CITY OF PHOENIX, ARIZONA

OFFICE OF THE CITY ENGINEER

PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS

27TH AVENUE – LOWER BUCKEYE ROAD TO BUCKEYE ROAD ROADWAY IMPROVEMENT
PROJECT NO. ST85100341

MAYOR

THELDA WILLIAMS

CITY COUNCIL

DISTRICT NO. 1 – THELDA WILLIAMS
DISTRICT NO. 2 – JIM WARING
DISTRICT NO. 3 – DEBRA STARK
DISTRICT NO. 4 – LAURA PASTOR
DISTRICT NO. 5 – VANIA GUEVARA
DISTRICT NO. 6 – SAL DICICCIO
DISTRICT NO. 7 – MICHAEL NOWAKOWSKI
DISTRICT NO. 8 – FELICITA MENDOZA

CITY MANAGEMENT

CITY MANAGER — **ED ZUERCHER**
CITY ENGINEER — **KINI L. E. KNUDSON, PE**

Registered Professional Engineer (Civil)
CERTIFICATE NO.
54275
JOSE MIGUEL
RODRIGUEZ
DATE SIGNED 10/26/18
ARIZONA, U.S.A.

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
54275
JOSE MIGUEL RODRIGUEZ
DATE SIGNED 10/24/18
ARIZONA, U.S.A.

CALL FOR BIDS

CITY OF PHOENIX
27TH AVENUE ROADWAY IMPROVEMENTS
FROM LOWER BUCKEYE ROAD TO BUCKEYE ROAD
DESIGN-BID-BUILD
ST85100341

BIDS WILL BE DUE: TUESDAY, DECEMBER 4, 2018 AT 2:00 P.M., PHOENIX TIME
PHOENIX CITY HALL
200 W. WASHINGTON STREET, 6th FLOOR
PHOENIX, AZ 85003-1611

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

SCOPE OF WORK

The work includes road widening improvements on 27th Avenue from Lower Buckeye Road to Buckeye Road, new roadway improvements, removals, grading, asphalt concrete paving, portland cement concrete paving, concrete curb and gutter, concrete sidewalk, concrete sidewalk ramps, concrete driveways, concrete bus shelter/accessory pads, decomposed granite, catch basins, storm drain connector pipes, SRP irrigation pipes, private irrigation pipes, traffic signals, street lighting, manhole adjustments, water valve adjustments, mailbox relocations, traffic control devices, fencing (both new and relocations), relocation of fire hydrants/water meters, and coordination with utility owners for relocations. The Engineer's Estimate for this project is $2,863,041 to $3,499,272.

A Small Business Enterprise goal of 18% has been established for this project.

PRE-BID MEETING

A pre-bid meeting will be held on Friday, November 16, 2018, at 8:30 a.m., Phoenix time, at DCM Gecko Conf Room located at 1034 E. Madison Street, Phoenix, AZ 85034. At this meeting, staff will discuss the scope of work, general contract issues and respond to questions from the attendees. As City staff will not be available to respond to individual inquiries regarding the project scope outside of this pre-bid meeting, it is strongly recommended that interested firms send a representative to the pre-bid meeting.

REQUEST FOR BID PACKET

The bid packet will be available for download on the City of Phoenix Design and Construction Procurement's "Current Opportunities" web page as of Thursday, November 8, 2018. The web address is:

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

Firms receiving a copy of the bid packet through any other means must download the bid packet from the City webpage and register as a plan holder for the project. The plan holder list is available for viewing within the project folder.

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 George Goodale, Contracts Specialist, at (602) 534-8352 or calling TTY System (602) 256-4286. 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 George Goodale, Contracts Specialist at (602) 534-8352 or george.goodale@phoenix.gov.

ED ZUERCHER
City Manager

KINI L. E. KNUDSON, PE
City Engineer

Published: Arizona Business Gazette
Date: Thursday, November 8, 2018
Date: Thursday, November 15, 2018
District 7

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

A Planholder List is available within the project folder on the Design and Construction Procurement's website under "Current Opportunities". The web address is:

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

For additional information prior to submitting your bid, contact:

Plans, Technical/Special Provisions, Proposal or Specifications:
NAME: George Goodale, Design and Construction Procurement
ADDRESS: 200 W. Washington Street, 6th Floor, Phoenix, AZ 85003-1611
PHONE: (602) 534-8352 E-MAIL: George.Goodale@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 (12) 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 George Goodale, Sixth Floor, Phoenix City Hall, 200 W. Washington Street, Phoenix, Arizona 85003-1611 or via email to George.goodale@phoenix.gov.

C. **BID BOND**

Bidders must submit a properly completed proposal guarantee, certified check, cashier's check or on the surety bond provided, for an amount not less than ten (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 City Clerk will return the certified check, cashiers check, or surety bond 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 "List of Major Subcontractors and Suppliers" form.

To assist in eliminating the practice of bid shopping on City construction projects, the bidder will list all Major Subcontractors and Suppliers (including SBE) 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 "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 construction projects for a period of one year.

The list of All Subcontractors and Suppliers will be provided on the **"List of All Subcontractors and Suppliers"** form. ***Failure to properly complete and sign this form will result in bid rejection.*** **This form is due three calendar days after bid opening by 5:00 p.m.** A bid will be deemed non-responsive if a properly completed and signed **"List of All Subcontractors and Suppliers"** form is not submitted.

E. **BID SUBMITTAL**

The properly completed bid documents along with the ten (10) 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: 27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement
City of Phoenix Project Number: ST85100341

Sealed bids will be submitted to the bid box located by the Design and Construction Procurement Reception Desk located on the Sixth 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 (IFB). 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 Street Transportation Department Contract Procurement Section. 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://www.phoenix.gov/streets/procurement-opportunities/current-opportunities

The contractors and/or consultants are responsible for ensuring they have all addenda and/or notifications for all projects they are submitting on. Prospective bidders are strongly encouraged to check the Design and Construction Procurement website in order to ascertain if any addenda have been issued for the project.

H. BID SUBMITTAL CHECKLIST

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 of the contract documents. Bidders are encouraged to review all of the Bid Instructions to determine compliance therein.

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

- Acknowledge all addenda? (Page P-1)
- Completed all of the Bid Proposal forms? (Pages P-1 to P - 11 and P.S. - 1)
- Included your Bid Bond (rated A- or better for the prior four quarters) or Guarantee Cashier's Check? (Page S.B.-1)
- Completed SBE Utilization form or a fully documented waiver package? (Page S.B.U.-1)

- Completed List of Major Subcontractors and Suppliers form? (Page L.O.S.-1)

- Completed Letter of Intent to Perform as Subcontractor/Supplier (L.O.I-1)

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

POST-BID SUBMITTAL CHECKLIST

All bidders wishing to remain in contention for award of the contract must submit completed contracts documents listed below. The documents must be submitted to the Design and Construction Procurement Section, 6th Floor, or can be sent by email to George.Goodale@Phoenix.gov .

- Completed List of All Subcontractors and Suppliers form (L.O.S.-2) (3 calendar days after bid opening by 5:00 p.m.)

- Bidders Disclosure Statement? (Pages B.D.S.-1 to 4) (3 calendar days after bid opening by 5:00 p.m.)

- Submit Affidavit of Identity (if you are a sole proprietor) (Page A.O.I. – 1) (3 calendar days after bid opening by 5:00 p.m.)

I. 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.

J. 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.

K. 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 prospective bidder 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 bid. Once your 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 any and 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 in order to assist the Department in evaluating Contractor's qualifications for and compliance with contract for duration of the term of contract.

L. **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.

M. **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.

N. **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."

O. **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 three 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.

P. **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.

Q. **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.

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

Background Screening Requirements and Criteria

The City has established levels of risk and associated Background Screening. For Contractor services in the right-of-way, the risk level and Background Screening required is Minimum Risk. **The risk level and background screening required for this project is Minimum.**

Terms of This Section Applicable to all of Contractor's Contracts and Subcontracts
Contractor will include the terms of this Section for Contract Worker Background Screening in all contracts and subcontracts for services furnished under this Agreement including, but not limited to, supervision and oversight services.

(1.) Contract Worker Background Screening
Contractor agrees that all contract workers and subcontractors (collectively "Contract Worker(s)") that Contractor furnishes to the City pursuant to this Agreement will be subject to background and security checks and screening (collectively "Background Screening") at Contractor's sole cost and expense as set forth in this Section. The Background Screening provided by Contractor will comply with all applicable laws, rules and regulations. Contractor further agrees that the Background Screening required in this Section is necessary to preserve and protect public health, safety and welfare. The

Background Screening requirements set forth in this Section are the minimum requirements for this Agreement. The City in no way warrants that these minimum requirements are sufficient to protect Contractor from any liabilities that may arise out of Contractor's services under this Agreement or Contractor's failure to comply with this Section. Therefore, in addition to the specific measures set forth below, Contractor and its Contract Workers will take such other reasonable, prudent and necessary measures to further preserve and protect public health, safety and welfare when providing services under this Agreement. The City may, in its sole discretion, accept or reject any or all of the Contract Workers proposed by Contractor to perform work under this Agreement, as well those Contract Workers actually providing services during the term of this Agreement.

