the Practice of Arboriculture. The arborist will present certification papers to the Engineer and Landscape Architect for approval upon request. If the tree(s) become damaged or disfigured as a result of the trimming, the Engineer and Landscape Architect may require that the tree(s) be removed and replaced in size and kind by the Contractor. Removal and replacement will be done at the Contractor's expense.

Trimming existing trees and shrubs in place includes trimming of branches or foliage which overhang existing walls or fences where the branches create a problem for pedestrian clearance or for order. Trimming of existing trees will be done according to plans as noted and as directed by the Engineer and Landscape Architect.

There will be no separate measurement or payment for trimming existing trees in place. The cost of the work will be considered incidental to the cost of the project.

434.4 PRUNING ROOTS OF EXISTING TREES

If construction impacts the roots, trunk or branches of existing trees that are designated to remain in place, the Contractor will take all necessary precautions to ensure the survival and protection of the tree. The Contractor will hire a Certified Arborist to investigate the areas surrounding existing trees to be saved in place, and locate existing roots. Existing roots will be excavated by hand, and hand-pruned as necessary to where the root is healthy. The Arborist will also make necessary recommendations for care of the tree(s) with respect to root feeding, fertilizing, or any other items required to ensure survival.

The Arborist will present certification papers for approval by the Engineer and Landscape Architect upon request.

There will be no separate measurement or payment for root pruning. The cost will be considered incidental to the cost of the project.

434.5 PROVIDE PROTECTION FOR EXISTING TREES

The Contractor will be responsible for protecting existing trees to remain in place as tagged in the field and/or as noted on the plans. The Contractor will provide fencing around all trees and plants which are to remain in place that could be damaged by construction activity or equipment. A minimum area will be established around each plant based on its trunk caliper size. The minimum area will be one (1) foot of radius for each inch of caliper. For example, if a tree has a 6" caliper, there will be a minimum 6' radius area around the tree that will be considered a protected zone, and a fence will be placed at that location. The fencing will provide protection to the trunks and limbs from damage that could be caused by construction activity or equipment.

Any trimming that is necessary to prevent construction damage to existing trees will be pre-approved by the Landscape Architect. If the roots of existing trees could be affected in any way by construction they will be hand excavated and trimmed as described in the Special Provision, "PRUNING ROOTS OF EXISTING TREES". Root pruning will also be pre-approved by the Landscape Architect.

The Contractor will be responsible for all costs associated with protection of existing trees in place. If any damage occurs to trees or other plants to remain that, in the opinion of the Engineer and Landscape Architect, destroys, aesthetically disfigures, or threatens the plant's future survival, the Contractor will be responsible for replacing the tree in kind. Replacement trees will be the same size as the damaged tree. Prior to selection of any replacement tree, the Contractor will obtain approval of the size, type and purchase source from the Engineer and Landscape Architect.

There will be no separate measurement or payment for providing protection for existing trees and plants in place. The cost will be considered incidental to the cost of the project.

8. **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.

9. **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.

10. **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.

11. **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.

12. **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. For trenches within ADOT right of way, trench backfill shall adhere to the requirements listed in the 2015 document. “ADOT GUIDELINE FOR ACCOMMODATING UTILITIES ON HIGHWAY RIGHTS-OF-WAY” and as shown in the project drawings. 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 or in the special provisions, and will be paid for by the square yard or by the ton, whichever is indicated in the special provisions and on the bid proposal.

13. **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.

14. 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 shutdown 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 shutdown 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.

Except where authorized in the special provisions or in writing by the Engineer, 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.

When the ductile iron pipe replacement option is used for the sewer lines, the new pipe will be properly blocked at each end with one or more bricks resting on undisturbed or 95% compacted soil haunches outside the trench walls to prevent differential settlement.

The interior of all ductile iron pipe used for sewer lines will be coated per the specification, "LINING FOR DUCTILE IRON PIPE USED FOR SEWER LINES" in these Special Provisions.

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 tape 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 support or encasement.

Permanent pipe supports will be paid for at the unit price bid for each unit installed 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.

The Contractor shall make special note of the requirements added in the Supplementary Conditions, Section 110, Soils Information. The Contractor may encounter unfavorable subsurface conditions not described in the Soils Report. No additional compensation will be made for any differing site conditions that may be encountered.

15. **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.

16. **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 not identified on the plans, the Contractor will vertically and/or horizontally realign the existing water main, as needed, 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, pipe, 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.

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 not identified on the plans.

Payment for realignment of water mains will be made at the unit price bid per each under proposal items "ALLOWANCE FOR DEMOLITION WORK, RELOCATION OF UTILITIES, AND VERTICAL REALIGNMENTS"

17. **610 WATER LINE CONSTRUCTION**, Add the following to **Subsection 610.7 VALVES**:

LOCATING, CLEANING AND INSTALLING WATER VALVE BOX DEBRIS CAP WITH LOCATOR COIL

The Contractor will furnish and install a debris cap with a locator coil in all new water valve boxes installed; in all existing water valve boxes adjusted to grade; and in all other existing water valve boxes within the project limit right-of-way, even if not called out for adjustment to grade. The debris cap will be in accordance with City of Phoenix Supplement to MAG Detail P-1165 and will include a locator coil.

Prior to installation of the debris cap, valve risers will be thoroughly cleaned, fully exposing the operating nut. In addition, the Contractor will attempt to locate all unexposed water valves within the project limits, as indicated by City of Phoenix Water Services Department water valve Quarter-Section maps. In attempting to locate unexposed valve boxes, the Contractor will excavate a minimum depth of eighteen (18) inches from the surface. Unexposed valve boxes found will be brought up to finish grade; cleaned to fully expose the operating nut; and a debris cap with locator coil will be installed.

Measurement for debris caps furnished and installed in water valve boxes (adjusted to grade or not) will be per each unit, including locating and cleaning. The Contractor will obtain the appropriate Water Services Department water valve Quarter-Section maps at Phoenix City Hall, 200 W. Washington Street, 8th Floor, at no additional cost to the City, and will make a diligent effort to locate all existing unexposed water valves shown on these maps. The Contractor will clearly mark all unexposed water valve boxes actually located on record plans and copies of the water valve Quarter-Section maps showing specific found location information, and these plans will be provided to the Engineer. The cost for the Contractor to extend any risers on found unexposed valve boxes to bring them up to finish grade will also be considered incidental.

Payment for this work in will be made under the bid item, "DEBRIS CAP, INCLUDING LOCATOR COIL, FURNISH AND INSTALL." There will be no separate measurement or payment for any labor, materials or equipment used in attempting to locate valves shown on the Quarter-Section maps that are not actually found. Valve locating attempts that do not produce any resulting "finds" will be considered incidental.

18. **610 WATER LINE CONSTRUCTION**, Add the following new **Subsections 610.9.1 Fire Hydrant Relocation; 610.9.2 New Fire Hydrant Installation; and 610.9.3 Fire Hydrant: Remove, Salvage and Deliver to City of Phoenix**:

610.9.2 New Fire Hydrant Installation:

New fire hydrant installations will be paid for at the unit price bid per each under the bid item, "Fire Hydrant Assembly, Including Valves, 6" Pipe, & All Necessary Fittings". The unit price bid will be full compensation for installing the new fire hydrants at the locations shown on the plans and in accordance with construction standards. All pipes, fittings, and valves necessary to accomplish the installation will be measured and paid for under this bid line item.

Prior to removing any existing fire hydrant from service and prior to activating the new fire hydrant, the Contractor will notify the Engineer. Water Distribution Division will provide new fire hydrants at no cost to the Contractor. It will be the Contractor's responsibility to pick up the new hydrants and to either return old hydrants to the Water Distribution Division Yard, or dispose of them, whichever is directed by the Engineer. In order to obtain new fire hydrant, the Contractor must first obtain a written order (Field Directive) from the Engineer. Then, at no additional cost to the City, the Contractor will pick up the specified number of units at the Water Distribution Warehouse located at 2500 S. 22nd Avenue.

19. **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.

20. **610 WATER LINE CONSTRUCTION**, Add the following to **Subsection 610.11(D) METER SERVICE CONNECTIONS**:

HORIZONTAL BORING FOR METER SERVICE CONNECTIONS

For meter service pipes 1-inch or larger in diameter, the maximum bore hole size permissible will be twice the internal diameter of the service line being installed. For meter service pipes smaller than 1-inch in diameter, the maximum borehole size will be two (2) inches in diameter.

21. **610 WATER LINE CONSTRUCTION**, Add the following to **Subsection 610.19 MEASUREMENT AND PAYMENT**:

(H) Ductile Iron Fittings: Any additional waterline fittings that become necessary during construction, beyond what is shown on the plans for water main construction; and any fittings needed for new fire hydrant installations, will be paid for separately under the bid item, "ALLOWANCE FOR MISCELLANEOUS FITTINGS." Payment for these fittings will be made from this allowance based on approved invoiced cost of the materials only, plus bonds, insurance and taxes, and a maximum 15 percent markup for overhead and profit. All other waterline fittings as shown on the plans will be considered incidental to the cost of the water pipe.

22. **610 WATER LINE CONSTRUCTION**, Add the following to **Subsection 610.7 VALVES**:

LOCATING, CLEANING AND INSTALLING WATER VALVE BOX DEBRIS CAP WITH LOCATOR COIL

The Contractor will furnish and install a debris cap with a locator coil in all new water valve boxes installed; in all existing water valve boxes adjusted to grade; and in all other existing water valve boxes within the project limit right-of-way, even if not called out for adjustment to grade. The debris cap will be in accordance with City of Phoenix Supplement to MAG Detail P-1165 and will include a locator coil.

Prior to installation of the debris cap, valve risers will be thoroughly cleaned, fully exposing the operating nut. In addition, the Contractor will attempt to locate all unexposed water valves within the project limits, as indicated by City of Phoenix Water Services Department water valve Quarter-Section maps. In attempting to locate unexposed valve boxes, the Contractor will excavate a minimum depth of eighteen (18) inches from the surface. Unexposed valve boxes found will be brought up to finish grade; cleaned to fully expose the operating nut; and a debris cap with locator coil will be installed.

Measurement for debris caps furnished and installed in water valve boxes (adjusted to grade or not) will be per each unit, including locating and cleaning. The Contractor will obtain the appropriate Water Services Department water valve Quarter-Section maps at Phoenix City Hall, 200 W. Washington Street, 8th Floor, at no additional cost to the City, and will make a diligent effort to locate all existing unexposed water valves shown on these maps. The Contractor will clearly mark all unexposed water valve boxes actually located on record plans and copies of the water valve Quarter-Section maps showing specific found location information, and these plans will be provided to the Engineer. The cost for the Contractor to extend any risers on found unexposed valve boxes to bring them up to finish grade will also be considered incidental.

Payment for this work in will be made under the bid item, "DEBRIS CAP, INCLUDING LOCATOR COIL, FURNISH AND INSTALL." There will be no separate measurement or payment for any labor, materials or equipment used in attempting to locate valves shown on the Quarter-Section maps that are not actually found. Valve locating attempts that do not produce any resulting "finds" will be considered incidental.

23. **631 WATER TAPS AND METER SERVICE CONNECTIONS**, Add the following new **Subsection 631.11 WATER MAIN SHUTDOWN FEES** as follows:

631.11 WATER MAIN SHUTDOWN FEES

All water main shutdown fees for installation of new water services, extension or replacement of existing water service lines, and relocation of existing water meter boxes will be waived. When it becomes necessary to shut down existing water mains and services to install water service extensions or replacements, no main will be left out of service for more than one (1) hour, and no individual service will be disrupted for more than five (5) continuous hours. Main valves will be operated by representatives of the City's Water Services Department. Shutdowns will not begin before 8:00 a.m. and will not extend past 4:00 p.m. It will be the Contractor's responsibility to notify all customers in advance that the water service will be turned off. The customers will be notified in writing at least 24-hours in advance and also verbally the day of the shutdown. Initial notification will include the reason for the shutdown, the date, the time and duration the water service will be shut off. A copy of the notification will be given to the Engineer.

24. Add the following new **Section 635 ABANDONMENT AND REMOVAL OF EXISTING WATER FACILITIES** as follows:

635 ABANDONMENT AND REMOVAL OF EXISTING WATER FACILITIES

635.2 REMOVAL OF EXISTING WATER VALVE BOX AND COVER

All existing valve box frames and covers (and at least the top 12" of any valve vaults) will be removed. The void created will be backfilled with ABC and compacted. The surface will be replaced to match the existing surrounding surface—asphalt, concrete, gravel, etc.

Measurement and payment for this work will be per each under the bid item, "REMOVE FLUSHING PIPE & METER BOX and will include all materials and equipment necessary to remove the meter box and 2" flushing pipe, backfill and compact. Pavement replacement, if any, will be paid for under a separate bid item for that work.

25. **702 BASE MATERIALS** Add the following to **MAG Section 702 BASE MATERIALS**:

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


Credit: AGFD

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Sonoran Desert Tortoise

(Gopherus morafkai)

The purpose of this flyer is to provide City of Phoenix employees and contractors working on City projects with basic knowledge to reduce the risk of impacting Sonoran Desert tortoise.

Legal Status:
The Sonoran Desert tortoise is a Tier 1A Species of Greatest Conservation Need in the State of Arizona, as defined by the Arizona Game and Fish Department (AGFD) and is a Candidate Species under the Endangered Species Act.

Species Description:

- Length: 8-15 inches
- Bottom shell yellowish and not hinged
- Hind limbs stocky and elephantine
- High-domed, brownish shell with a pattern and prominent growth lines
- Flattened forelimbs for digging, covered with conical scales

Where are they found?

- Rocky, steep slopes and lower mountain slopes
- Native desert scrubland
- Between 904 and 4,198 feet in elevation
- Washes and valley bottoms may be used in dispersal

Where are they active?

- Sonoran Desert tortoise spend the bulk of time in burrows, which provide protection from heat and cold
- Emerge from burrows on rocky slopes, desertscrub or grassland to feed, bask and breed, mostly during the monsoon season

How to avoid impacting Sonoran Desert tortoise:

- Scan ahead as you work
- ***If Sonoran Desert tortoise observed, STOP WORK, call the contact below and allow the tortoise to leave under its own power***
- Do NOT pick up or handle the Sonoran Desert tortoise unless the tortoise is in imminent danger. Improper handling can result in tortoise death. If a tortoise must be moved, strictly adhere to the following AGFD guidelines (rev. 9/22/2014): https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf.
- When working in Sonoran Desert tortoise habitat, check for tortoises under parked vehicles before driving

Questions? Concerns? Think your project will impact Sonoran Desert tortoise? Contact the City of Phoenix Street Transportation Department, Environmental Services:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>
Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Sources: US Fish & Wildlife Service-Arizona Ecological Services Field Office, Sonoran Desert Tortoise, Document Library-Document by Species
http://www.fws.gov/southwest/es/arizona/Documents/Redbook/Sonoran%20Tortoise%20RB.pdf

Updated September 10, 2020

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Western Burrowing Owl

(Athene cunicularia)

The purpose of this flyer is to provide City of Phoenix employees and contractors working on City projects with basic knowledge to reduce the risk of impacting western burrowing owls.