Minimum Risk Background Screening requirements include the following:

A Minimum Risk Background Screening will be performed when the Contract Worker: (i) will not have direct access to City facilities or information systems; or (ii) will not work with vulnerable adults or children; or (iii) when access to City facilities is escorted by City workers. The Background Screening for minimum risk will consist of the screening required by Arizona Revised Statutes §§ 41-4401 and following to verify legal Arizona worker status.

Standard Risk and Background Screening requirements include the following:

A Standard Risk Background Screening will be performed when the Contract Worker's work assignment will: (i) require a badge or key for access to City facilities; or (ii) allow any access to sensitive, confidential records, personal identifying information or restricted City information; or (iii) allow unescorted access to City facilities during normal and non-business hours. The Background Screening for this standard risk level will include the Background Screening required for the Minimum Risk level and 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 Contract Worker has lived at any time in the preceding seven (7) years from the Contract Worker's proposed date of hire.

Maximum Risk Background Screening requirements include the following:

A Maximum Risk Background Screening will be performed when the Contract Worker's work assignment will: (i) have any contact with vulnerable people such as children, youth, elderly, or individuals with disabilities; or (ii) have any responsibility for the receipt or payment of City funds or control of inventories, assets, or records that are at risk of misappropriation; or (iii) have unescorted access to City data centers, money rooms, or high-value equipment rooms; or (iv) have access to private residences; or (v) have access to Homeland Defense Bureau identified critical infrastructure sites/facilities. The Background Screening for this maximum risk level will include the Background Screening required for the Standard Risk level, plus a sexual offender search, a credit check, and driving record search for the preceding seven (7) years from the Contract Worker's proposed date of hire. Contract Workers who work directly with children or vulnerable adults are also subject to fingerprint verification through the Arizona Department of Public Safety as mandated by Phoenix City Code, § 2-45.6.

Contractor Certification; City Approval of Maximum Risk Background Screening
By executing this Agreement, Contractor certifies and warrants that Contractor has read the Background Screening requirements and criteria in this Section, understands them and that all Background Screening information furnished to the City is accurate and current. Also, by executing this Agreement, Contractor further certifies and warrants that Contractor has satisfied all such Background Screening requirements for the Minimum

Risk and Standard Risk Background Screenings as required. In addition, for Maximum Risk Background Screening, Contractor will furnish to the Street Transpiration Department for the City's review and approval such Background Screenings for any Contract Worker considered for performing services under this Agreement where human safety or facility security is classified as a Maximum Risk level. The subject Contract Worker will not apply for the appropriate City of Phoenix identification and access badge or keys until Contractor has received the City's written acceptance of the subject Contract Worker's Maximum Risk Background Screening. A Contract Worker rejected for work at a Maximum Risk level under this Agreement will not be proposed to perform work under other City contracts or engagements without City's prior written approval.

(2.) Materiality of Background Screening Requirements; Indemnity
The Background Screening requirements of this Section are material to City's entry into this Agreement and any breach of this Section by Contractor will be deemed a material breach of this Agreement. In addition to the indemnity provisions set forth in Supplementary Conditions Section 7.G of this Agreement, Contractor will defend, indemnify and hold harmless the City for any and all Claims (as defined in Supplementary Conditions Section 7.G arising out of this Background Screening Section including, but not limited to, the disqualification of a Contract Worker by Contractor or the City for failure to satisfy this Section.

(3.) Continuing Duty; Audit
Contractor's obligations and requirements that Contract Workers satisfy this Background Screening Section will continue throughout the entire term of this Agreement. Contractor will notify the City immediately of any change to a Maximum Risk Background Screening of a Contract Worker previously approved by the City. Contractor will maintain all records and documents related to all Background Screenings and the City reserves the right to audit Contractor's compliance with this Section pursuant to Information for Bidders Section 1.M.

S. 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.

T. 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.

U. 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.

V. **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."

W. **DATA CONFIDENTIALITY**

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

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

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

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

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

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

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

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

Personal Identifying Information-Data Security

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

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

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

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

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

Y. **PROJECT MANAGEMENT INFORMATION SYSTEM (PROMIS)**

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

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

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

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

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

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

CONSTRUCTION TRADE IDENTIFICATION WORKSHEET

PROJECT TITLE: 27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement
PROJECT NO.: ST85100341

Below is a listing of possible trade areas for this project.
These were the trade areas identified in the goal setting process.
However, the contractor may identify additional trade areas to be used.

Asphalt Paving
Demolition/Wrecking
Masonry
Manholes
Concrete
Landscape Material/Irrigation System/Granite
Pipeline / Underground Utilities
Hauling
Fencing
Metals: Steel /Aluminum Fabrication/Erection
Uniformed Police Officer
Street Lighting & Traffic Signal
Site Clearing & Grubbing
Surveying & Layout
Traffic Control Devices

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

https://phoenix.diversitycompliance.com

SBE: 18%

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 103.3 AWARD OF CONTRACT

   NOTICE TO PROCEED

   Due to utility relocations required for this project, the Contractor's Notice to Proceed (NTP) for construction may not be issued until as late as Summer 2019. After award of the contract, the successful bidder may request discussion with the City regarding a possible earlier start date for specific work in areas that will not impact the utility companies' abilities to perform their major relocations or where the Contractor and the utilities could work together simultaneously without hindering each other's progress; however, the intent is to allow the utilities sufficient time to perform the major relocations in advance of roadway construction. The City will have the final authority to set the NTP. The Contractor's unit bid prices will take into consideration the assumption that a Notice to Proceed will not be issued until as late as Summer 2019 and will be considered final and accepted bid prices through the duration of the contract from the assumed anticipated start date.

3. 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.

4. 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.

These insurance requirements are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The City in no way warrants that the minimum 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. Contractor is free to purchase such additional insurance as may be determined necessary.

MINIMUM 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 minimum liability requirements provided that the coverage is written on a "following form" basis.

Commercial General Liability – Occurrence Form

Policy must include bodily injury, property damage, broad form contractual liability and XCU coverage.

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 be endorsed to include the following additional insured language: "The City of Phoenix is named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including completed operations."

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 following additional insured language: "The City of Phoenix is named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including automobiles owned, leased, hired or borrowed by the Contractor."

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: The policies must include, or be endorsed to include, the following provisions:

On insurance policies where the City of Phoenix is named as an additional insured, the City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.

The Contractor's insurance coverage must be primary insurance and non-contributory with respect to all other available sources.

With regard to general liability, the City of Phoenix is named as an additional insured for both products completed operations and premises operations.

A. NOTICE OF CANCELATION

For each insurance policy required by the insurance provisions of this Contract, the Contractor must provide to the City, within two business days of receipt, a notice if a policy is suspended, voided or cancelled for any reason. Such notice will be sent directly to the City of Phoenix Contract Specialist listed on Page I.B.-1 of these specifications and will be sent by certified mail, return receipt requested.

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 above-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. *Any policy endorsements that restrict or limit coverage will be clearly noted on the certificate of insurance.*

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 the City of Phoenix Contract Specialist listed on Page I.B. - 1 of these specifications. The City project/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.

If the Certificate of Insurance reflecting policy coverage and cancellation notice does not conform to the City's requirements, the contractor must:

- Submit a current insurance certificated (dated within 15 days of the payment request submittal) with each payment request form. The payment request will be rejected if the insurance certificate is not submitted with the payment request.

D. SUBCONTRACTORS

Contractors' certificate(s) must include all subcontractors as additional insureds under its policies or subcontractors must maintain separate insurance as determined by the Contractor, however, subcontractor's limits of liability must not be less than $1,000,000 per occurrence/$2,000,000 aggregate.

E. APPROVAL

Any modification or variation from the insurance requirements in this Contract must be made by the Law Department, whose decision is final. Such action will not require a formal Contract amendment, but may be made by administrative action.

F. OFF-DUTY POLICE OFFICER REQUIREMENTS

Off Duty Police Officer Requirements

It is required that the City provide off-duty police officers for construction projects as defined in the most recent edition of the City of Phoenix Traffic Barricade Manual. The Engineer must competitively procure Off Duty Police with vendors who are Authorized Traffic Coordinators with the City of Phoenix Police Department Off Duty Coordinator. 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.

3. Insurance Requirements:
   a. Commercial General Liability – Occurrence Form

      Policy must include bodily injury, property damage and broad form contractual liability

coverage.

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 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 contract worker.

b. Non-owned Auto Liability $1,000,000

Coverage must be provided ***if*** a City of Phoenix Police vehicle is being used in the performance of the off-duty traffic control services.
The policy must be endorsed to include the City of Phoenix as an additional insured with respect to liability arising out of the use and operation of a City vehicle.

c. 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.

103.6.2 Indemnification of City Against Liability

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

5. 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.

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

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

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

A. CONTRACT ADMINISTRATION

The definition of "Engineer" will read as follows:

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

B. PRECONSTRUCTION CONFERENCE

After completion of the contract documents, to include bonds, insurance and signatures and prior to the commencement of any work on the project, the Street Transportation Department, DCM Division, (telephone 602-495-2050), will schedule a Pre-Construction Conference. This will be held at 1034 East Madison Street, Phoenix, Arizona.

Construction administration will be provided by City of Phoenix, Street Transportation Department, Design & Construction Management Division (DCM).

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

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

C. AUTHORIZATION OF THE ENGINEER

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

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

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

8. 105 CONTROL OF WORK, Add the following to Subsection 105.2 PLANS AND SHOP DRAWINGS:

The Contractor will submit as many of the required shop drawings and product data submittals at the Pre-Construction meeting as practical and possible. All shop drawings and product data submittals will be submitted sufficiently in advance to allow adequate time for City review(s) and approval. The Contractor will submit early enough to allow enough time for reviews based on the assumption that a submittal may be marked "Revise and Resubmit" or "Rejected", requiring the Contractor to modify the submittal and resubmit for additional review(s) until acceptance.

A separate transmittal will be used for each specific item type, class of material or equipment for which a submittal is required. Multiple items under one transmittal will only be allowed when the items taken together constitute a complete manufacturer's package, or are so functionally related that the entire package should be reviewed as a whole. 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.

9. 105 CONTROL OF WORK, Add the following to Subsection 105.4 COOPERATION WITH UTILITIES:

The Contractor is advised that the anticipated dry-up period for the existing Salt River Project Irrigation Facilities is between January through February, and the work will need to be scheduled and phased accordingly. The Contract will be required to coordinate with SRP personal and follow the requirements of the approved SRP Relocation Plans.

10. 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. The Contractor will be under construction while this project is being constructed. The Contractor will conduct his work as specified in MAG Section 105.7.

11. 105 CONTROL OF WORK, Add the following to Subsection 105.8, CONSTRUCTION STAKES, LINES AND GRADES:

A. SURVEY

The City of Phoenix Street Transportation Department, Design & Construction Management Division (DCM) will set the construction stakes establishing lines, grades, and elevations to include necessary utilities and appurtenances and will be responsible for their conformance with plans and specifications. DCM will establish or designate a control line or benchmark of known location and elevation for use as a reference.

B. RECORD DRAWINGS

The Contractor will maintain a record set of plans at the job site. These will be kept legible and current and will show all changes or work added in a contrasting, reproducible color. Two weeks prior to issuance of substantial completion, the Contractor will submit, prior to final inspection, corrected landscape drawings showing the location of all utility services, controller, pipe, valves and wiring. The Engineer will 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.

12. 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 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.

13. 105 CONTROL OF WORK, Add the following to Subsection 105.6 COOPERATION WITH UTILITIES:

105.6.3 Coordination with Salt River Project

The City will require the contractor to coordinate with the Salt River Project to perform the relocations of its irrigation facilities located between Sta 103+00 and Sta 110+00. At the discretion of the Engineer, this work may be completed by other forces and eliminated from this contract. No additional compensation will be granted arising from the elimination of this work.

14. 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.

15. 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 (Note to PMs: Insert only when requested by Environmental staff)

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.

16. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.2, PERMITS:

1. 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:

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

B. 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;

C. 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.

2. STORM WATER POLLUTION PREVENTION PLAN AND AZPDES PERMIT

Any project that disturbs 1 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.

3. 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.

5. 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.

6. 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.

7. OTHER PERMITS

The Contractor may be required to obtain other permits from other agencies, such as the Arizona Department of Transportation (ADOT) or the Flood Control District of Maricopa County (FCDMC) 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.

17. 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 will be conducted within the limits of the project during construction. The Contractor will 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 will stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the on-site archaeologist(s) who will then contact the City Archaeology Office (602-495-0901). The Contractor will 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 will 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 will not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

18. 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".

19. 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.

20. 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.

21. 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.

22. 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.

23. 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.

24. 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.

25. 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 (7) 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 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.

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 agreement

CDs assigned to the City must be maintained in the form of time deposit receipt accounts. CDs will be assigned exclusively for the benefit of the City of Phoenix pursuant to the City's form of escrow agreement.

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

26. 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.

27. 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.

28. 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.

29. 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. **301 SUBGRADE PREPARATION**: Add the following to **Subsection 301.1, DESCRIPTION**:

The work under Subgrade Preparation consists of all excavating and grading work necessary to bring the existing surface to the section specified on the plans prior to the covering of the prepared subgrade with pavement base materials.

3. **301 SUBGRADE PREPARATION,** Add the following to **Subsections 301.7, MEASUREMENT, and 301.8, PAYMENT**,:

301.7 MEASUREMENT:

Measurement for subgrade preparation will be made by the square yard of the roadway areas excavated and graded and subsequently covered with pavement base materials. Payment for necessary grading for items outside of the lip of gutter will be included in the cost of those items.

Project earthwork quantities for Roadway Excavation, Borrow Excavation, and Fill Construction shall not be separately measured when they are not listed as separate line items on the fee proposal form. In such case, unless otherwise specified, payment for said earthwork items shall be included in the unit price for Subgrade Preparation.

301.8 PAYMENT

Payment will be made at the unit price quoted in the bid proposal for the bid item "SUBGRADE PREPARATION".

4. **336 PAVEMENT MATCHING AND SURFACING REPLACEMENT,** Add the following to **Section 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT**:

ASPHALT CONCRETE REPLACEMENT (DRIVEWAY AND PARKING LOT CONNECTIONS)

Construction Requirements

Asphalt concrete will be removed and replaced to match existing asphalt concrete frontage in back of new sidewalks and driveways, as detailed and noted on the plans and as directed by the Engineer. Existing asphalt concrete will be trimmed and removed in accordance with Section 336.2.2.

Measurement and Payment

Payment will be made at the bid price per ton for "ASPHALT CONCRETE SURFACE COURSE D-1/2 (DRIVEWAY AND PARKING LOT CONNECTIONS)" complete-in-place within the areas as specified above, and will include removal and disposal of existing materials and subgrade preparation. Aggregate base materials, where required, will be paid under that proposal item.

21. **340 CONCRETE CURB, GUTTER, SIDEWALK RAMPS, DRIVEWAY AND ALLEY ENTRANCE** , Add the following to **Subsection 340.2.1 Detectable Warnings; Subsection 340.3.1 Detectable Warnings; Subsection 340.5 MEASUREMENT; and Subsection 340.6 PAYMENT**:

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

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

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

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

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

Unless shown otherwise on the plans, the color of the detectable warning tiles to be used shall be terracotta

color on grey concrete and yellow color on colored concrete sidewalk ramps – color to be approved by the Engineer.

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

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

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

Sidewalk Ramps, Measurement and Payment

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

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

Concrete Driveway and Sidewalk Slab Connections, Measurement and Payment

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

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

Mountable Curb and Gutter, Measurement and Payment

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

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

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

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

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

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

be made to obtain replacement hardware. Missing hardware that is properly reported to the Engineer will be supplied to the Contractor by the City of Phoenix or the appropriate private utility company.

Replacement of any missing hardware that was not reported to the Engineer initially as specified, that comes up missing later when these facilities are brought back up to finish grade, will be the full responsibility of the Contractor, at no additional cost to the City.
In addition, all manhole frames and covers, water valve and survey monument boxes or other related hardware removed by the Contractor during the lowering process will be maintained in a secure area, and the Contractor will bear full responsibility for this hardware material. Any hardware lost by the Contractor will be replaced in-kind, at no additional cost to the City.

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

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

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

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

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

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

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

QUARTER SECTION MAPS FOR WATER AND SEWER LINES

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

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

WATER VALVE AS-BUILTS

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

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

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

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

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

345.5 MEASUREMENT

Measurement for adjustments will be per each respective item.

345.6 PAYMENT

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

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

6. Add the following new **Section 346 ADJUSTING NON-CITY UTILITIES** as follows:

346.1 DESCRIPTION

The utility companies may utilize the Contractor to adjust their frames, covers, and valve boxes for this project.

The Contractor will coordinate with the Engineer and the representatives of the various utilities regarding the adjustment and the inspection requirements of their facilities. The Contractor will be responsible for obtaining and adhering to the specifications and any other special requirements from the utility companies.

346.2 MEASUREMENT

Measurement of adjusted private utility features will be on a per each basis.