Legal Status:
The western burrowing owl is protected under the Migratory Bird Treaty Act of 1918, as amended. All migratory birds and their parts (including eggs, feathers, and nests) are fully protected. They are also protected under Arizona State Law, Title 17-101, Title 17-235, and Title 17-236.

Species Description:

- Small, ground-dwelling owl (mass of approx. 5 oz.)
- Length: 7.6-9.9 inches, with long legs
- Wingspan: approx. 23 inches
- Round head, lacks ear tufts
- Distinct oval facial ruff, framed by a broad, puffy white eyebrow
- Bright yellow iris

Where are they found?

- Dry, open, short grass, treeless plains
- Human dominated landscapes such as:
    - Golf courses, airports
    - Agricultural fields, vacant lots
- Depends on other animals to construct burrows

Identifying an active burrow

- Western burrowing owls use burrows constructed by ground squirrels, badgers, coyotes, tortoises, etc., or may use pipes, culverts, and ditches.
- They may "decorate" the entrance to a burrow with cow, horse, or dog manure, feathers, vegetation, and trash items
- An active burrow may (not always) have owl excrement ("whitewash") and/or pellets near the entrance

How to avoid impacting western burrowing owls:

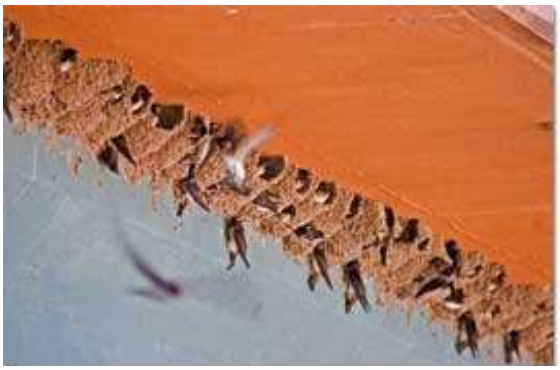
- Scan ahead as you work
- ***If western burrowing owls or potentially active burrows observed, STOP WORK and MOVE at least 100 feet away from the owl or occupied burrow before resuming work***
    - Do not harass or "shoo" the owl away
- If the project cannot avoid or stay outside 100 feet of the owl or active burrow, call contact listed below

Questions? Need to work within 100 feet of a western burrowing owl or active burrow? Contact a City of Phoenix Street Transportation Department Environmental Quality Specialist:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>
Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Sources: Arizona Department of Transportation Environmental Planning Group Western Burrowing Owl Awareness Flyer
Arizona Game and Fish Department Animal Abstract: Western Burrowing Owl. Heritage Data Management System

Updated November 18, 2019



Credit: DesertUSA.com/animals/cliff-swallow.html

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Migratory Bird Treaty Act

(Applies to many birds in Phoenix)

The purpose of this flyer is to provide City of Phoenix employees and contractors with basic knowledge to reduce the risk of impacting species protected by the Migratory Bird Treaty Act.

Migratory Bird Treaty Act (MBTA)

Under the Migratory Bird Treaty Act of 1918, as amended, listed birds and their parts (including eggs, feathers, and nests) are fully protected. They are also protected under Arizona State Law, Title 17-101, Title 17-235, and Title 17-236. The MBTA states that it is illegal to:

- Pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird.
  - 'Take' is defined as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect."

More information regarding the MBTA can be found at:

- http://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php
- https://www.fws.gov/laws/lawsdigest/migtrea.html

Where/When are they active?

- The nests of birds protected by the MBTA can be found in many places, including trees, shrubs, cacti, cattails, on the ground, in holes in the ground and on man-made structures including culverts, bridges, buildings, etc.
- The breeding cycle of most birds in Phoenix occurs between February 1 and August 31, although there are a few species that may nest outside that period. Some birds may be present year-round and others migrate, often during the late summer/early autumn period.

How to avoid impacting birds protected by the MBTA:

- If your project might impact active bird nests/burrows, work with one of the contacts below during the design process to make appropriate arrangements before the project activity begins. Necessary actions may include active nest surveys, seasonal restrictions, or obtaining a project-specific relocation permit from the U.S. Fish and Wildlife Service.
- When actively working, be aware of your surroundings. If you see a nest that appears active (chirping, aggressive or distracting adult bird behavior, eggs present, etc.) **STOP WORK** within 30 feet of the area and call one of the contacts below.

Questions? Work may impact birds protected by the MBTA? Contact a City of Phoenix Street Transportation Department Environmental Quality Specialist:

Andrea Love 602-495-6718 or via e-mail at <andrea.love@phoenix.gov>
Greta Halle 602-534-6030 or via e-mail at <greta.halle@phoenix.gov>

Updated November 18, 2019

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, 5th 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 drain pipes 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 **Hedgepeth Waterline Improvement District 51st Ave to 47th Ave / Behrend Dr to Tonopah Dr DBB** 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 **Hedgepeth Waterline Improvement District 51st Ave to 47th Ave / Behrend Dr to Tonopah Dr DBB** p 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 Hedgepeth Waterline Improvement District 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: _____

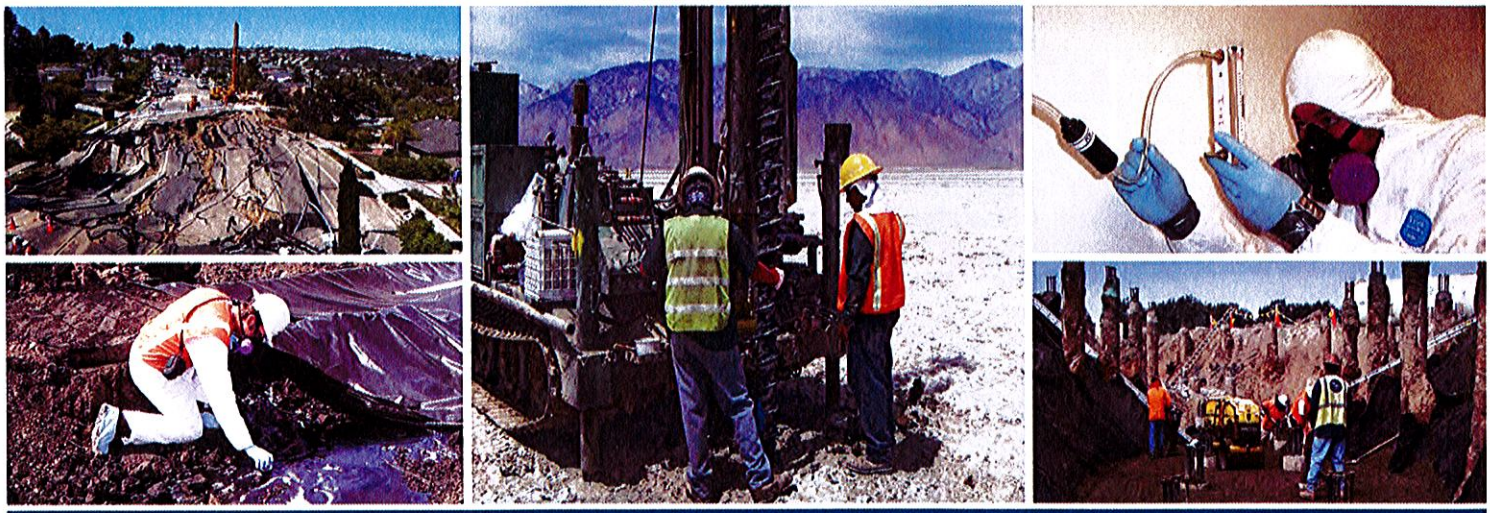
Geotechnical Evaluation

Hedgepeth Waterline Improvements District
State Route Loop 101 and 51st Avenue
Phoenix, Arizona

Carollo Engineering

4600 East Washington Street, Suite 500 | Phoenix, Arizona 85034

July 27, 2021 | Project No. 605986002



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

July 27, 2021
Project No. 605986002

Ms. Ena Tucker, PE
Carollo Engineering
4600 East Washington Street, Suite 500
Mesa, Arizona 85205

Subject: Geotechnical Evaluation
Hedgepeth Waterline Improvements District
State Route Loop 101 and 51st Avenue
Phoenix, Arizona

Dear Ms. Tucker:

In accordance with our proposals dated August 19, 2019 and April 30, 2021, and your authorization, Ninyo & Moore has performed a geotechnical evaluation for the above-referenced site. The attached report presents our methodology, findings, conclusions, and recommendations regarding the geotechnical conditions at the project site.

Ninyo & Moore appreciates the opportunity to be of service to you on this project.

Respectfully submitted,
NINYO & MOORE

Dylan C. Walker, PE
Senior Staff Engineer

Steven D. Nowaczyk, PE
Managing Principal Engineer

DCW/SDN/tlp

Registered Professional Engineer (Civil)
CERTIFICATE NO.
34866
STEVEN D.
NOWACZYK
Date Signed 7/27/2021
ARIZONA U.S.A.

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

In accordance with our proposals dated August 19, 2019 and April 30, 2021, and your authorization, we have performed a geotechnical evaluation for the proposed Hedgepeth Waterline Improvements District Project to be located near State Route Loop 101 and 51st Avenue in Phoenix, Arizona. The purpose of our evaluation was to assess the subsurface conditions at the project site in order to provide geotechnical recommendations for design and construction. This report presents the results of our evaluation, and our geotechnical considerations and recommendations regarding the proposed construction.

2 SCOPE OF SERVICES

The scope of our services for this project generally included:

- Reviewing readily available geotechnical data, aerial photographs, and published geologic literature, including maps and reports pertaining to the project site and vicinity.
- Conducting a geologic reconnaissance of the site.
- Marking out the boring locations at the project site, securing permission to drill, and notifying Arizona 811 of the boring locations prior to drilling.
- Drilling, logging, and sampling seven exploratory borings to depths of approximately 14 to 35 feet below ground surface (bgs). The boring logs are presented in Appendix A.
- Collecting soil samples in the borings at approximately 2.5 and 5.0-foot intervals using ASTM International (ASTM) Methods D1586 (Standard Penetration Test with split-spoon barrel sampling of soils) and D3550 (ring-lined barrel sampling of soils) for laboratory testing and analysis.
- Performing laboratory tests on selected samples obtained from the borings to evaluate in-situ moisture content and dry density, particle-size gradation, Atterberg limits, and corrosivity characteristics (including pH, minimum electrical resistivity, redox potential, sulfide, and soluble sulfate and chloride contents). The in-situ moisture content and dry density results are presented on the boring logs in Appendix A. The remainder of the laboratory test results are presented in Appendix B.
- Preparing this report presenting our findings, conclusions, and recommendations regarding the design and construction of the project.

Our scope of services did not include environmental consulting services such as hazardous waste sampling or analytical testing at the site. A detailed scope of services and estimated fee for such services can be provided upon request.

3 SITE DESCRIPTION

The project site is located near State Route Loop 101 (SR 101) and 51st Avenue in Phoenix, Arizona (Figure 1). At the time of our evaluation, 51st Avenue consisted of a paved two-lane road to the north of SR 101 and widened to a four-lane road with center medians to the south beginning at the intersection of Beardsley Road and 51st Avenue. A portion of this roadway segment crosses under the SR101 overpass. Tonopah Drive consisted of a paved two-lane roadway beginning at 51st Avenue and continued east approximately 1,000 feet where vehicle access was then blocked. A gated retention basin was observed south of Tonopah Drive that also served as additional parking for the Sikh Temple. This basin was approximately 10 feet deep and water was directed to the basin by a concrete-lined channel adjacent to Beardsley Road which stemmed from the Adobe Dam principle spillway. The 47th Avenue alignment consisted of undeveloped desert land with scattered vegetation and debris. Cobbles were observed at the surface across the site. In addition, south of SR101 consisted of an existing residential development with a single point of access located off of the Beardsley Road frontage road and 49th Drive.

According to the *Hedgpeth Hills, Arizona* and *Union Hills, Arizona 7.5-Minute United States Geologic Survey (USGS) Topographic Quadrangle Maps (2018)*, the elevation of the project alignment ranges from approximately 1,300 feet relative to mean sea level (MSL) at the southern end of the alignment to 1,320 feet MSL at the northeastern limits. Based on the information from these quadrangle maps, the topography around the project alignment generally slopes from northeast to southwest.

4 AERIAL PHOTOGRAPH REVIEW

Aerial photographs dated 1949 through 2019 from the Maricopa County website were reviewed for this project. A summary of the observations noted for each aerial photograph is presented in Table 1:

Table 1 – Summary of Aerial Photograph Review

Photograph Date(s)	Site	Adjacent Properties	
1949, 1953, 1969, 1976	Undeveloped desert land. Beardsley Road depicted as unpaved dirt roadway until 1976.	North:	Undeveloped desert land. Mountainous terrains.
		South:	Undeveloped desert land.
		East:	Undeveloped desert land.
		West:	Undeveloped desert land.

Table 1 – Summary of Aerial Photograph Review			
Photograph Date(s)	**Site**	**Adjacent Properties**	
1979, 1982, 1986, 1991	Undeveloped desert land. Beardsley Road depicted as paved roadway. Retention area depicted as early as 1991.	North:	Undeveloped desert land and scattered residential houses.
		South:	Undeveloped desert land and scattered residential houses.
		East:	Undeveloped desert land. Scattered residential developments.
		West:	Undeveloped desert land. Arrowhead Lakes development depicted in 1986.
1993, 1996, 1998, 2000, 2002-2004, 2006-2008, 2010, 2012-2014, 2018, 2019	51st Avenue, Tonopah Drive, and SR Loop 101 depicted as early as 1993. Residential development south of SR Loop 101 located off of 49th Drive depicted as early as 2007.	North:	Undeveloped desert land, commercial properties and scattered residential housing. Sikh Temple depicted as early as 2003.
		South:	Commercial properties and residential developments.
		East:	Undeveloped desert land and residential developments.
		West:	Residential developments.

5 PROPOSED CONSTRUCTION

The project includes the design and construction of two new waterline segments; 1) 51st Avenue from about 800 feet north of the SR Loop 101 to about 400 feet south of the SR Loop 101 known as Alignment A and 2) Tonopah Drive from 47th Avenue to about 1,100 feet west of 47th Avenue. In addition to the two primary waterline segments, we understand the City is also considering an alternative alignment (known as Alignment B) that will cross SR Loop 101 near the 49th Drive alignment. Much of the alignments will be installed using traditional trench/cut-and-cover techniques; however, trenchless instillation techniques may be implemented when the waterline crosses under SR Loop 101. For the trenched portions, the pipe invert will be 10 feet deep or less. For the SR Loop 101 crossing portions, the pipe invert will be 35 feet deep or less.

The preliminary project plans provided by Carollo Engineering depict the proposed pipeline as a 12-inch diameter waterline along 51st Avenue. Grading and drainage plans were not available at the time of our report however, based on our site observations, we assume positive drainage will be established during and after construction at the site.