346.3 PAYMENT

Payment for this work will be made at the unit price bid per each item adjusted to grade, under the proposal item "ADJUST EXISTING UTILITY MANHOLE FRAME AND COVER, MANHOLE OR UTILITY RISER", and will be compensation in full for complete and final adjustment, including any utility inspector costs associated with these adjustments, regardless of the type of manhole or valve. The individual utility companies have the right to accept or reject the Contractor's bid price for their portion of adjustments. If the utility company rejects the Contractor's price, the utility company will adjust their own facilities and the item quantity will be adjusted accordingly.

7. Add the following new Section 362 UNDERGROUND POWER INSTALLATION as follows:

362.1 TRENCHING FOR UNDERGROUND STREET LIGHT CIRCUITS

Materials and construction will be in accordance with the Arizona Public Service Company (APS) "Underground Distribution Construction Standards", MAG, City of Phoenix Standard Specifications and these Special Provisions. The work will consist of the following items:

1. Providing all trenching, bedding, backfilling and compacting for street light circuits.
2. Installing junction boxes and ground rods provided by Arizona Public Service Company (APS).
3. Furnishing and installing 2 1/2-inch conduit(s), sweeps and conduit caps, including the running of a mandrel through the system.
4. Installing APS furnished flat strap in all conduit runs.

The Contractor will be responsible for obtaining the APS Standards from the APS Standards Department (602-371-6383, Barbara McMinn). A copy of these standards is available for perusal at the City of Phoenix Street Transportation Department Utility Coordination Office.

All work will be subject to inspection by Arizona Public Service and City of Phoenix forces. The Contractor will call APS Contracts Section at 602-371-6512 at least five (5) working days prior to starting trench work to meet with the APS Inspector and review inspection requirements.

The APS Liaison Agent is Mr. Bobby Garza {602-371-7989 or 602-361-6840 (mobile).

Trenching will be completed prior to sidewalk construction and ahead of pole installation. The Contractor will backfill and compact the trench in accordance with Section 601. The trench will be per APS plans.

Measurement and Payment

Measurement will be per linear foot, and payment will be at the unit price bid per linear foot for "TRENCHING FOR STREET LIGHT CIRCUIT" and will be compensation, in full, for all labor, equipment and materials necessary for the satisfactory completion of trenching and bedding; furnishing and installing the required number conduit for (streetlighting and service lines) and sweeps; installing APS-provided junction boxes and ground rods; installing APS-provided flat strap in all conduit runs; furnishing and installing sono tubes and related items; and backfilling and compacting in accordance with the Standard Specifications and these Special Provisions.

The Contractor will notify the APS inspector assigned to this project at least two weeks prior to needing the APS crew for pulling conductor wire and energizing the system.

8. Add the following new **Section 363 STREET LIGHTING INSTALLATION** as follows:

363 STREET LIGHTING INSTALLATION

Description

The Contractor will furnish and install all above-ground street light equipment (poles, luminaire arms, luminaires, photocells, etc.) in accordance with the plans.

The Contractor will submit shop drawings for review and approval by the Engineer and the appropriate Power Company on all street light equipment to be provided by the Contractor.

The Contractor will coordinate street light equipment installation efforts to avoid any damage to other elements of project construction, and will provide a complete, connected system installation ready for the Power Company to pull conductor wires and energize the street light system.

All work will be subject to inspection by the Power Company and City of Phoenix forces. The Contractor will call the Power Company at least five (5) working days prior to starting work to meet with the Power Company Inspector and review inspection requirements.

Measurement and Payment

Measurement will be per each complete street light installed, and payment will be at the unit price bid per each for "FURNISH AND INSTALL STREET LIGHT PER C.O.P. STREET LIGHTING PROCEDURES, STANDARDS AND SPECIFICATIONS MANUAL" and will be compensation in full for all labor, equipment and materials necessary for the satisfactory installation of street light equipment, including furnishing and installing street light poles, luminaire arms, luminaires, photocells, and all other related equipment items in accordance with the plans, Standard Specifications and these Special Provisions.

9. **401 TRAFFIC CONTROL,** Add the following to **Subsection 401.4 TRAFFIC CONTROL MEASURES**:

SEQUENCE OF CONSTRUCTION

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

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

Night work will **not** be allowed on this project.

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.

TEMPORARY PAVEMENT

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 2,000 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 2,000 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.

10. 401 TRAFFIC CONTROL, add the following to Subsection 401.5 GENERAL TRAFFIC REGULATION:

TRAFFIC REGULATIONS

A. The following will be considered:

Arterial Streets

27th Avenue

Lower Buckeye Road

Buckeye Road

Collector Street

Durango Street

B. All traffic and/or traffic control devices on this project will be provided, maintained and/or controlled as specified in the City of Phoenix Traffic Barricade Manual, 9th Edition and addendums thereof.

C. Permission to restrict City streets, sidewalks and alleys (street closure permits) will be requested as specified in Chapter 2 of the City of Phoenix Traffic Barricade Manual, 9th Edition and addendums thereof.

D. Unless otherwise provided for in the following "Special Traffic Regulations", all traffic on this project will be regulated as specified in Chapter 4 of the City of Phoenix Traffic Barricade Manual, 9th Edition and addendums thereof.

E. No deviation from the "Special Traffic Regulations" will be allowed or implemented unless submitted to the Engineer for review and approval at least 14 days prior to proposed work.

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

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

Civil Sanction Per Day	Violation Description
$1,500	Creating an eminent risk of death or injury to the public within the public right-of-way
$1,000	Restricting the right-of-way without proper certification or a right-of-way temporary use permit
$1,000	Restricting traffic during peak traffic hours as described in the Traffic Barricade Manual without authorization
$1,000	Failing to correct or cure a violation, as listed in this table, within the time period stated on the warning notice
$1,000	Restricting traffic at signalized intersections without any work occurring
$500	Closing a sidewalk improperly or closing a sidewalk without proper certification or closing a sidewalk without a right-of-way temporary use permit
$500	Violating the restriction limits, times and locations, of the right-of-way temporary use permit
$500	Missing or improper use of advance warning signs
$500	Missing or improper use of barricades and channelizing devices
$250	Leaving advanced warning signs facing traffic after restriction has been removed – per one traffic direction
$250	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	Use of "unacceptable" quality traffic control devices as described in the Traffic Barricade Manual
$250	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.

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

11. **401 TRAFFIC CONTROL**, Add the following to **Subsection 401.5 GENERAL TRAFFIC REGULATION**:

SPECIAL TRAFFIC REGULATIONS

For demolition of roadway these street and intersections can be restricted as directed below. Pedestrian Traffic must be maintained at all times on same side of street using approved methods as shown in the Traffic Barricade Manual. Emergency Access must be maintained at all times.

27th Avenue: Lower Buckeye Road to Buckeye Road

Maintain 1 lane in each direction at all times on a 24 hour basis, unless otherwise noted within the approved Temporary Right-of-Way Use permit issued to the contractor. In addition, at signalized intersections, all left turns are to be maintained from 6:00am – 8:30pm and 4:00pm – 6:30pm

27th Avenue and Durango Street Intersection

Maintain 1 & 1 at all times on Durango street on a 24hrs basis, also maintain all left turns at signalized intersection

Lower Buckeye Road and Buckeye Road

Lower Buckeye Road and Buckeye Road can be reduced, when construction requires, during the times indicated below:

Two lanes (one each way) plus left-turn lanes at signalized intersections from 8:30 a.m. to 4:00 p.m. weekdays and during working hours on weekends.

Two lanes (one each way) plus left-turn lanes at signalized intersections from 9:30 p.m. to 6:00 a.m. weeknights, and from 9:30 p.m. Saturday to 6:00 a.m. Monday.

Four lanes (two each way) plus left-turn lanes at signalized intersections from 6:00 a.m. to 8:30 a.m. and from 4:00 p.m. to 7:00 p.m. weekdays.

Four lanes (two each way) plus left-turn lanes at signalized intersections from 8:30 a.m. to 4:00 p.m. and from 7:00 p.m. to 9:30 p.m. weeknights.

All lanes will remain open from 6:00 a.m. to 8:30 a.m., and 4:00 p.m. to 7:00 p.m. weekdays, and from 9:30 p.m. Friday to 9:30 p.m. Saturday.

Portable Variable Message Boards

Portable Variable Message Boards (VMB) will be provided on this project at the following locations, 24 hours per day, from at least 14 days prior to any roadway restrictions until all roadway traffic restrictions are removed:

- Northbound 27th Avenue, approximately 1,320 feet south of Lower Buckeye Road intersection;

- Southbound 27th Avenue, approximately 1,320 feet north of Lower Buckeye Road intersection;
- Westbound Lower Buckeye Road, approximately 1,320 feet east of 27th Avenue;
- Eastbound Lower Buckeye Road, approximately 1,320 feet west of 27th Avenue

Police Officer Requirements

The Contractor will provide one off-duty police officer, as defined in the City of Phoenix Traffic Barricade Manual, latest edition, at signalized intersections affected from 6:00 a.m. to 7:00 p.m. weekdays, and during working hours, nights and weekends when traffic is restricted (as described in the City of Phoenix Traffic Barricade Manual, latest edition).

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

Signalized Intersection Requirements

The Contractor will notify the Engineer and the City Traffic Signal Shop (262-6021) at least 72 hours prior to the start of any construction in the vicinity of a signalized intersection where traffic signals may be affected.

The Contractor will provide the Engineer and the Traffic Signal Shop a written schedule indicating days, times and specific locations where traffic signals will be interrupted or modified. **When work has been completed, the Contractor will immediately notify the Traffic Signal Shop.**

Local Access Requirements

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

Business Access Requirements

Access will 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. Each individual driveway access restriction will be no more than fourteen (14) calendar days. Any business restrictions will be coordinated with the affected business in writing at least fourteen (14) days prior to imposing restrictions.

Frontage Road Access Requirements

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

School Access Requirements

The Contractor will 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 will maintain accessibility to all school bus routes during all hours of school use. The Contractor will notify the school principal(s) and the school Transportation Director at least fourteen (14) days prior to any restrictions and will restore access as soon as possible.

Fire Station and Police Station Access Requirements

The Contractor will maintain paved emergency vehicle access to and from all fire stations and police stations at all times. The Contractor will coordinate with the Fire Station and/or Police Station Commander at least fourteen (14) calendar days prior to any restrictions, and again at least 72 hours prior to any restrictions, and will restore full access as soon as possible. **No full closure of 27th Avenue access into fire station shall be permitted**. Contractor must coordinate with Facility Manager, Silvio Vaninetti (602) 531-5524 Silvio.vaninettir@phoenix.gov, and provide weekly construction schedule.

Canal Access Road Requirements

RID Canal access and maintenance roads will remain open at all times.

Coordination With Other Agency Projects

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

City of Phoenix Water Main Replacement Project WS85509021- Buckeye Road to Durango Street & 27th Avenue to 31st Avenue
Contractor Talis Construction Corporations
Contact: Matthew Woodland, matthew.woodland@phoenix.gov

Maricopa County Sheriff's Office- New Jail – 27th Avenue and Lower Buckeye Road

Public Works Department for restriction into 27th Avenue Landfill.

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 will provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Public Works Department, Sanitation Division (602) 534-5144.

Special Events

There are special events scheduled to take place during the construction of this project. The Contractor will coordinate these events with the construction schedule. No additional compensation for delays associated with special events will be considered.

Special Sign Requirements

The Contractor will 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 will be included in the bid item for Traffic Control Devices.

Bus Stops

The Contractor will 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 Engineer. Not fulfilling this requirement can lead to civil sanctions.

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 7:00 p.m. weekdays. If construction requires, intermittent flagging will be allowed from 8:30 a.m. to 4:00 p.m. if approved by the Engineer, to facilitate access for heavy construction equipment.

Traffic Control Plan

The Contractor will 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 will be professionally drawn on a 24" x 36" reproducible medium, and will be submitted to the Engineer at the Pre-Construction meeting or before. The Contractor will allow the Engineer fourteen (14) calendar days for review and approval of an acceptable plan.

Temporary Traffic Control Zone and Safety

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

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

Safety Fencing Requirement for Trenches and Excavations

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

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

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

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

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

Final Signing and Striping of Roadway

The Contractor, through the City project inspector, shall notify the Street Transportation Department, Traffic Services Division (602-262-6456), at least thirty (30) days prior to desired completion of final roadway signing and lane striping. This will allow adequate time for City crews to schedule and complete the task on time.

12. **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.

13. 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 right-of-way of 27th Avenue from Lower Buckeye Road to Buckeye Road. 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 27th Avenue from Lower Buckeye Road to Buckeye Road. Trenches across driveways will be plated to maintain access. The cost of these plates will be considered incidental to the project.

402.6 CAST-IN-PLACE PIPE RESTRICTION

Cast-in-place pipe will not be allowed as an alternate in 27th Avenue from Lower Buckeye Road to Buckeye Road.

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.

402.11 POLLUTION AWARENESS MARKERS

Pollution Awareness Markers (PAM's) will be installed by the Contractor for all new catch basins and for each existing catch basin within the project limits that does not have a PAM. The PAM's will be supplied to the Contractor by the City. PAM's will be installed at the location identified by the Engineer. For existing catch basins, flat PAM's will be supplied, and the contractor will clean the surface with a wire brush, apply appropriate adhesive to the back of the marker, and apply the marker to the clean surface. For new catch basins, PAM's with feet will be supplied, and the Contractor will install them as the catch basin is cast.

14. Add the following new **Section 403 SPECIAL TRAFFIC SIGNALS AND STREET LIGHTING INFORMATION** as follows:

403.1 TYPE "SM" AND "SR" SIGNAL POLES AND MAST ARMS

The Contractor is hereby notified that there may be a long lead time required for manufacturing and shipping the Type "SM" and "SR" signal pole foundation cage, poles and signal and luminaire mast arms. The Contractor will, therefore, order these items as early as possible. In the event there is a delay in delivery, the Contractor will install a temporary signal. The signal will be a box span with two (2) 12-inch signal heads per direction with pedestrian heads in all four (4) directions. The Contractor will coordinate the location and size of the wood poles, heads, etc., with the Street Transportation Department, Traffic Signal Systems Supervisor at 262-4690.

There will be no separate measurement or payment for temporary signals. The cost being considered incidental to the cost of contract items.

403.4 STREET LIGHTING

It is the intent of the City of Phoenix to maintain a minimum of one (1) side lighting at all times during construction. The Contractor will coordinate with Arizona Public Service Co. and the Engineer to accomplish this task.

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

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.

16. Add the following to **MAG Subsection 505.12 PAYMENT**:

CATCH BASINS

Storm drain catch basins will be paid for at the unit price bid for each type of catch basin, as represented by the respective bid item, regardless of dimensional or other differences occurring within a particular type. The unit price to be paid under these items will be compensation in full for furnishing and placing catch basin structures as shown on the plans and as specified, including, when applicable, all removal and replacement of existing curb, gutter and sidewalk, concrete, reinforcing steel, forming, vibrating, finishing, curing, access opening frame and cover, embedded angles, grating, anchor bolts, structural excavation, backfill, compaction, pavement replacement and any necessary modifications of catch basin structures during construction. Where shown on the plans, the Contractor will install 3-inch diameter standard strength iron pipe through the catch basin. This pipe will project a minimum of 6-inches past the outside wall.

29. **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.

30. **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.

31. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Delete this subsection and replace with the following **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 the limits shown on Section 402.4, 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.

Where a trenching operation crosses under existing 12 inch or smaller ACP waterlines (excluding service lines) and four feet or more of the existing ACP pipe is exposed, the Water Services Department - Water Distribution Division will isolate the exposed waterline by either cutting in any necessary valves or by the use of existing valves. After the exposed waterline has been isolated, the Contractor shall remove that part of the exposed waterline to the limits shown in MAG Standard Detail 403-3 at no additional cost. The waterline shall then be replaced by the Contractor (during the trench backfilling operation) with the same size, Class 350, ductile iron pipe as shown in MAG Standard Detail 403-3. The removal and replacement section shall extend

at least five feet beyond the trenching operation's trench wall and into undisturbed ground. The Contractor shall request a shut-down, at least one week in advance, from Water Distribution (262-4711 or 4712). City forces will perform the shutdown and/or valve cut-in. There will be no charges to the Contractor for this work.

If there is an unanticipated conflict at the crossing which can be resolved with "offset pipe joints", the Water Services Department will supply the offset joints to the Contractor at no cost. Offset pipe joints will be picked up by the Contractor at the City's Water Stores Warehouse at 2640 South 22nd Avenue. Requests to pick up such material must be conveyed to the Water Services Department at least 24 hours in advance by the City Inspector. The Contractor shall install the offset joints at no additional cost.

32. **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.

33. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.4.3 Bedding for Storm Sewers Maintained by the City of Phoenix**:

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

34. **601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION**, Add the following to **Subsection 601.4.4 Backfill**:

BACKFILL TYPE REQUIREMENTS FOR PIPE TRENCHES

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

35. **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.

36. 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 at no additional cost. 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.

38. 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.

39. **610 WATERLINE CONSTRUCTION**, Add the following to **Subsection 610.4 CONSTRUCTION METHODS**:
WATER MAIN REALIGNMENT (CONTINGENT ITEM)

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

The water main realignment will include, but not be limited to, excavation, backfill, compaction, 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.

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

40. **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 paved areas will be made under the bid item, "DEBRIS CAP, INCLUDING LOCATOR COIL, INSTALL."

Payment for this work in unpaved areas will be made under the bid item, "DEBRIS CAP, INCLUDING LOCATOR COIL, NON-PAVED AREAS, 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.