6 FIELD EXPLORATION AND LABORATORY TESTING

On December 5, 2019, July 1, 2021, and July 9, 2021, Ninyo & Moore conducted a subsurface exploration at the site in order to evaluate the subsurface conditions and to collect soil samples

for laboratory testing. Our evaluation consisted of drilling, logging, and sampling of seven small-diameter borings using a CME-75 truck-mounted drill rig equipped with hollow-stem augers. The borings, denoted as B-1 through B-7, extended to depths of approximately 14 to 35 feet bgs (Figure 2). Bulk and relatively undisturbed soil samples were collected at selected intervals. Descriptions of the soils encountered are presented in the boring logs in Appendix A.

The soil samples collected from our drilling activities were transported to the Ninyo & Moore laboratory in Phoenix, Arizona. In addition, Ninyo & Moore performed laboratory tests on selected samples obtained from the borings to evaluate the in-situ moisture content and dry density, particle-size gradation, Atterberg limits, and corrosivity characteristics (including pH, minimum electrical resistivity, redox potential, sulfide content, and soluble sulfate and chloride contents).

The in-situ moisture content and dry density results are presented on the boring logs in Appendix A. A description of the laboratory testing as well as the remainder of the laboratory test results are presented in Appendix B.

7 GEOLOGY AND SUBSURFACE CONDITIONS

The geology and subsurface conditions at the site are described in the following sections.

7.1 Geologic Setting

The project site is located in the Sonoran Desert Section of the Basin and Range physiographic province, which is typified by broad alluvial valleys separated by steep, discontinuous, subparallel mountain ranges. The mountain ranges generally trend north-south and northwest-southeast. The basin floors consist of alluvium with thickness extending to several thousands of feet.

The basins and surrounding mountains were formed approximately 10 to 18 million years ago during the Mid- to Late-Tertiary. Extensional tectonics resulted in the formation of horsts (mountains) and grabens (basins) with vertical displacement along high-angle normal faults. Intermittent volcanic activity also occurred during this time. The surrounding basins filled with alluvium from the erosion of the surrounding mountains as well as from deposition from rivers. Coarser-grained alluvial material was deposited at the margins of the basins near the mountains.

The surficial geology of the site has been mapped as Late and Middle Pleistocene-age (10,000 to 750,000 years) alluvial channel, fan, and terrace deposits (Demsey, 1988). In

general, these materials are primarily made up of sand, silt, gravels, and cobbles which were deposited by gullies and/or washes over time. Pleistocene-age soils tend to have varying degrees of caliche cementation. In addition, cobbles and possible boulders may be present within the planned project alignment. As such, the rate of excavation or trenchless instillation methods may be adversely affected depending on the actual degree of cementation and particle sizes encountered during construction.

Many of the soil units are described as Gilman loams, Mohall loams, Rock outcrop-Cherioni complex, Torripsamments and Torrifluvents, frequently flooded, and Vecont clay by the United States Department of Agriculture. Loam is an agricultural soil classification that refers to a soil comprised of a mixture of clay, silt, and sand. Materials in this region have historically comprised of lean clays, clayey sands, silty gravels, and fat clays within the upper few feet of soil.

7.2 Subsurface Conditions

Our knowledge of the subsurface conditions at the project site is based on the results of our exploratory borings and our understanding of the general geology of the area. The boring logs contains our field test results, as well as our interpretation of the conditions likely to exist between actual samples retrieved. Therefore, the boring logs contains both factual and interpretive information. Lines delineating subsurface strata on the boring logs are intended to group soils having similar engineering properties and characteristics. They should be considered approximate, as the actual transition between soil types may be gradual. Detailed stratigraphic information as well as a key to the soil symbols and terms used on the boring logs are provided in Appendix A.

7.2.1 Asphalt Concrete and Aggregate Base

Asphalt concrete (AC) was encountered at the surface of Borings B-2, and measured 4.5 inches in thickness. Aggregate base (AB) was not observed underlying the AC.

7.2.2 Fill

Undocumented fill soils were encountered at the ground surface in Boring B-1 and below the AC in Boring B-2. The fill in our borings ranged in thickness from approximately 5½ to 6 feet. The fill generally consisted of very stiff sandy lean clay (CL) and loose clayey sand (SC) in our borings.

7.2.3 Alluvium

Native alluvial soils were encountered beneath the fill soils as described above and at the surface of the remaining borings, and extended to the boring termination depths. In our borings, the alluvium generally consisted of loose to very dense clayey sands (SC), silty sands (SM), silty gravel (GM), clayey gravel (GC), poorly graded sand (SP), well graded gravel with clay (GW-GC), and hard sandy silt (ML). Varying quantities of gravel, scattered caliche nodules with moderate degrees of cementation and cobles with possible boulders were also observed in our borings.

7.2.4 Groundwater

Based on well data from the Arizona Department of Water Resources (2018), the approximate depth to groundwater along the project alignment is approximately 196 feet bgs. Groundwater was also not indicated in the exploration locations reviewed from the ADOT as-built plans. Groundwater levels can fluctuate due to seasonal variations, irrigation, groundwater withdrawal or injection, and other factors.

8 GEOLOGIC HAZARDS

The following sections describe regional geologic hazards, including land subsidence, earth fissures, and faults, and collapsible soils.

8.1 Land Subsidence and Earth Fissures

Groundwater depletion, due to groundwater pumping, has caused land subsidence and earth fissures in numerous alluvial basins in Arizona. It has been estimated that subsidence has affected more than 3,000 square miles and has caused damage to a variety of engineered structures and agricultural land. From 1948 to 1983, excessive groundwater withdrawal has been documented in several alluvial valleys where groundwater levels have been reportedly lowered by up to 500 feet. With such large depletions of groundwater, the alluvium has undergone consolidation resulting in large areas of land subsidence (Schumann and Genualdi, 1986).

In Arizona, earth fissures are generally associated with land subsidence and pose an ongoing geologic hazard. Earth fissures generally form near the margins of geomorphic basins where significant amounts of groundwater depletion have occurred. Earth fissures form due to tensional stress caused by differential subsidence of the unconsolidated alluvial materials over buried bedrock ridges and irregular bedrock surfaces.

Based on our field reconnaissance and review of the referenced material, there are no known or exposed earth-fissures present at the subject site. The closest documented earth fissure to the site is approximately 11 miles southeast of the project alignment south of Cactus Road and Shaw Butte Drive (Arizona Geological Survey, 2008). Continued groundwater withdrawal in the area may result in subsidence of the valley and the formation of new fissures or the extension of existing fissures. In general, land subsidence and earth fissures are not considered to be a constraint to development on this project site.

8.2 Faulting

The site lies within the Sonoran zone, which is a relatively stable tectonic region located in southwestern Arizona, southeastern California, southern Nevada, and northern Mexico (Euge et al., 1992). This zone is characterized by sparse seismicity and few Quaternary faults. Based on our field observations, review of pertinent geologic data, and analysis of aerial photographs, Quaternary faults are not located on or adjacent to the property.

The closest documented Quaternary fault to the site is the Carefree Fault Zone, located approximately 20 miles to the northeast of the alignment (Pearthree, 1998). The Carefree Fault Zone is a series of northwest striking discontinuous normal faults that dip to the southwest. Recent movement along this fault was approximately 750,000 years ago during the Middle Pleistocene epoch. The slip-rate category of this fault is less than 0.2 millimeters per year (Pearthree, 1998).

8.3 Collapsible Soils

Collapsible soils generally consist of loose soils that exhibit a sudden decrease in volume upon inundation with water or excessive loading. The "collapse" of the soils is attributed to clay or cemented bonds between individual particles losing strength or dissolving when in contact with water resulting in filling of voids. Collapsible soils can have an adverse effect on foundations, floor slabs, pavements, and walls due to the response in the settlement.

9 GEOTECHNICAL CONSIDERATIONS

Based on the results of our subsurface evaluation, laboratory testing, and data analysis, it is our opinion that the proposed construction is feasible from a geotechnical standpoint, provided that the recommendations of this report are incorporated into the design and construction of the proposed project, as appropriate. Geotechnical considerations include the following:

- Due to the widely spaced nature of our borings, soil conditions that differ from what was encountered in our borings may be encountered during construction.

- Earthwork contractors should be made aware of the moisture sensitivity of the near surface clayey and silty soils and potential compaction difficulties.

- A condition survey should be performed prior to construction to document existing conditions of nearby and adjacent settlement sensitive features.

- The near-surface on-site materials are considered generally excavatable with heavy-duty earthmoving equipment. Very dense sands and moderate levels of cementation were encountered in our borings at various depths, which could be more difficult to excavate during construction.

- Due to the heterogeneity of the soil conditions at the site and the very loose to loose densities encountered, sloughing of soils during construction will occur; specifically, where the excavation abuts other fill soils from adjacent utilities. In addition, vibrations caused by the influence of vibration from nearby traffic may cause sloughing into excavations.

- Due to the presence of very loose to loose and/or cohesionless soils along the alignment, care should be taken during excavation. Shoring or the use of trench boxes may be needed during construction.

- Imported soils and soils generated from on-site excavation activities that exhibit relatively low plasticity and low organic contents can generally be used as engineered fill. On the basis of our limited evaluation, many of the on-site soils are not considered to be suitable for re-use as engineered fill.

- Groundwater was not observed in our borings. The static groundwater table is anticipated to be approximately 196 feet bgs based on the nearby well data. Groundwater is not expected to be a constraint to the construction of the project, with the possible exception of perched groundwater near the bedrock surface following periods of significant precipitation.

- No known or reported geologic hazards are present underlying, or immediately adjacent to, the site.

- Corrosivity test results indicate that subgrade soils at the site are generally corrosive to ferrous metals, and the sulfate content of the soils present a negligible sulfate exposure to concrete.

10 RECOMMENDATIONS

The following sections present our geotechnical recommendations and were developed based on our understanding of the proposed construction (Section 5), the observed subsurface conditions (Section 7.2), and our experience. In general, the recommendations and guidelines outlined in the Maricopa Association of Governments (MAG) Standard Specifications and Details and/or any City of Phoenix (COP) amendments should be used unless recommended differently herein.

The recommendations in this report pertain to the locations where our borings were drilled at. If the proposed construction is changed from that discussed herein or subsurface conditions other than those shown on the boring logs (Appendix A) are observed at the time of construction,

Ninyo & Moore should be retained to conduct a review of the new information and to evaluate the need for additional recommendations.

10.1 Instrumentation and Documentation

Given the proximity of the planned excavations to existing settlement sensitive features, consideration should be given to implementing documentation and instrumentation programs to evaluate design assumptions, existing conditions, and to monitor movements, levels, and deformations prior to and during construction. The monitoring programs may include the use of inclinometers, convergence points, and/or an array of surface control points. The resulting data should be reviewed and evaluated during construction. These programs should be in-place or conducted prior to the start of construction.

10.1.1 Documentation of Existing Conditions

We recommend that a pre-construction survey be performed prior to construction on pavements, residences, and structures within 50 feet of the proposed trench excavations. The pre-construction survey should consist of photographic documentation of the pavement condition, exterior portions of the buildings, including distress features, such as cracks and/or separations that may be present. Consideration may be given to videotaping the survey. In addition, interviews with owners should be conducted to provide knowledge of the age and type of the buildings as well as maintenance history and utility problems.

10.1.2 Lateral Movement of Shoring Support System

We recommend that inclinometers and/or survey points be established behind excavations located in areas where structures are located above a 1:1 (horizontal to vertical [H:V]) plane projected from the bottom of the proposed excavations. The inclinometers or survey points should be monitored and evaluated daily during excavation activities to provide an advanced warning system of potential problems.

10.1.3 Ground Surface Settlement

An array of ground survey points should be installed along the pipeline alignment to monitor settlement. The survey points should be installed as close as practical to the pipeline alignment and incrementally away from the alignment. The contractor should be responsible for maintaining the total settlement to less than ½-inch. If settlements reach ¼-inch, we recommend that a review of the contractor's methods be performed and appropriate changes be made, if needed.

Consideration should be given to placing survey monitoring points on nearby structures to monitor the performance of the structures. In this way, a record of the performance of the structures will be maintained and available. This information, in conjunction with pre-construction surveys, may help in reducing potential claims and expediting and limiting settlement of legitimate claims.

10.2 Earthwork

The following sections present our earthwork recommendations for this project. In general, MAG and any COP construction standards and specifications are expected to apply, unless otherwise noted.

10.2.1 Excavations

Our evaluation of the excavation characteristics of the on-site materials is based on the results of our exploratory borings, site observations, and experience with similar materials. In our opinion, many of the surface soils may be excavated or ripped using conventional heavy-duty earthmoving or excavation equipment; however, due to the widely spaced nature of our borings, soil conditions encountered during construction may differ from what were encountered in our borings. Various quantities of gravel, caliche nodules with varying degrees of cementation, and cobbles with possible boulders were observed in our borings which will be more difficult to excavate and will slow the rate of excavation.

Equipment and procedures should be used that do not cause significant disturbance to the excavation bottoms. If the subgrade becomes disturbed, it should be compacted before placing the backfill material.

The bottoms of trench excavations should expose competent soils and should be dry and free of loose, soft, or disturbed soil. Any soft, wet, weak, or deleterious materials should be over-excavated to expose competent soils.

10.2.2 Temporary Slopes

Excavations for this project should be designed in accordance with current applicable, state, and federal trenching guidelines, including the Occupational Safety and Health Administration (OSHA) requirements for excavations presented in 29 CFR Part 1926 (Revised July 1992), Subpart P, Excavations.

For planning purposes, and according to OSHA soil classifications, a "Type C" soil should be considered for this project due to the loose and cohesionless (e.g., sandy and gravelly)

nature of the fill and alluvial soils. In general, temporary slopes excavations in competent "Type C" soil should be inclined no steeper than 1.5:1 (H:V), however flatter slopes or shoring may be needed.

Details for open-cut slopes and shoring based on soil type and groundwater conditions are provided in the latest amended OSHA regulations. These details apply to temporary open-trench excavations up to 20 feet deep. Trenches more than 20 feet deep, or in areas where seepage is encountered should be designed by the contractor's engineer based on alignment-specific geotechnical analyses. Upon excavation, soil classifications and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with the OSHA regulations.

Temporary excavations that encounter groundwater seepage or surface runoff, if any, may need shoring or dewatering. Flatter slopes or bracing should be used if excessive sloughing or raveling is observed. If material is stored or equipment is operated near an excavation, stronger shoring should be used to resist the extra pressure due to superimposed loads.

10.2.3 Temporary Shoring and Trench Boxes

Because of previously described soil conditions, the proposed depths of the excavations, and presence of existing utilities and structures (e.g., roadways, utilities, and buildings), it may be preferable to temporarily shore or brace the trenches rather than using open cuts to the base of the excavations. Temporary earth retaining systems will be subjected to lateral loads resulting from earth pressures. Shored and braced trench excavations may be designed using the parameters on Figure 3.

The earth pressure values presented on Figure 3 assume that spoils from the excavation or other surcharge loads will not be placed above the excavation within a 1:1 (H:V) plane extending up and back from the base of the excavation. If spoil piles are placed closer than this to the braced excavation, the resulting surcharge loads should be considered in the bracing design. We recommend that an experienced structural engineer design the shoring system. The shoring parameters presented in this report should be considered as guidelines.