41. **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**:

610.9.1 Fire Hydrant Relocation:

Fire hydrant relocations will be paid for at the unit price bid per each under the bid item, "RELOCATE FIRE HYDRANT". The unit price bid will be full compensation for removing and reinstalling the fire hydrants at the new locations shown on the plans and in accordance with new construction standards. All pipes, valves and fittings necessary to accomplish the relocation are to be included in the unit price. Prior to removing the fire hydrant from service and prior to reactivating the fire hydrant, the Contractor will notify the Engineer. The Contractor will minimize the time the fire hydrant is out of service but in no event will the out-of-service time exceed 24 hours. If in the opinion of the Engineer, the fire hydrant should be replaced, Water Distribution Division will provide a replacement fire hydrant at no cost to the Contractor. It will be the Contractor's responsibility to pick up the replacement hydrant and to either return the 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 replacements, 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.

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 FURNISHED BY THE CITY OF PHOENIX, INSTALL". 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 and valves necessary to accomplish the installation will be measured and paid for

separately under their respective bid line items. All fittings necessary to accomplish the installation of the new fire hydrant will be paid for separately under the bid item, "ALLOWANCE FOR EXCESS DUCTILE IRON FITTINGS, FURNISH AND INSTALL". 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.

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.

610.9.3 Fire Hydrant - Remove, Salvage and Deliver to City of Phoenix:

All existing fire hydrants to be abandoned 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.

Fire hydrants served from a water main staying in service will require either a tapping sleeve and valve "cut-out" or tee "cut-out" and a new piece of pipe "cut-in" in accordance with City of Phoenix Standard Detail P1344.

Fire hydrants served from a water main <u>not</u> staying in service will require the fire hydrant water main lateral to be cut and plugged near the fire hydrant in accordance with City of Phoenix Standard Detail P1343.

It will be the Contractor's responsibility to either return the old fire hydrants to Water Distribution Division Yard, or dispose of them, whichever is directed by the Engineer.

Measurement and payment for this work will be under the bid item "FIRE HYDRANT: SALVAGE AND DELIVER TO THE CITY OF PHOENIX", and will include, but not limited to all labor, materials and equipment necessary to remove the fire hydrant, backfill, compact and return or dispose of the fire hydrant. Pavement or concrete replacement, if any, will be paid for under separate respective bid items. Waterline cut-outs (P1344) and cut and plugs (P1343) will be paid under separate bid items for that work. Fire hydrant valve box and cover removal will be paid under separate bid item for that work.

42. **<u>610 WATER LINE CONSTRUCTION</u>**, Add the following to **<u>Subsection 610.10 CONNECTION TO EXISTING MAINS</u>**:

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.

43. **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.

44. **618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STELL REINFORCED POLYETHYLENE PIPE**:

Revise all references to the term, “storm sewer” to read, “storm drain.”

45. **618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STEEL REINFORCED POLYETHYLENE PIPE**, Add the following to **Subsection 618.3.4 Structures**:

REBUILD MANHOLE TOP

If new finish grade of a facility varies two (2) feet or more from existing where existing manholes are located, the adjustment to new finish grade will not be accomplished by adjusting rings alone. In these cases, the top of the manholes will be reconstructed as necessary to accommodate the large grade difference. This may require removal of existing adjustment rings and removal of the manhole cone, and the addition or deletion of a section of manhole shaft to make up the necessary grade adjustment. These major adjustments will be measured by the each and paid for under the bid item, “REBUILD MANHOLE GRADE ADJUSTMENT”, and will be compensation in full for all labor, materials and equipment necessary to rebuild the manhole to the new finish grade.

46. **618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STEEL REINFORCED POLYETHYLENE PIPE**, Add the following to **Subsection 618.6 MEASUREMENT**:

(F) Pipe Plugs: Pipe plugs, per MAG Detail 427, will be measured per each unit installed, regardless of dimensional differences.

47. **618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STEEL REINFORCED POLYETHYLENE PIPE**, Add the following to **Subsection 618.7 PAYMENT**:

(F) Pipe Plugs: Pipe plugs, per MAG Detail 427, will be paid for at the unit price bid for each plug, and price will be compensation in full for providing complete, satisfactory pipe plugs including brick or block work, concrete, grout or mortar, vitrified clay or plastic plugs, band seal couplings, any required earthwork, end-of-pipe marker, or any other incidental items necessary.

48. **620 STORM SEWER CONSTRUCTION WITH CAST-IN-PLACE CONCRETE PIPE**:

Revise all references to the term “storm sewer” to read “storm drain.”

49. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.2 MATERIALS:**

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

50. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.3.1 MANHOLES:**

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

51. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.3.1, MANHOLES**:

REBUILD MANHOLE TOP

If new finish grade of a facility varies two (2) feet or more from existing where existing manholes are located, the adjustment to new finish grade will not be accomplished by adjusting rings alone. In these cases, the top of the manholes will be reconstructed as necessary to accommodate the large grade difference. This may require removal of existing adjustment rings and removal of the manhole cone, and the addition or deletion of a section of manhole shaft to make up the necessary grade adjustment. These major adjustments will be measured by the each and paid for under the bid item, “REBUILD MANHOLE GRADE ADJUSTMENT”, and will be compensation in full for all labor, materials and equipment necessary to rebuild the manhole to the new finish grade.

52. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Add the following to **Subsection 625.3.1, MANHOLES**:

SANITARY SEWER MANHOLE ADJUSTMENTS

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

53. **625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS**, Delete the first paragraph in **Subsection 625.5 PAYMENT** and replace with the following:

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

54. **631 WATER TAPS AND METER SERVICE CONNECTIONS**, Add the following **Subsection 631.3 Excavation and Backfill**:

Bedding and backfill will be full depth ABC for water services installed under pavement using open trench method. The cost of the ABC material, labor and compaction will be included in the cost of the water service work.

55. **631 WATER TAPS AND METER SERVICE CONNECTIONS**, Add the following new **Subsection 631.9 REPLACEMENT, EXTENSION AND RELOCATION OF EXISTING WATER SERVICES AND METERS** as follows:

631.9 REPLACEMENT, EXTENSION AND RELOCATION OF EXISTING WATER SERVICES AND METERS

Extension or Replacement of Existing Water Service Lines

The Contractor will replace or/and extend existing water service lines at the stations listed in these specifications or on the plans in accordance with Detail P-1342. The Engineer will determine when the existing lines are unsatisfactory and must be replaced. Generally, existing copper in good condition with sufficient cover will be extended. Water service lines other than copper will be replaced.

The water service will include, but is not limited to, locating the present tap, trenching, bedding, backfilling, disconnecting the existing service pipe from the corporation stop, furnishing and installing new service pipe, new appurtenant fittings, new curb stop and new meter coupling, and re-connection to the meter. The existing tapping saddle and corporation stop will remain, but the Contractor will not use any other salvaged service connection components. If the saddle is a single strap, the saddle will be replaced with a double strap saddle. In the event there is no tapping saddle, the Contractor will install one. The cost of the saddle and reinstallation of the corporation stop will be considered incidental to the water service replacement.

Inserts or adapters required to connect to the corporation stop are available at the Water Services Department yard at no cost to the Contractor. The Contractor must obtain a written order (AVO) from the Engineer before picking up said items.

Bedding and backfill will be full depth aggregate base course. Payment for furnishing and compacting the aggregate base course will be included in the bid item for replacing or extending existing water services.

The Contractor will schedule his work so that no open trenches are left overnight.

Materials for water service connections will conform to MAG Section 754 and City of Phoenix Supplement 610.4.4 and 610.4.5. Joints in the copper tubing will be made by the use of approved fittings, properly soldered or by means of approved compression fittings such as flared joints or pack joints.

Water Meter Relocation

Water meter relocation consists of disconnecting the meter, moving the meter, meter box and cover from the existing location to the new location and reconnecting in accordance with Details P-1342 and P-1363. The meter box and cover will be set to match the grade at the new location.

Any water meter boxes and/or covers damaged by the Contractor during course of construction will be replaced in kind at the Contractor's expense.

It is anticipated that some water meter boxes and/or covers may require replacement due to prior damages not due to the fault of the Contractor. The Water Services Department will furnish replacement water meter boxes and covers at no cost; however, 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 from the Water Distribution Warehouse located at 2500 S. 22nd Avenue.

Water meter boxes and covers will be Type 1, 2 or 3 in accordance with MAG Details 310, 311, 312, and 320 and P-1315.

All materials and fittings will conform to the requirements of Section 610 and 754. No salvaged service connection components will be used.

Measurement and Payment

Measurement for extending and/or replacing water services will be made to the nearest linear foot from the point of connection to the existing line or corporation stop, whichever is applicable, to the curb stop.