The contractor should anticipate repairing cracks in pavements adjacent to shored portions of the excavation due to anticipated lateral displacements of the shoring system. Horizontal and vertical movements of the shoring system should be monitored by a surveyor and the results reviewed by the project Geotechnical Engineer.

Trench boxes may also be a suitable alternative to laying back the side walls; however, due to the presence of granular soils, the excavations may not stand open long enough to install the trench boxes. The contractor should be prepared to deal with these soil conditions and plan accordingly. Once installed, some sloughing is possible at the ends of the trench box; therefore, any loose material should be removed prior to backfilling of the trench.

10.2.4 Bottom Stability

Bottom of the excavations should be stable for the purpose of the planned construction. However, if excavations are open during a heavy rain event, the bottom of the trench may become saturated and unstable. Dewatering as discussed in Section 10.2.5 below may be anticipated in such events.

10.2.5 Construction Dewatering

Excavations that encounter seepage or surface run-off could be dewatered by pumping the water out and away from the excavation. Such zones may call for more aggressive means of dewatering and consultation with a qualified expert. Discharge of water from the excavations to natural drainage channels, if needed, may entail securing a special permit.

10.2.6 Backfill Material and Re-use of On-site Soils

On-site and imported soils that exhibit relatively low plasticity index (PI) and very low to low expansive potential are generally suitable for re-use as engineered fill. Relatively low PI are defined as a PI value of 15, or less, as evaluated by ASTM D4318.

In addition, engineered fill should not include organic material, construction debris, or other non-soil fill materials. Clay lumps and rock particles should not be larger than 4 inches in dimension. This material should be disposed of off-site or in non-structural areas.

Based on MAG guidelines, the definition of "granular backfill" may be used for engineered fill for this project. Granular backfill is material in which the sum of the PI and the percent of material passing a No. 200 sieve does not exceed 23.

Engineering fill in contact with ferrous metals should also have low corrosion potential (minimum resistivity more than 2,000 ohm-cm, chloride content less than 25 parts per million [ppm]). Fill material in contact with concrete should have a soluble sulfate content of less than 0.1 percent.

Based on laboratory test results and our observations, we anticipate that many of the on-site soils will not be suitable for re-use as engineered fill during construction; however, may be used as trench backfill if placed 2 or more feet below the top of the trench. The upper 2 feet should be backfilled using engineered fill as discussed in this report. We suggest additional field sampling and laboratory testing be conducted by the contractor either prior to or during construction to better evaluate the quality of the on-site materials.

10.3 Pipe Bedding and Modulus of Soil Reaction (E')

We recommend the pipeline being installed using cut-and-cover techniques be supported on 4 inches or 1/12 the outside diameter of the pipe, whichever is more of granular bedding material such as sand and gravel, or crushed rock meeting the MAG Section 702 Standard Specifications (pea gravel or crushed chips are not acceptable) [Figure 4]. This bedding/pipe-zone backfill should extend 1 foot above the pipe crown. Care should be taken not to allow voids to form beneath the pipe (i.e., the pipe haunches should be continuously supported) to avoid damaging the pipeline. This may involve fill placement by hand or small compaction equipment. The pipe bedding should be moisture-conditioned and compacted as discussed in Section 10.4.

The modulus of soil reaction (E´) is used to characterize the stiffness of soil backfill placed on the sides of buried pipelines for the purpose of evaluating deflection caused by the weight of the backfill over the pipe. For granular backfill soils for pipes, we recommend using an E´ value of 1,200 pounds per square inch (psi).

10.4 Fill Placement and Compaction

Backfill soils should be moisture-conditioned within the moisture range shown below in Table 2 and mechanically compacted to the percent compaction shown. Fill should generally be placed in 8-inch-thick loose lifts such that each lift is firm and non-yielding under the weight of construction equipment. Jetting and other forms of water consolidation are not recommended for this project.

Table 2 – Summary of Compaction Recommendations		
Description	**Percent Relative Compaction per ASTM D698**	**Moisture Content**
Pipe Bedding	95 percent	
Granular Trench Backfill – Within 2 feet below pavement	100 percent	
Non-Granular Trench Backfill – Within 2 feet below pavement	95 percent	±2 percent of optimum
Trench Backfill –Deeper than 2 feet below pavement	95 percent	

10.5 Controlled Low Strength Material (CLSM)

It is our opinion that the backfill zone may be filled with CLSM. CLSM consists of a fluid, workable mixture of aggregate, Portland cement, and water. The use of CLSM has some advantages:

- A narrower backfill zone can be used, thereby minimizing the quantity of soil to be excavated and possibly reducing disturbance to the near-by traffic;
- Relatively higher E' values may be used (E'= 3,000 psi);
- The support given to the connecting pipes is generally better;
- Because little compaction is needed to place CLSM, there is less risk of damaging the connecting pipes; and
- CLSM can be batched to flow into irregularities in the trench bottom and walls.

The CLSM design mix should be in accordance with current MAG or Standard Specifications for Public Works Construction standards. Additional mix design information can be provided upon request. The 28-day strength of the material should be no less than 50 psi and no more than 120 psi.

Buoyant or uplift forces on the piping should be considered when using CLSM and prudent construction techniques may result in multiple pours to avoid inducing excessive uplift forces. Sufficient time should be provided to allow the CLSM to cure before placing additional lifts of CLSM or trench backfill.

10.6 Trenchless Installation

As indicated earlier, trenchless technologies (i.e. jack-and-bore or micro-tunneling operations) may be needed to cross under signalized intersections along the alignment. However, as previously described in Section 7.2, the varying amounts of gravel, caliche nodules and cobbles with possible boulders were observed in our borings which will be more difficult to excavate and will slow the rate of construction during construction.

Please note that drilling between the anticipated launching (jacking) and receiving pits was not performed during the field exploration. However, based on our knowledge of the site, caving of the pipe shaft may occur, particularly if relatively loose or wet surface soils are present. For stability and safety purposes, and to reduce ground movement, a perimeter shaft support system (carrier casing) should be installed as the excavation progresses.

Following the installation of the utility inside the carrier casing, the annulus space should be in-filled with fine gravel or sand that is blown in with air from the ends or CLSM. A portion of the gravel or sand could be blown in first (so as to fill under the haunches of the utility) to reduce the potential for future movement of the pipe.

We recommend the contractor be responsible for the design of access shaft shapes, dimensions and ground support systems for the launching and receiving pit excavations so that such design can be compatible with their construction equipment and methods. Soldier piles with lagging or other types of shored excavations may serve as a suitable system for this project. Driven sheeting may be difficult to install because of hard ground conditions and the possibility of encountering buried gravel, cobbles, and or boulders. In addition, driven sheeting may cause real and perceived damage by vibrations to nearby structures.

Jacking reaction force is developed by passive soil pressure resistance to the jacking operation against the surface of the opposite wall of the jacking pit. For the case of a jacking pit geometry, which consists of a shored vertical face extending vertically to the horizontal ground surface, an ultimate passive resistance of 300 pounds per square foot per foot of depth may be used (Figure 5). This value assumes no groundwater conditions. For different jacking pit geometry, we should be contacted for supplemental recommendations. A factor of safety of 2.0 should be used to calculate the allowable jacking pit resistance.

Surface subsidence associated with these operations was not evaluated as part of our analysis. Nevertheless, the contractor should implement a monitoring program during these operations to observe any ground movement above and adjacent to the pipe being installed. If signs of subsidence or disturbance are noted, construction operations should be stopped to address the

ground movement. The integrity of nearby utilities, roadways and canal lining will need to be protected during these operations.

10.6.1 Trenchless Installation Considerations

Excavations using trenchless construction techniques may encounter soils of little to no cohesion, as described previously in this report. If granular and/or cohesionless material occurs near the crown, the possibility exists for a "run-in" which could result in voids above the tunnel or a sinkhole at the ground surface. When granular materials are encountered at the invert, the possibility exists for bottom instability and difficulty in maintaining vertical alignment of the tunnel. Granular materials containing appreciable amounts of silt or clay behave more favorably to tunneling techniques than clean sands, although not as well as cohesive soils. The Contractor should be made aware of the potential for the difficult tunneling conditions described above, and plan for them accordingly.

In addition to the installation techniques described above, we also recommend that the installation of the pipe be continued with as little interruptions as possible. A delay in the advancement of pipe sections within the tunnel can allow for set-up of the surrounding soils in contact with the pipe, causing increased frictional resistance along the surface of the pipe.

10.7 T-Top Pavement Replacement

In AC paved areas over trench excavations, we recommend the use of MAG "T-Top" Type Trench Backfill (MAG detail 200-1) with respect to the AC and AB replacement at the surface of the trench excavations, in order to reduce the potential for distress due to differential settlement and water infiltration into the subsurface. This includes the removal of AC and AB to 1 foot or more laterally beyond the extent of each side of the installation trench and extending to a depth of 1 foot or more below the bottom of the asphalt layer.

In the T-Top, the thickness of AB should be 12 inches or match either the existing or design thickness, whichever is more. We recommend a seal be placed at the saw cut joint between the patch and the existing AC. Periodic maintenance of the pavement should be performed. The AC thickness should be in accordance with any COP design standards, or match the existing thickness, whichever is thicker.

10.8 Corrosion

The corrosion potential of the on-site materials was tested to evaluate its potential effect on the foundations and structures. Our corrosion evaluation of the on-site soils is based on the results of our field and laboratory testing done for this project. A corrosion specialist should perform their own analysis.

Laboratory testing consisted of pH, minimum electrical resistivity, redox potential, sulfide content, and chloride and soluble sulfate contents. The pH and minimum electrical resistivity tests were performed in general accordance with Arizona Test 236c, while sulfate and chloride tests were performed in accordance with Arizona Test 733 and 736, respectively. Redox potential and sulfide content were performed in accordance with ASTM G200-09 and HACH 8131. The results of these corrosivity tests are presented in Appendix B.

The soil pH values of the selected samples tested from our borings were 6.7, 7.0, and 8.7, which is considered to be partially acidic to partially alkaline. The minimum electrical resistivity of the samples tested was 1,730, 2,460 and 3,350 ohm-cm, which is considered corrosive to ferrous materials. The chloride content of the samples tested was 6, 26, and 37 ppm, which is also considered corrosive to ferrous materials. The soluble sulfate content of the soil samples tested was 0.001, 0.006, and 0.007, which is considered to represent negligible sulfate exposure for concrete.

The results of the laboratory testing indicate that the on-site materials are corrosive to ferrous materials. To reduce the corrosion potential of buried metallic utilities, we recommend that topsoil, organic soils, soils, and mixtures of sand and clay not be placed adjacent to buried metallic utilities. Rather, we suggest that sand or gravel be placed around buried metal piping. Also, buried utilities of different metallic construction or operating temperatures should be electrically isolated from each other to minimize galvanic corrosion problems. In addition, new piping should be electrically isolated from old piping, if any, so that the old metal will not increase the corrosion rate of the new metal. A corrosion specialist should be consulted for further recommendations.

10.9 Concrete

Laboratory chemical tests performed on an on-site soil samples indicated a sulfate content of 0.001, 0.006, and 0.007 percent by weight, which represents a negligible sulfate exposure for concrete. Based on the following American Concrete Institute (ACI) table (Table 3), the on-site soils should be considered to have negligible sulfate exposure to concrete. Based on the sulfate test results, and based on our experience with similar soil conditions, the specific use of the

facility, and nearby practice, we however recommend the use of sulfate resistant cement (Type II or similar) for construction of concrete structures at this site. Due to potential uncertainties as to the use of reclaimed irrigation water, or topsoil that may contain higher sulfate contents, pozzolan or admixtures designed to increase sulfate resistance may be considered.

Table 3 – ACI Requirements for Concrete Exposed to Sulfate-Containing Soil

Sulfate Exposure	Water-Soluble Sulfate (SO_4) in Soil, Percentage by Weight	Cement Type	Water-Cementitious Materials Ratio, by Weight, Normal-Weight Aggregate Concrete[1]	f'c, Normal-Weight and Lightweight Aggregate Concrete, psi x 0.00689 for MPa
Negligible	0.00 - 0.10	--	--	--
Moderate[2]	0.10 - 0.20	II, IP(MS), IS (MS)	0.50 or less	4,000 or more
Severe	0.20 - 2.00	V	0.45 or less	4,500 or more
Very severe	Over 2.00	V plus pozzolan[3]	0.45 or less	4,500 or more

Notes:

[1] A lower water-cementitious materials ratio or higher strength may be needed for low permeability or for protection against corrosion of embedded items or freezing and thawing (ACI Table 4.2.2).

[2] Seawater.

[3] Pozzolan that has been evaluated by test or service record to improve sulfate resistance when used in concrete containing Type V cement.

We recommend that the structural concrete have a water-cementitious materials ratio no more than 0.50 by weight for normal weight aggregate concrete. The structural engineer should ultimately select the concrete design strength based on the project specific loading conditions. Higher strength concrete may be selected for increased durability and resistance to slab curling and shrinkage cracking.

10.10 Pre-Construction Conference

We recommend that a pre-construction conference be held. Representatives of the owner, 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.

10.11 Construction Observation and Testing

During construction operations, we recommend that a qualified geotechnical consultant perform observation and testing services for the project. These services should be performed to evaluate exposed subgrade conditions, including the extent and depth of overexcavation, to

evaluate the suitability of the on-site materials for use as fill and to observe placement and test compaction of fill soils. 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 Ninyo & Moore, indicating that they fully understand our recommendations and they are in full agreement with the recommendations contained in this report. Qualified subcontractors utilizing appropriate techniques and construction materials should perform construction of the proposed improvements.

11 LIMITATIONS

The field evaluation, 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. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with

time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

12 REFERENCES

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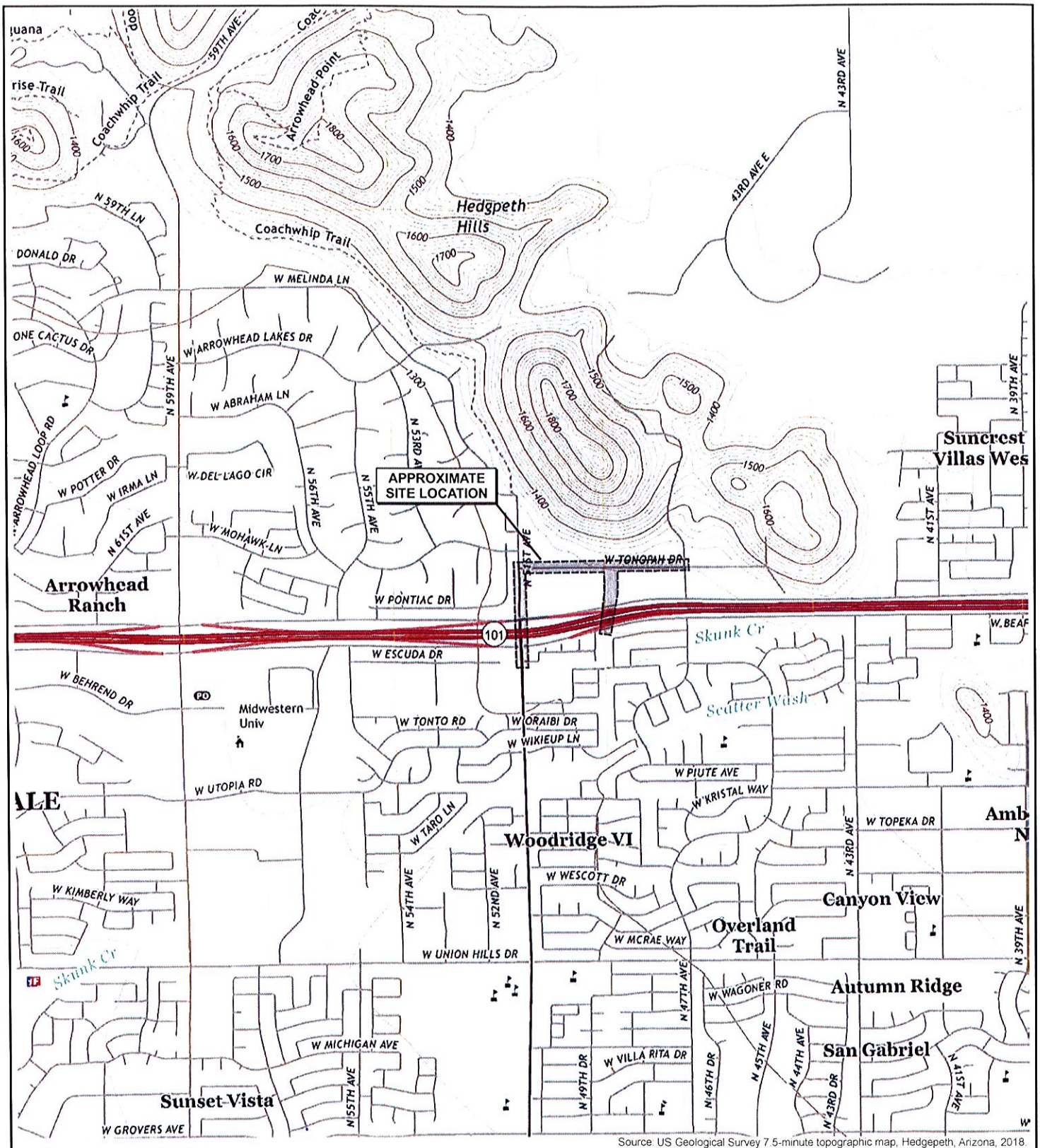
FIGURES



Source: US Geological Survey 7.5-minute topographic map, Hedgepeth, Arizona, 2018.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE 1

SITE LOCATION

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

605986002 | 7/21

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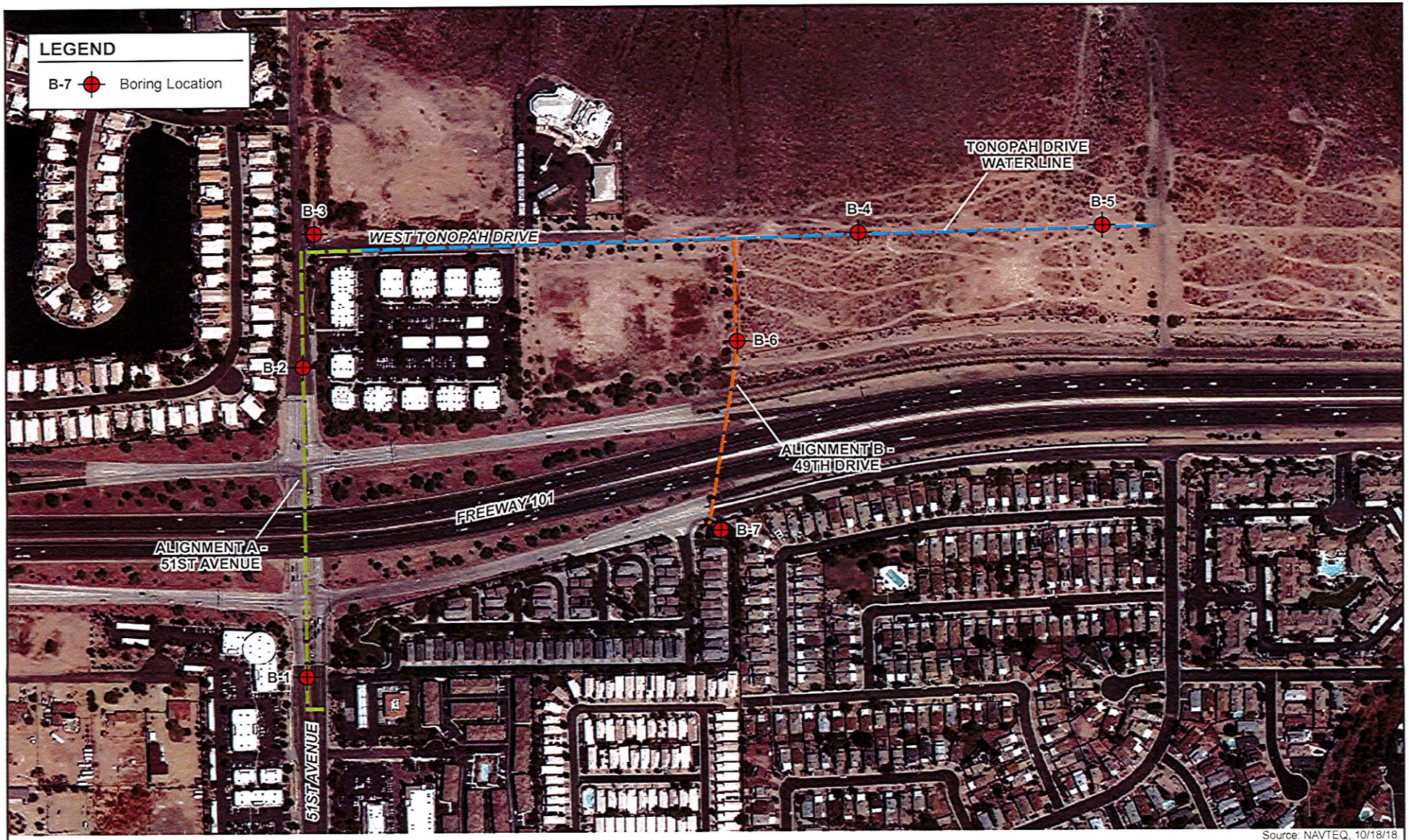
bsm file no. 5986vmap0721



Source: NAVTEQ, 10/18/18.

N

FEET

0 400

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

bsm file no. 5986blm0721

FIGURE 2

BORING LOCATIONS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

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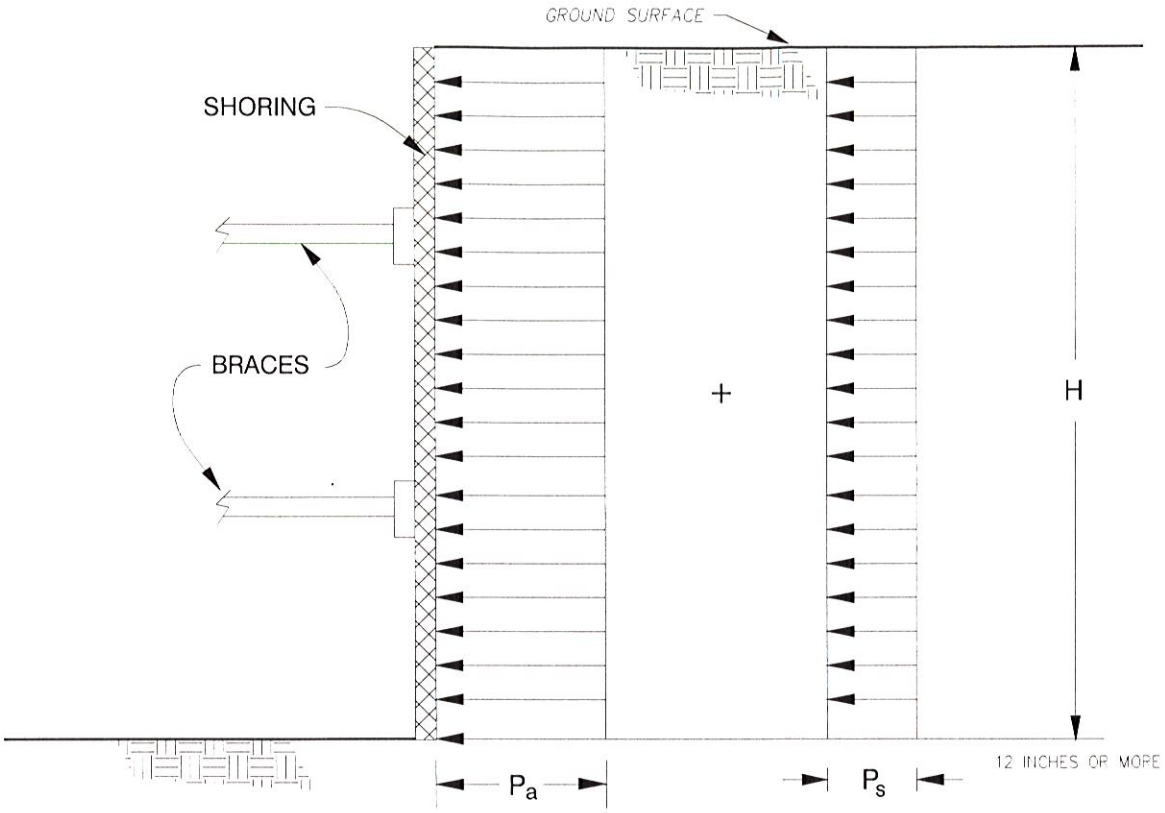

NOTES:

1. APPARENT LATERAL EARTH PRESSURE, P_a
   P_a = 29H psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
   P_s = 120 psf
3. ASSUMES GROUNDWATER IS NOT PRESENT
4. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
5. H IS IN FEET

FIGURE 3

LATERAL EARTH PRESSURES FOR BRACED EXCAVATION IN GRANULAR SOILS

HEDGEPETH WATELINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

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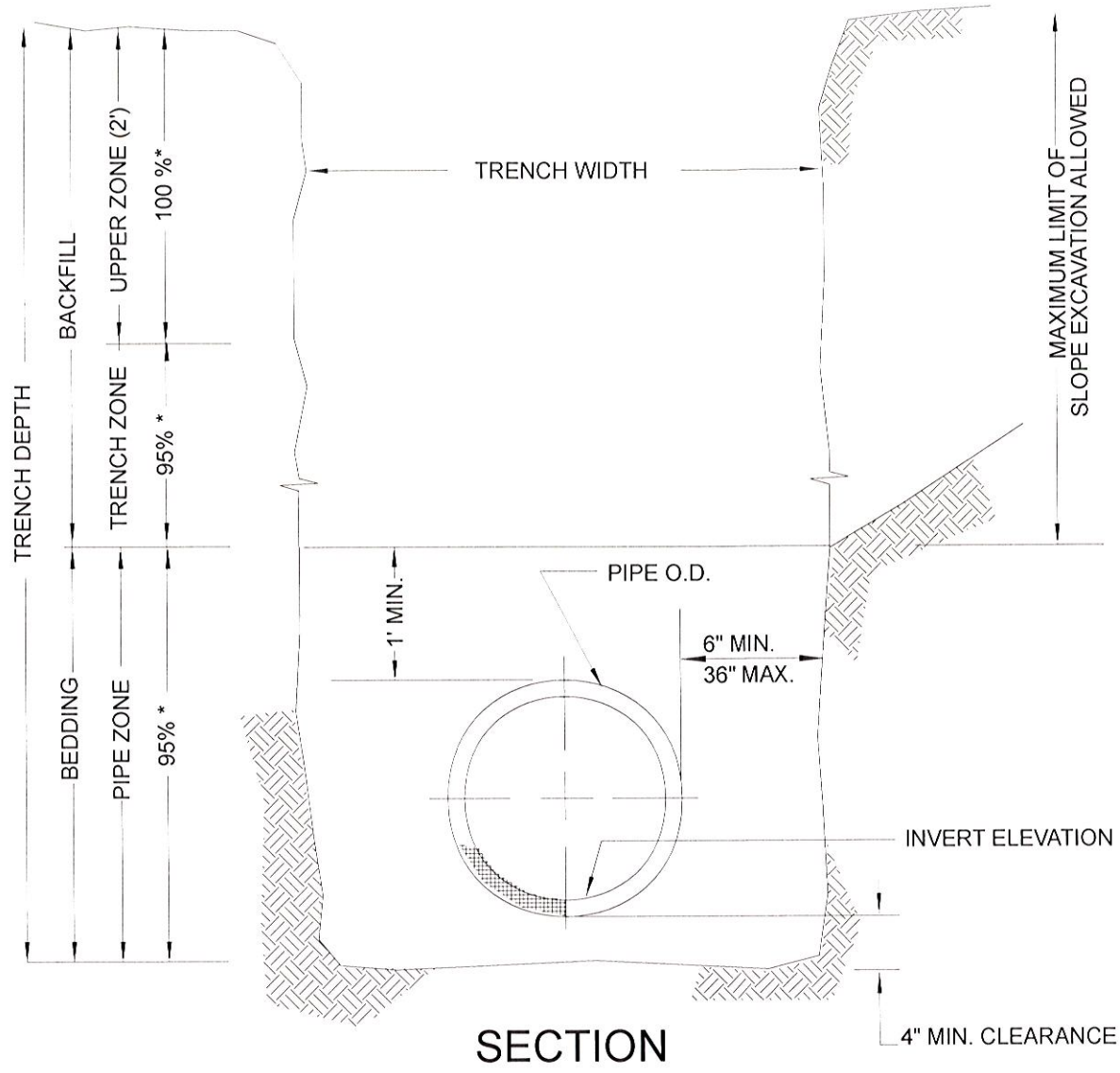
bsm file no: 5986lep1219



SECTION

NOTE

* Indicates minimum relative compaction (see report for details).

Upper zone required for pavement areas only.

Diagram not drawn to scale.