Payment for extending and/or replacing water services will be made at the unit price bid per linear foot under the proposal items "3/4-INCH AND 1-INCH WATER SERVICE REPLACEMENT PER SPECIAL PROVISIONS"; and "1 1/2" AND 2" WATER SERVICE REPLACEMENT PER SPECIAL PROVISIONS".

Measurement for water meter relocation will be made per each water meter regardless of size up to and including 2-inch. Payment for water meter relocation will be made at the unit price bid per each under the proposal item "RELOCATE WATER METER" which will include all sizes encountered on the project up to and including 2-inch.

56. **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.

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES
ENCOUNTERED ON DEVELOPMENT PROJECTS
Arizona Game and Fish Department
Revised October 23, 2007

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran population of desert tortoises occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40 degrees Celsius (105 degrees Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 40 degrees Celsius (105 degrees Fahrenheit), the Department should be contacted to place the tortoise into a Department- regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

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 Phoen, Street Transportation 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 <u>INVENTORY FOR POLLUTION PREVENTION PLAN</u> **(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 **27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement** 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 **27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement** 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 **27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement** 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 **27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement** 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): _____

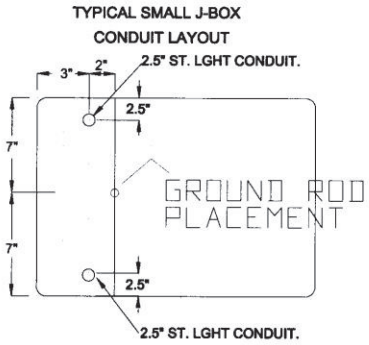
Verified by (General Contractor): _____

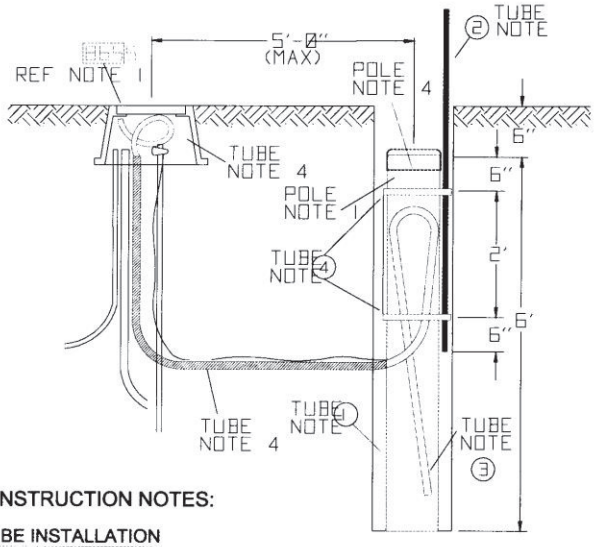
Authorized Representative of General Contractor: _____

Signature: _____ Date: _____

APS STREET LIGHT SONOTUBE, J-BOX, CONDUIT ETC (DWG)

1911





CONSTRUCTION NOTES:

TUBE INSTALLATION

1. DIG HOLE FOR TUBE 6'- 6"DEEP BY EITHER OF THE FOLLOWING:
   A. AUGERRED HOLE (16"MAX.)
   B. SLOTTED STUB-OUT TRENCH
2. PLACE RED PLASTIC LOCATOR MARKER OUTSIDE OF TUBE AND STRAP IN TWO LOCATIONS.
3. PLACE STREET LIGHT FLEXIBLE CONDUIT IN TUBE WITH 10' COILED INSIDE. DO NOT MAKE SHARP BENDS. BEND END OF CONDUIT OVER AND INSERT DOWN INTO TUBE AS SHOWN. INSPECTOR TO INSURE FLEX IS NOT KINKED.
4. INSTALL OTHER END OF FLEX IN J-BOX. LEAVE SMALL COIL TO ALLOW LEVELING FOR FINAL GRADE. BACKFILL AFTER INSPECTION IS COMPLETE.
5. COMPACT SOIL TO AT LEAST 85% AROUND TUBE.

POLE INSTALLATION

1. ELECTRONIC MARKER WILL INDICATE LID LOCATION PER BLUE STAKE MARKINGS. WORK FORCES WILL DIG DOWN TO LID,REMOVE LID AND PULL FLEX FROM TUBE.
2. INSERT END OF FLEX THROUGH ACCESS HOLE AND PUSH IT UP THROUGH HAND HOLE AS STREET LIGHT POLE IS LOWERED INTO THE TUBE.
3. HOLD POLE SECURELY WHILE BACKFILLING TO AT LEAST 85% COMPACTION. TO COMPACT POLE IN PLACE, PEA GRAVEL (<3/4") MAY BE USED NEAR THE TUBE.
4. THE MARKER BALL ATTACHED TO THE BOTTOM OF THE "SONO" TUBE LID SHOULD BE RETURNED TO STOCK.

CODE	1911	MATERIAL LIST	
ITEM	QTY	DESCRIPTION	APN
1	20	CONDUIT 1" PVC FLEX CORR	32900891
2	1	LOCATOR U. G. SERVICE	33101586
3	1	"SONO" TUBE 6FT X12IN	64672
4	2	TIE 30" SELF LOCKING	33107350
5	2	FOAM BACKFILL	00072046

REFERENCES:

1. FOR J-BOX SEE SPEC 8655 THRU 8663.

APS	Street Light Sonotube, J-Box, Conduit & Pole Installation	
WO#:		DATE: 5/14/03
BY:		SCALE:
FILENAME:		SHEET OF

Geotechnical Engineering Report

27th Avenue Improvements

Lower Buckeye Road to Buckeye Road

Phoenix, Arizona

October 28, 2016

Terracon Project No. 65165171

City of Phoenix Project No. ST85100341

Prepared for:

T.Y. Lin International

Tempe, Arizona

Prepared by:

Terracon Consultants, Inc.

Tempe, Arizona

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

October 28, 2016

T.Y. Lin International
60 East Rio Salado Parkway, Suite 501
Tempe, Arizona 85281

Attn: Carlos Sanchez-Soria, P.E.

Re: Geotechnical Engineering Report
27th Avenue Improvements
Lower Buckeye Road to Buckeye Road
Phoenix, Arizona
Terracon Project No. 65165171
City of Phoenix Project No. ST85100341

Dear Mr. Sanchez-Soria:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with our Proposal No. P65150390, Revision No. 3 dated March 9, 2016. This geotechnical engineering report presents the results of the subsurface exploration and provides pavement subgrade parameters for design of the planned roadway improvements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
47791
JESSE R.
HUSTON
Date Signed 10/28/16
ARIZONA, U.S.A.
Expires 6-30-2017

Jesse R. Huston, P.E.
Senior Project Manager

Donald R. Clark, P.E.
Senior Principal

Copies to: Addressee (1 via email)

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GEOTECHNICAL ENGINEERING REPORT
27TH AVENUE IMPROVEMENTS
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
PHOENIX, ARIZONA

Terracon Project No. 65165171
City of Phoenix Project No. ST85100341
October 28, 2016

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the planned 27th Avenue Improvements between Lower Buckeye Road and Buckeye Road in Phoenix, Arizona. The purpose of our geotechnical engineering services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- earthwork
- pavement subgrade parameters
- groundwater conditions

Our geotechnical engineering scope of work for this project included advancing four borings for subsurface exploration, laboratory testing, geotechnical engineering analysis, and preparation of this report. Site Plan and Boring Locations diagrams (Exhibits A-1 and A-2) and boring logs are included in Appendix A of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in Appendix B of this report. Descriptions of the field exploration and laboratory testing are included in their respective appendices.

2.0 PROJECT INFORMATION

2.1 Project Description

ITEM	DESCRIPTION
Site Layout	See Exhibits A-1 and A-2 in Appendix A.
Improvements	Planned improvements will consist of widening to both sides of the existing road in select locations to provide a five-lane section throughout the project limits.

ITEM	DESCRIPTION
Project Stationing	Station 10+00 at the intersection of 27th Avenue and Lower Buckeye at the south end of the project, and approximate Station 62+60 at the intersection of 27th Avenue and Buckeye Road at the north end of the project.
Grading	Minor cuts and fills (less than 1-foot) are anticipated for the project.
Pavements	We understand pavement design for new or existing pavements will be performed by the City of Phoenix using the subsurface information collected.

2.2 Site Description

ITEM	DESCRIPTION
Location	The project site is located along 27th Avenue, roughly from Buckeye Road to Lower Buckeye Road in Phoenix, Arizona.
Existing Improvements	The existing 27th Avenue alignment is a north-south trending asphalt-paved roadway. Within the project limits, the roadway width varies from one to two lanes in each direction with dedicated turn lanes at major intersections. Some portions of the roadway include curb, gutter, and sidewalk improvements. The roadway is bordered by commercial developments and undeveloped land.
Current ground cover	Asphalt concrete pavement and bare soil.
Existing topography	Appears to be relatively flat.