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE 4

PIPE BEDDING GUIDELINES

HEDGEPETH WATELINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

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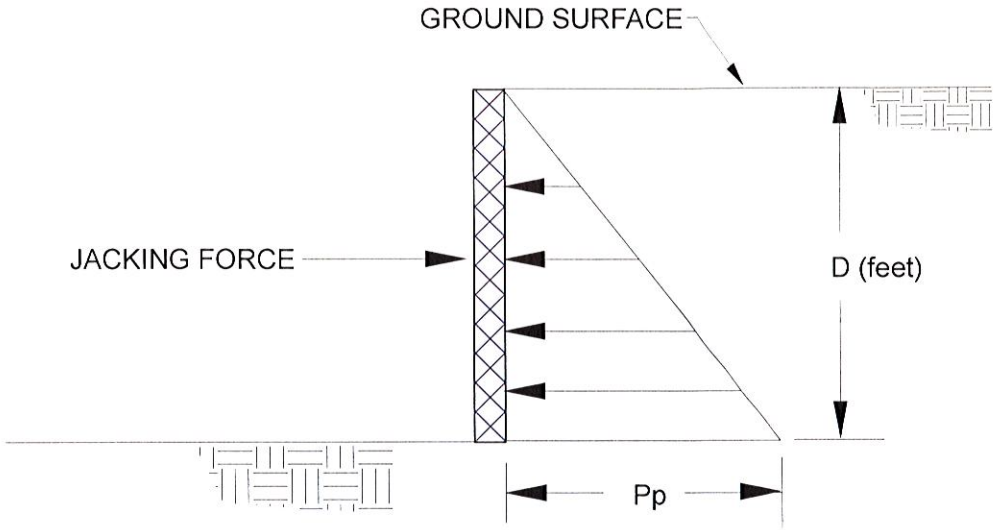
bsm file no. 6061pbd0619



ASSUMPTIONS AND NOTES

1. NO GROUNDWATER
2. JACKING PIT GEOMETRY AS SHOWN
3. Pp = 300D psf

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE 5

JACKING FORCE RESISTANCE DIAGRAM

HEDGEPETH WATELINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

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bsm file no: 5986dtl1219

APPENDIX A

Boring Logs

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples
Disturbed soil samples were obtained in the field using the following methods.

Bulk Samples
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler
Disturbed drive samples of earth materials were obtained by means of a SPT sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven up to 18 inches into the ground with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed, and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples
Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler
The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D3550. The approximate length of the fall, the weight of the hammer or bar, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

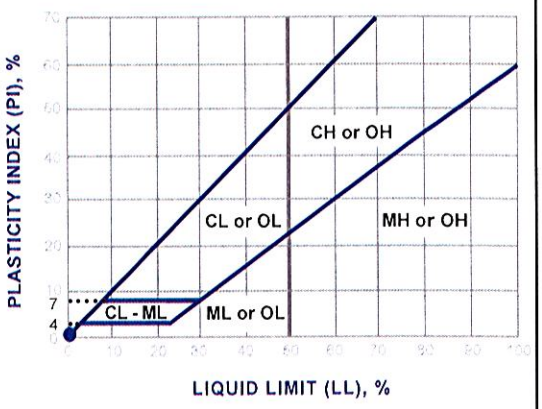
Soil Classification Chart Per ASTM D 2488

Primary Divisions			Secondary Divisions	
			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on No. 4 sieve	**GRAVEL** more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly graded GRAVEL with
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	**SILT and CLAY** liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic SILT
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

Grain Size

Description		Sieve Size	Grain Size	Approximate Size
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart



Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consis-tency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

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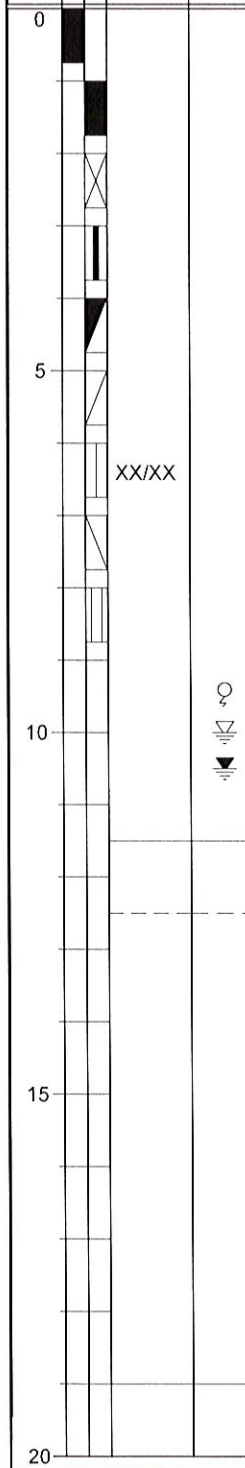
USCS METHOD OF SOIL CLASSIFICATION

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

MAJOR MATERIAL TYPE (SOIL):
Solid line denotes unit change.

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

DATE DRILLED 12/5/19 BORING NO. B-1

GROUND ELEVATION 1,306' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						CL	FILL: Brown, moist, very stiff, sandy lean CLAY; few gravel.
		19	15.0	106.6			
		19					Trace gravel; scattered caliche filaments.
5						SC	ALLUVIUM: Brown, dry, medium dense, clayey SAND; trace gravel.
		20					
						SM	Brown, dry, medium dense, silty SAND; few gravel.
		12					
10							
						SP	Brown, dry, very dense, poorly graded SAND; few gravel.
		50/3"	3.4				
15							
		96					
20							

FIGURE A-1

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA

DATE DRILLED 12/5/19 BORING NO. B-1

GROUND ELEVATION 1,306' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SP	ALLUVIUM: (Continued) Brown, dry, very dense, poorly graded SAND; few gravel.
		84/9"	13.7	98.5		SC	Brown, dry, very dense, clayey SAND; few gravel.
25		53					
30							Total Depth = 30 feet. Groundwater not encountered during drilling. Backfilled on 12/5/19 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
35							
40							

FIGURE A- 2

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA
605986002 | 7/21

DATE DRILLED 12/5/19 BORING NO. B-2

GROUND ELEVATION 1,305' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 4 1/2 inches thick.
						SC	FILL: Brown, dry, loose, clayey SAND; few gravel; scattered caliche nodules.
		6					
		22	11.6	105.9			Medium dense.
5						SC	ALLUVIUM: Brown, dry, dense, clayey SAND; trace gravel.
		44					
		50/5"	10.9			SM	Light brown, dry, very dense, silty SAND; scattered caliche nodules.
10							
		50/5"					
15							
		50/5"	5.0	109.0			
20							

FIGURE A- 3

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PHOENIX, ARIZONA
605986002 | 7/21

DATE DRILLED 12/5/19 BORING NO. B-2

GROUND ELEVATION 1,305' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SC	ALLUVIUM: (Continued) Brown, dry, very dense, clayey SAND; trace gravel; scattered caliche nodules.
		59					Few gravel.
25		50/2"					
							Total Depth = 29.2 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 12/5/19 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
30							
35							
40							

DATE DRILLED 12/5/19 BORING NO. B-3

GROUND ELEVATION 1,303' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SC	ALLUVIUM: Brown, dry, medium dense, clayey SAND with gravel.
		19	8.5	94.0			
		21					Dense; few gravel; scattered caliche nodules.
5		11	9.1	91.8			Loose.
		37				GC	Brown, dry, very dense, clayey GRAVEL with sand.
10		50/4"					
							Total Depth = 13.8 feet. Groundwater not encountered during drilling. Backfilled on 12/5/19 shortly after completion of drilling.
15							Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							

DATE DRILLED 12/5/19 BORING NO. B-4

GROUND ELEVATION 1,313' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0		10				SM	ALLUVIUM: Brown, dry, medium dense, silty SAND; scattered caliche nodules; weakly cemented.
5		65	6.7	92.2		SC	Brown, dry, dense, clayey SAND; scattered caliche nodules.
		19					Medium dense; trace gravel.
10		56	8.9	86.0		ML	Brown, dry, hard, sandy SILT; trace gravel.
		50/3"					
15							Total Depth = 14.3 feet. Groundwater not encountered during drilling. Backfilled on 12/5/19 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							

FIGURE A-6

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA
605986002 | 7/21

DATE DRILLED 12/5/19 BORING NO. B-5

GROUND ELEVATION 1,319' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Wildcat)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DM LOGGED BY DM REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SM	ALLUVIUM: Brown, dry, loose, silty SAND.
		11	5.2	111.2			
		31					Dense; scattered caliche nodules.
5		50/4"	7.4	89.5			Very dense.
						GM	Brown, dry, very dense, silty GRAVEL with sand.
10		43					
		50/1"	6.4	101.7			
15							Total Depth = 14.1 feet. Groundwater not encountered during drilling. Backfilled on 12/5/19 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20							

DATE DRILLED 7/1/21 BORING NO. B-6

GROUND ELEVATION 1,309' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (GSI)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY ECG LOGGED BY ECG REVIEWED BY SDN

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SC	ALLUVIUM: Light brown, dry, dense, clayey SAND; few gravel.
		71	7.2	101.2			
		91					Scattered caliche nodules.
5						SM	Light brown, dry, very dense, silty SAND; scattered caliche nodules; few gravel.
		86/9"	9.0	93.4			
		50/5"				SP	Light brown, dry, very dense, poorly graded SAND; scattered caliche nodules; few gravel.
10							
		62	3.0	121.7			Gravel; cobbles.
15							
		50/3"					
20							

FIGURE A- 8

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA
605986002 | 7/21

DATE DRILLED 7/1/21 BORING NO. B-6

GROUND ELEVATION 1,309' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (GSI)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY ECG LOGGED BY ECG REVIEWED BY SDN

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						SP	ALLUVIUM: (Continued) Light brown, dry, very dense, poorly graded SAND; scattered caliche nodules; few gravel.
		50/5"	6.5	96.9		SM	Light brown, dry, very dense, silty SAND.
25							
		44					
30							
		50/4"	9.7	89.0			
35							Total Depth = 34.5 feet. Groundwater not encountered during drilling. Backfilled on 7/1/21 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
40							

DATE DRILLED 7/9/21 BORING NO. B-7

GROUND ELEVATION 1,314' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Resilient)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DCW LOGGED BY DCW REVIEWED BY SDN

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						SC	ALLUVIUM: Light brown, dry, dense, clayey SAND with gravel.
	Driven	61	3.4	118.6			
	Driven	74					Very dense.
5	Driven	62	4.8	119.9			Dense; scattered caliche nodules; weakly cemented coarse gravel.
	Driven	46					Very dense.
10						SM	Light brown, dry, very dense, silty SAND; few gravel.
	Driven	26					medium dense; no recovery.
15							
	Driven	54/10"	4.1	111.1		GW-GC	Brown, dry, very dense, well graded GRAVEL with clay; cobbles and possible boulders.
20							

FIGURE A- 10

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA
605986002 | 7/21

DATE DRILLED 7/9/21 BORING NO. B-7

GROUND ELEVATION 1,314' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (Resilient)

DRIVE WEIGHT 140 lbs. (Automatic Trip Hammer) DROP 30"

SAMPLED BY DCW LOGGED BY DCW REVIEWED BY SDN

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20						GW-GC	ALLUVIUM: (Continued) Brown, dry, very dense, well graded GRAVEL with clay; cobbles and possible boulders.
		50/1"					No recovery.
						SM	Light brown, dry, very dense, silty SAND.
25							
		78/11"					
30							
		69/11"	7.7	85.7			
35							Total Depth = 35 feet. Groundwater not encountered during drilling. Backfilled on 7/9/21 shortly after completion of drilling. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
40							

FIGURE A- 11

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HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT
PHOENIX, ARIZONA
605986002 | 7/21

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

Classification
Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

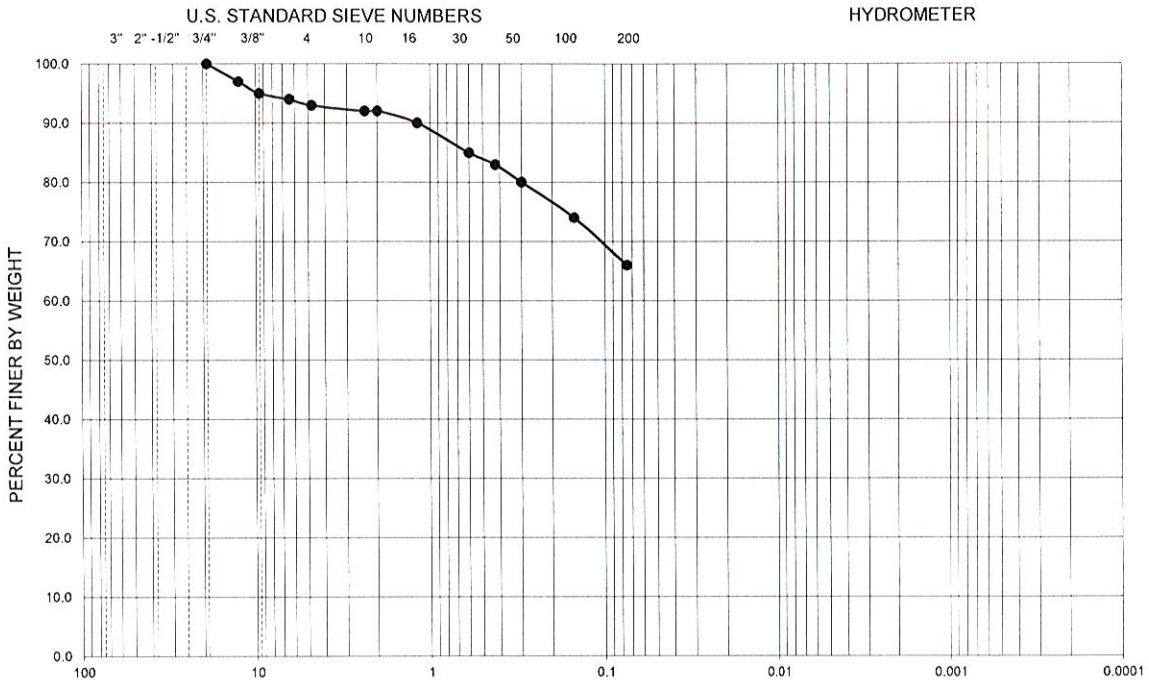
In-Place Moisture and Density Tests
The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Gradation Analysis
Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D422. The grain-size distribution curves are shown on Figures B-1 through B-8. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

Atterberg Limits
Atterberg Limits Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and classifications are shown on Figure B-9.

Soil Corrosivity Tests
Soil pH and minimum resistivity tests were performed on a representative sample in general accordance with Arizona test method, ARIZ 236c. The chloride content of the selected sample was evaluated in general accordance with ARIZ 736. The sulfate content of the selected sample was evaluated in general accordance with ARIZ 733. The test results are shown on Figure B-10.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-1	1.0-5.0	35	14	21	--	--	--	--	--	66.0	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-1

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

Ninyo & Moore

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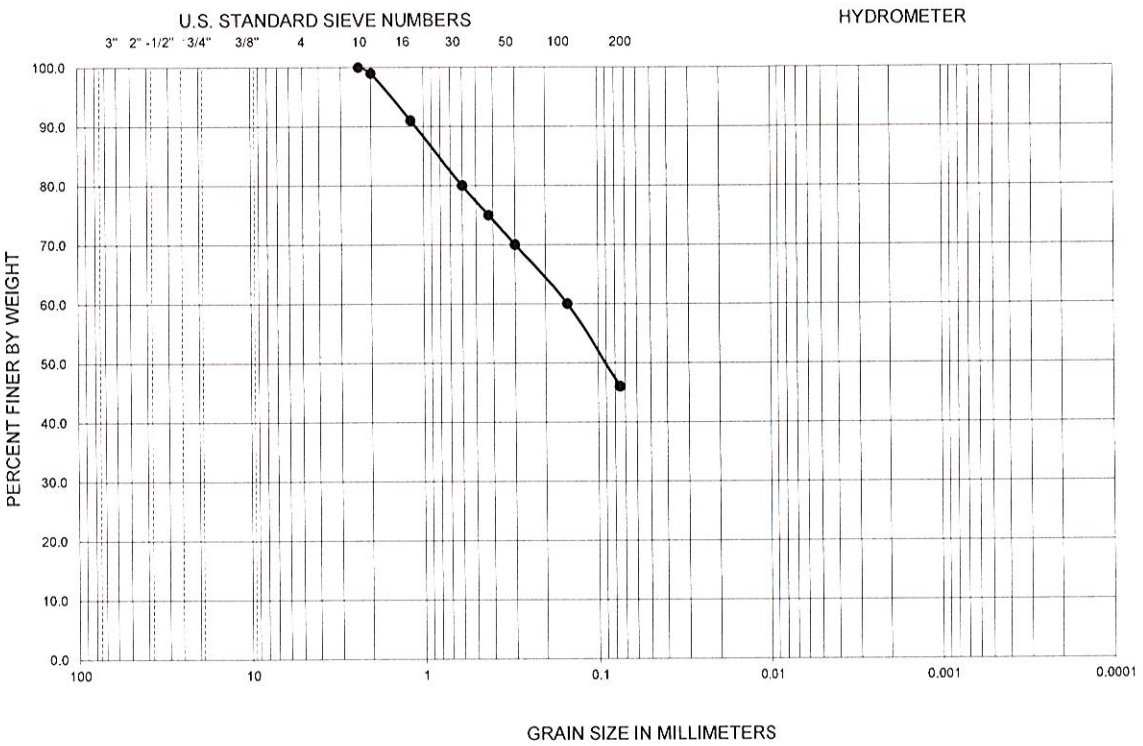
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-2	8.0-9.4	65	35	30	--	--	0.15	--	--	46.0	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-2

GRADATION TEST RESULTS

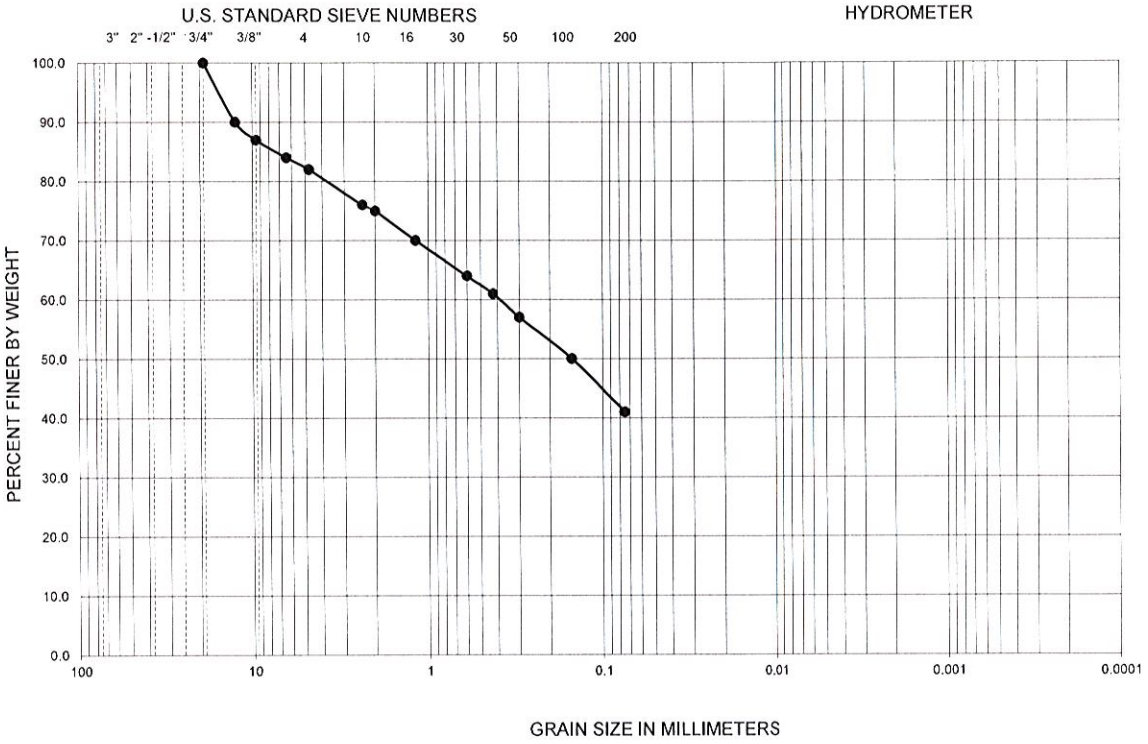
HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-3	1.0-2.5	39	23	16	--	--	0.40	--	--	41.0	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-3

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

605986002 | 7/21

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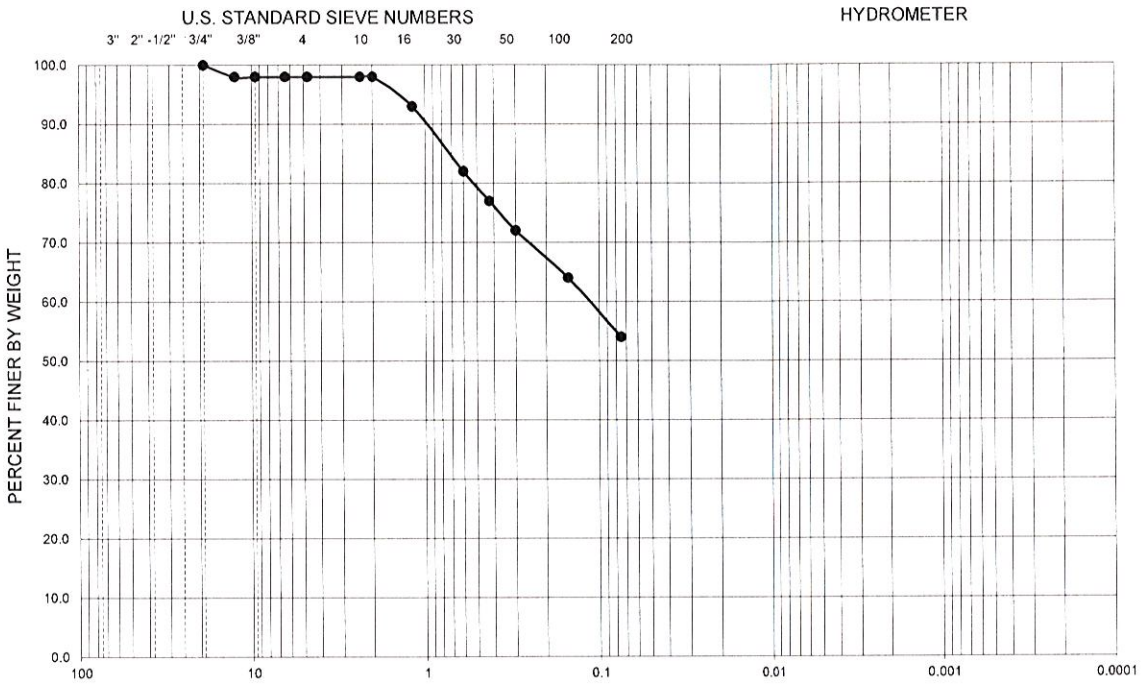
Geotechnical & Environmental Sciences Consultants

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-4	8.5-10.0	45	30	15	--	--	0.11	--	--	54.0	ML

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-4

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

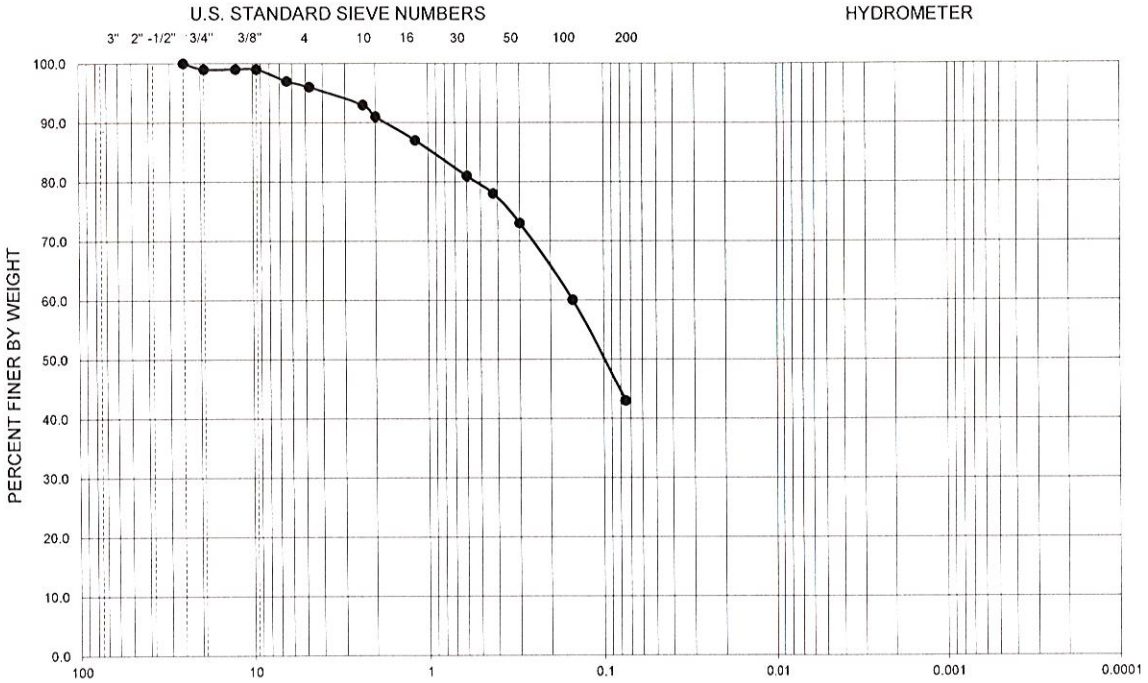
PHOENIX, ARIZONA

605986002 | 7/21

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-6	1.0-2.5	45	24	21	--	--	0.15	--	--	43.0	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-5

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

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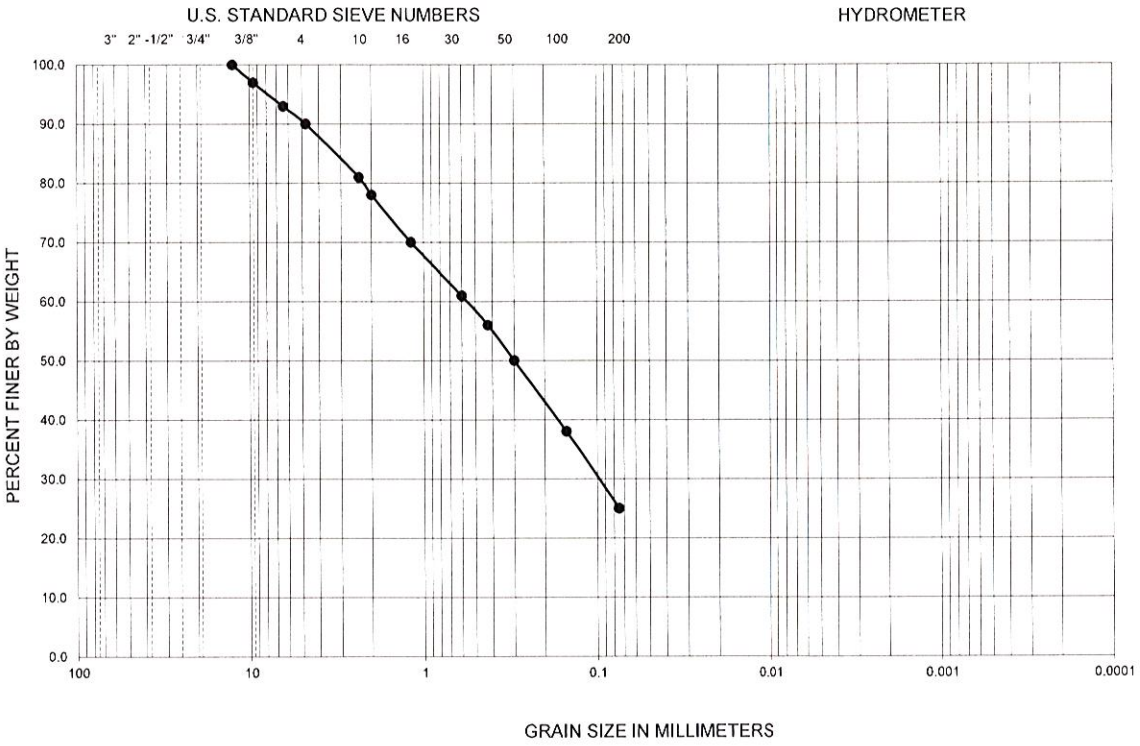
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-6	33.5-34.5	--	--	NP	--	0.097	0.55	--	--	25.0	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-6

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

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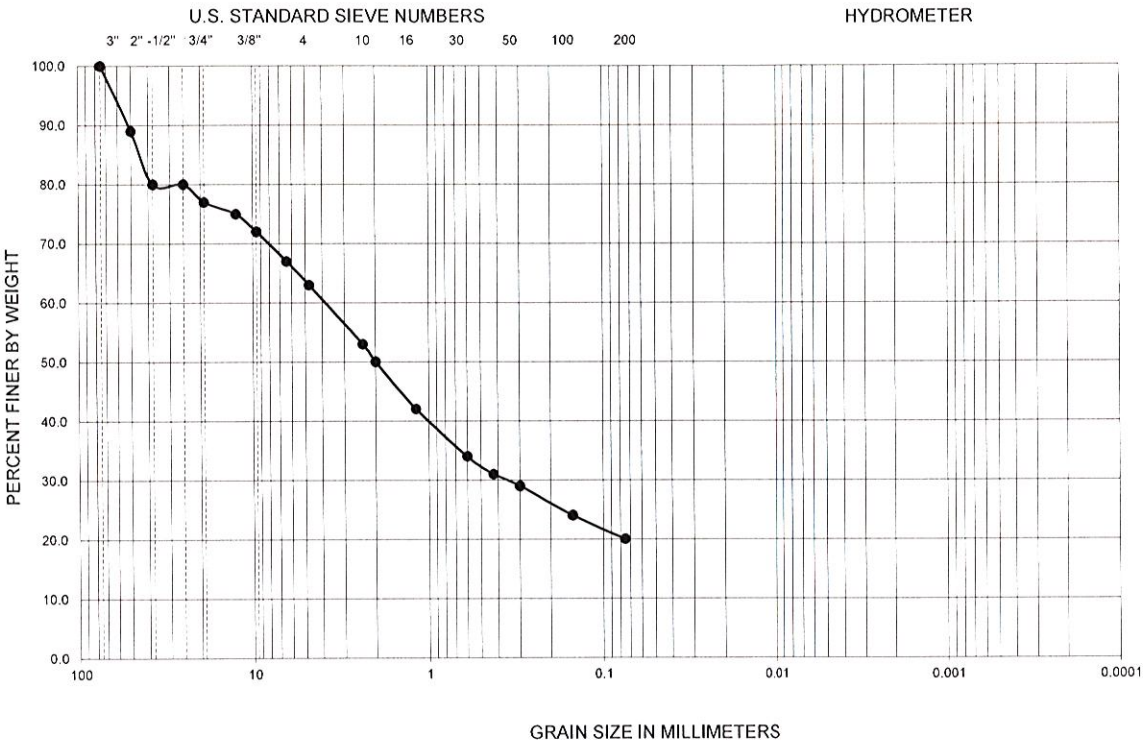
605986002 | 7/21

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-7	1.0-2.5	37	21	16	--	0.363	3.91	--	--	20.0	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-7

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

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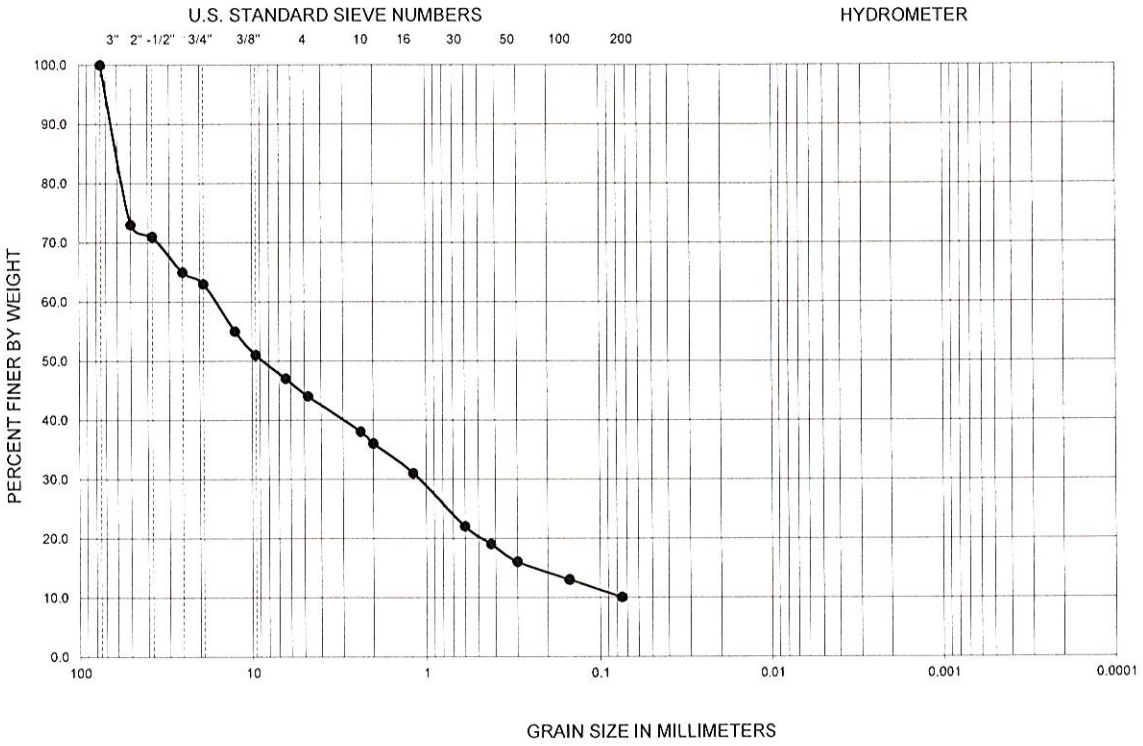
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (percent)	USCS
●	B-7	18.5-20.0	24	13	11	0.074	1.103	16.36	221.1	1.0	10.0	GW-GC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM C136 / D422

FIGURE B-8

GRADATION TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

605986002 | 7/21

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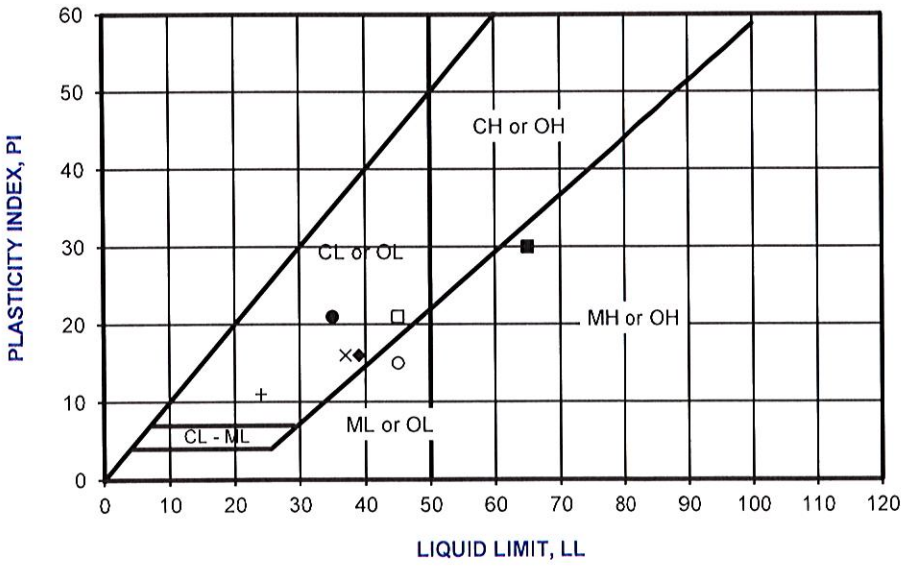
SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
●	B-1	1.0-5.0	35	14	21	CL	CL
■	B-2	8.0-9.4	65	35	30	MH	SM
◆	B-3	1.0-2.5	39	23	16	CL	SC
○	B-4	8.5-10.0	45	30	15	ML	ML
□	B-6	1.0-2.5	45	24	21	CL	SC
Δ	B-6	33.5-34.5	--	--	--	ML	SM
X	B-7	1.0-2.5	37	21	16	CL	SC
+	B-7	18.5-20.0	24	13	11	CL	GW-GC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

FIGURE B-9

ATTERBERG TEST RESULTS

HEDGEPETH WATERLINE IMPROVEMENTS DISTRICT

PHOENIX, ARIZONA

SAMPLE LOCATION	SAMPLE DEPTH (FT)	pH[1]	RESISTIVITY [1] (Ohm-cm)	REDOX POTENTIAL[2] ((Eo) mV)	SULFATE CONTENT [3]		CHLORIDE CONTENT [4] (ppm)	SULFIDE CONTENT[5] (PPM)
					(ppm)	(%)		
B-1	1.0-5.0	7.0	2,460	209	71	0.007	26	<0.0
B-4	0.0-5.0	6.7	3,350	146	10	0.001	6	<0.0
B-6	25.0-35.0	8.7	1,730	254	64	0.006	37	<0.0

[1] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 236c
[2] PERFORMED IN GENERAL ACCORDANCE WITH ASTM G200-09
[3] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 733
[4] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 736
[5] PERFORMED IN GENERAL ACCORDANCE WITH HACH 8131

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

3202 East Harbour Drive | Phoenix, Arizona 85034 | p. 602.243.1600

ARIZONA | CALIFORNIA | COLORADO | NEVADA | TEXAS | UTAH

www.ninyoandmoore.com

BID PROPOSAL
CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
PROJECT TITLE: HEDGEPETH WATERLINE IMPROVEMENT DISTRICT
47th AVENUE TO 49TH AVENUE SOUTH OF
TONOPAH DRIVE AND BEARDSLEY ROAD
PROJECT NO.: WS85503001
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 180 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 Name: Hedgepeth Waterline Improvement District From 47th Ave to 49th Ave South of Tonopah Drive and Beardsley Road Design-Bid-Build

Project No: WS85503001

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Allowance for Extra Work	Job	1	$300,000.00	$300,000.00
2	Mobilization/Demobilization	Job	1		
3	Traffic Control	Job	1		
4	Allowance for Uniformed Off-Duty Officer	Job	1	$25,000.00	$25,000.00
5	Allowance for Stormwater Pollution Prevention Best Management Practice (BMP's)	LS	1	$20,000.00	$20,000.00
6	Allowance for Miscellaneous Fittings	Job	1	$10,000.00	$10,000.00
7	Allowance for Demolition Work, Relocation of Utilities, and Vertical Realignments	Job	1	$30,000.00	$30,000.00
8	Pavement Striping & Marking Restoration	Job	1		
9	Landscaping Restoration and Irrigation Repair	Job	1		

Item No.	Description	Unit	Quantity	Unit Price	Total
10	Traffic Signal Loop Detector Repair	Job	1		
11	Power Broom (Contingent)	HR	8		
12	Construction Survey	LS	1		
13	Concrete Curb/Gutter Demolition	LF	190		
14	Remove Concrete Pavement and Dispose	SY	1184		
15	Remove Asphalt Pavement and Dispose	SF	12235		
16	Pavement Restoration (5" AC Paving On 10" ABC, or Match Existing)	SY	1360		
17	Apply Crack Seal and Microsurfacing	SY	3310		
18	Concrete Pavement w/ Drilled Dowels	SY	1130		

Item No.	Description	Unit	Quantity	Unit Price	Total
19	Remove & Replace Sidewalk to the Nearest Joint	SF	59		
20	Remove & Replace Valley Gutter to Nearest Joint	SF	55		
21	Concrete Curb/Gutter	LF	190		
22	Connect to Existing 12" Water Main	EA	4		
23	Blowoff Valve Assembly Including All Necessary Fittings and Appurtenances	EA	1		
24	12" Gate Valve, Box & Cover	EA	4		
25	Concrete Gate Valve Thrust Block	EA	1		
26	12" DIP, 51st Avenue, Restrained MJ, Trench & Backfill	LF	387		
27	12" DIP, Tonopah Drive, Restrained MJ, Trench & Backfill	LF	1175		

Item No.	Description	Unit	Quantity	Unit Price	Total
28	12" DIP, Inside Casing Pipe, Restrained, with Spacers & End Seals	LF	1196		
29	12" 45° Bend	EA	7		
30	12" 90° Bend	EA	4		
31	12" Cut in Tee & Dewatering	EA	1		
32	12" Tee	EA	1		
33	12" x 6" Tee	EA	7		
34	Fire Hydrant Assembly, Including Valves, 6" Pipe, & All Necessary Fittings	EA	6		
35	24" Steel Casing Pipe, 3/8" Wall, Welded, Trench & Backfill, Open Trench	LF	1049		
36	24" Steel Casing Pipe, 3/8" Wall, Welded, Trench & Backfill, Open Trench Under Bridge	LF	145		

City of Phoenix

BID PROPOSAL

Project Name: Hedgepeth Waterline Improvement District From 47th Ave to 49th Ave South of Tonopah Drive and Beardsley Road Design-Bid-Build

Project No: WS85503001

Item No.	Description	Unit	Quantity	Unit Price	Total
37	Casing Pipe Vent & Valve Box, Including Valves	EA	2		
38	Remove Flushing Pipe & Meter Box	EA	1		
39	Debris Cap Including Locator Coil, Furnish, and Install	EA	5		

Total for Project No.: WS85503001 (Items 1 through 39)
Hedgepeth Waterline Improvement District $_____

_____and____ /100

Dollars_____

Total Written in Dollars

Prepared By:

_____
Signature

_____
Name

_____
Position/Title

_____
Firm Name

City of Phoenix

BID PROPOSAL - Alternate Bid 1

Project Name: Hedgepeth Waterline Improvement District From 47th Ave to 49th Ave South of Tonopah Drive and Beardsley Road Design-Bid-Build

Project No: WS85503001

Item No.	Description	Unit	Quantity	Unit Price	Total
1	Allowance for Extra Work	Job	1	$190,000.00	$190,000.00
2	Mobilization/Demobilization	Job	1		
3	Traffic Control	Job	1		
4	Allowance for Uniformed Off-Duty Officer	Job	1	$5,000.00	$5,000.00
5	Allowance for Stormwater Pollution Prevention Best Management Practices (BMP's)	LS	1	$20,000.00	$20,000.00
6	Allowance for Miscellaneous Fittings	Job	1	$10,000.00	$10,000.00
7	Allowance for Demolition Work, Relocation of Utilities, and Vertical Realignments	Job	1	$30,000.00	$30,000.00
8	Landscaping Restoration and Irrigation Repair	LS	1		
9	Construction Survey	LS	1		

Item No.	Description	Unit	Quantity	Unit Price	Total
10	Remove Tree, 12 inch diameter and larger	EA	1		
11	Remove Asphalt Pavement and Dispose	SF	108		
12	5" AC Paving On 10" ABC	SY	12		
13	Remove Tree, 12 inch diameter and larger, Replace Tree, Mesquite 42 inch box	EA	1		
15	Connect to Existing 12" Water Main	EA	2		
16	Blowoff Valve Assembly Including All Necessary Fittings and Appurtenances	EA	1		
17	12" Gate Valve, Box & Cover	EA	6		
18	Concrete Gate Valve Thrust Block	EA	4		
19	12" DIP, 49th Drive & Tonopah Drive, Restrained MJ, Trench & Backfill	LF	1553		

Item No.	Description	Unit	Quantity	Unit Price	Total
20	12" DIP, Inside Casing Pipe, Restrained, with Spacers & End Seals	LF	568		
21	12" 45° Bend	EA	8		
22	12" 90° Bend	EA	2		
23	12" Cut in Tee & Dewatering	EA	2		
24	12" x 6" Tee	EA	7		
25	Fire Hydrant Assembly, Including Valves, 6" Pipe, & All Necessary Fittings	EA	6		
26	30" Steel Casing Pipe, 3/8" Wall, Welded, Jack & Bore	LF	568		
27	Casing Pipe Vent & Valve Box	EA	2		

City of Phoenix

BID PROPOSAL - Alternate Bid 1

Project Name: Hedgepeth Waterline Improvement District From 47th Ave to 49th Ave South of Tonopah Drive and Beardsley Road Design-Bid-Build

Project No: WS85503001

Item No.	Description	Unit	Quantity	Unit Price	Total
28	Remove Flushing Pipe & Meter Box	EA	1		
29	Debris Cap Including Locator Coil, Furnish, and Install	EA	6		

Total for Project No.: WS85503001 (Items 1 through 29)
Hedgepeth Waterline Improvement District – Bid Alternate 1 $_____

_____and____/100 Dollars

Total Written in Dollars

Prepared By:

_____
Signature

_____
Name

_____
Position/Title

_____
Firm Name

PROPOSAL SUBMITTAL

PROJECT TITLE:
PROJECT NO.:

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)

City of Phoenix Project No.: WS85503001

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 Hedgepeth Waterline Improvement District_____
_____
_____

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

LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: WS85503001 PROJECT TITLE: HEDGEPETH WATERLINE IMPROVEMENT DISTRICT SOUTH OF TONOPAH DRIVE AND BEARDSLEY ROAD DBB

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.: ___WS85503001_____ PROJECT TITLE:HEDGEPETH WATERLINE IMPROVEMENT DISTRICT 47th AVE TO 49TH AVE SOUTH OF TONOPAH DRIVE AND BEARDSLEY ROAD DBB

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: _____