3.0 SUBSURFACE CONDITIONS

3.1 Site Geology

The project area is located in the Basin and Range physiographic province ([1]Cooley, 1967) of the North American Cordillera ([2]Stern, et al, 1979) of the southwestern United States. The southern portion of the Basin and Range province is situated along the southwestern flank of the Colorado Plateau and is bounded by the Sierra Nevada Mountains to the west. Formed during middle and late Tertiary time (100 to 15 million years ago), the Basin and Range province is dominated by fault controlled topography. The topography consists of mountain ranges and relatively flat alluviated valleys. These mountain ranges and valleys have evolved from generally complex movements and associated erosional and depositional processes.

[1] Cooley, M.E., 1967, **Arizona Highway Geologic Map**, Arizona Geological Society.
[2] Stern, C.W., et al, 1979, **Geological Evolution of North America**, John Wiley & Sons, Santa Barbara, California.

Surficial geologic conditions mapped in the project vicinity ([3]Richard, et al, 2000) consist of Holocene river alluvium. This unit is described as unconsolidated to weakly consolidated sand and gravel in river channels and sand, silt, and clay on floodplains.

3.2 Subsurface Soil Conditions

Specific conditions encountered at each boring location are indicated on the individual boring logs included in Appendix A. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual.

Based on the conditions encountered in the borings, the subsurface conditions along the project alignment can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum (feet)	Material Encountered	Consistency
Stratum 1a	0.25 to 1.5	FILL: Silty Sand w/ Gravel	---
Stratum 1b	5	Sandy Silt and Clay Soils	Stiff to Very Stiff

Laboratory tests were conducted on selected soil samples and the test results are presented in Appendix B. Moisture content, dry density and Atterberg limits test results are also presented on the boring logs at the sample depth. Laboratory test results indicate the sandy silt and clay subgrade soils generally exhibit low to medium plasticity characteristics.

3.3 Laboratory Test Data – Subgrade Soils

The results of the laboratory testing, including the correlated R-Values and tested R-Value are summarized in the following table:

Boring	Depth (ft.)	LL	PI	-#200	R-Value Correlated	R-Value Tested
B-1	0.5	27	11	60	28	15
B-2	1	22	3	56	41	---
B-3	1.5	23	6	55	37	18
B-4	0.5	28	14	68	22	---

[3] Richard, S. M., Reynolds, S.J., Spencer, J. E., and Pearthree, P. A., 2000, ***Geologic Map of Arizona***: Arizona Geological Survey Map 35, 1 sheet, scale 1:1,000,000.

The in-situ moisture content and dry density of the subgrade soils was determined in the laboratory from samples obtained during the field exploration, and the results are summarized in the following table:

Boring	Roadway	Approximate Station	Centerline Offset	Depth (ft.)	Moisture Content (%)	Dry Density (pcf)
B-1	27TH Avenue	STA 15+00	35' Right	1	7.7	98
B-2	27TH Avenue	STA 21+75	35' Right	1	7.8	92
B-3	27TH Avenue	STA 43+25	25' Right	1	10.1	98
B-4	27TH Avenue	STA 52+75	35' Right	1	11.7	95
				Average	9.3	96

3.4 Groundwater Conditions

Groundwater was not observed in any boring at the time of field exploration. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions can change with varying seasonal and weather conditions, and other factors. Based on information obtained from the Arizona Department of Water Resources (ADWR) – Groundwater Data website, the depth to regional groundwater was measured in December 2015 to be approximately 105 feet below the ground surface (approximate elevation of 955 feet above mean sea level) at an ADWR monitored well site (Local I.D. A-01-03 18BBC) located approximately one mile west of the site.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The results of the field and laboratory testing indicate that fine-grained (i.e., silt and clay) subgrade soils exist at the project site. These material types are typically considered to be relatively poor subgrade soils from a pavement support standpoint. Consideration should be given to improving the subgrade soils by cement treatment, placement of a reinforcing geogrid, or other improvement measures to reduce the overall pavement section thickness and/or increase the design life of the pavement.

Spread fill was encountered at the surface at all four boring locations. The fill consisted of silty sand with gravel and appeared to be aggregate base course and/or asphalt millings. The fill thickness varied from approximately 3 inches to 1.5 feet at the boring locations. The fill soils are considered suitable for support of the new roadway section, provided they are moisture conditioned and compacted. It is anticipated that the planned roadway excavation and subgrade preparation will treat the fill materials to the depths encountered in the borings.

4.2 Pavement Subgrade Parameters

The mean R-value and associated resilient modulus for the roadway subgrade soils were determined in general accordance with the ADOT Materials Preliminary Engineering and Design Manual. Correlated R-values were determined from four samples of anticipated subgrade material tested for sieve analysis and plasticity index, and two of these samples were also tested directly for R-value. The results are presented in Appendix C and summarized in the following table:

Roadway	Minimum R-Value	Maximum R-Value	Seasonal Variation Factor	Mean R-Value	Resilient Modulus (psi)
27th Avenue	15	40	1.0	18.3	11,234

4.3 General Earthwork Considerations

The following presents recommendations for excavation and subgrade preparation on the project. Earthwork on the project should be observed and evaluated by a licensed geotechnical engineer. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, and other geotechnical conditions exposed during the construction of the project.

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. Based upon the subsurface conditions determined from the geotechnical exploration, the subgrade soils exposed during construction are expected to be relatively stable, although the fine-grained subgrade soils are susceptible to becoming unstable when overly wetted. The stability of the subgrade may be affected by repetitive construction traffic or other factors.

Subgrade preparation should be completed per Section 301 of the latest City of Phoenix Supplement to the Maricopa Association of Governments (MAG) Uniform Standard Specifications. The subgrade soils should be within 2% of optimum moisture content at the time of compaction. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

4.4 Earthwork Factors

The average laboratory tested in-situ dry density of subgrade soils at a depth of 1-foot at the boring locations is 96 pcf. Considering the laboratory tested maximum dry density of 116.5 pcf for subgrade soils from Boring B-2, and an average relative compaction of 97%, the estimated earthwork factor for the project due to re-compaction of the subgrade soils was calculated and is presented in the following table along with the estimated ground compaction:

Location	Earthwork Factor	Ground Compaction
27th Avenue, Lower Buckeye Road to Buckeye Road	15% shrink	0.1 feet

4.5 Water

For balancing grading plans, approximately 60 gallons of water per cubic yard should be estimated for compaction of base materials. Approximately 60 gallons of water per cubic yard should be estimated for compaction of subgrade materials.

The application of water estimated for subgrade materials is considerably higher than the amount calculated based upon the difference between in-situ and optimum compaction moisture content, and includes a conservative overrun for losses due to seepage, evaporation, inadequate mixing, spillage, etc. Precipitation during and/or before construction, or other weather conditions may reduce the required amount of water.

5.0 GENERAL COMMENTS

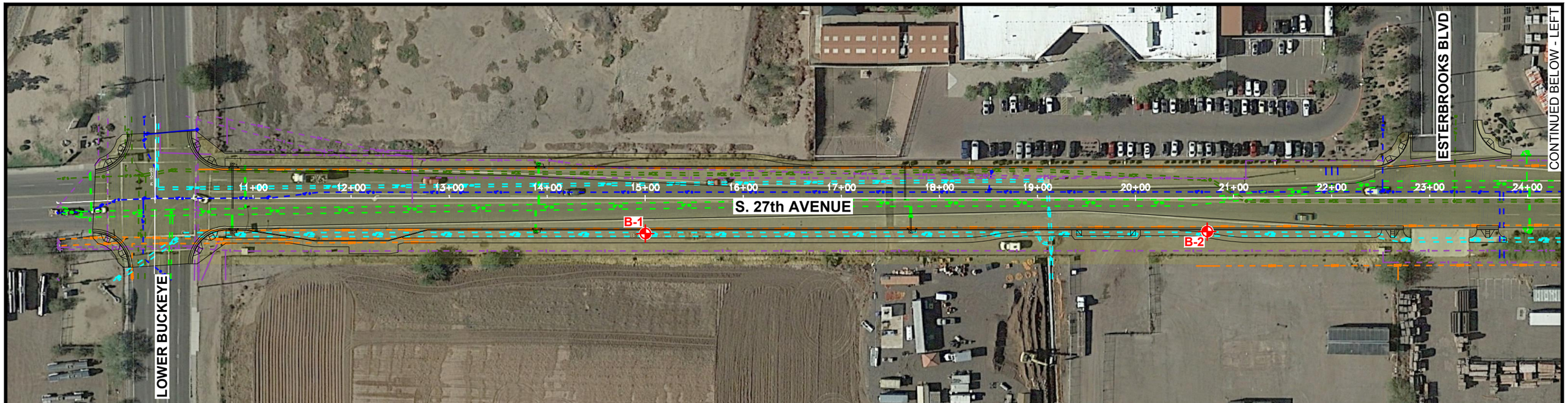
The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

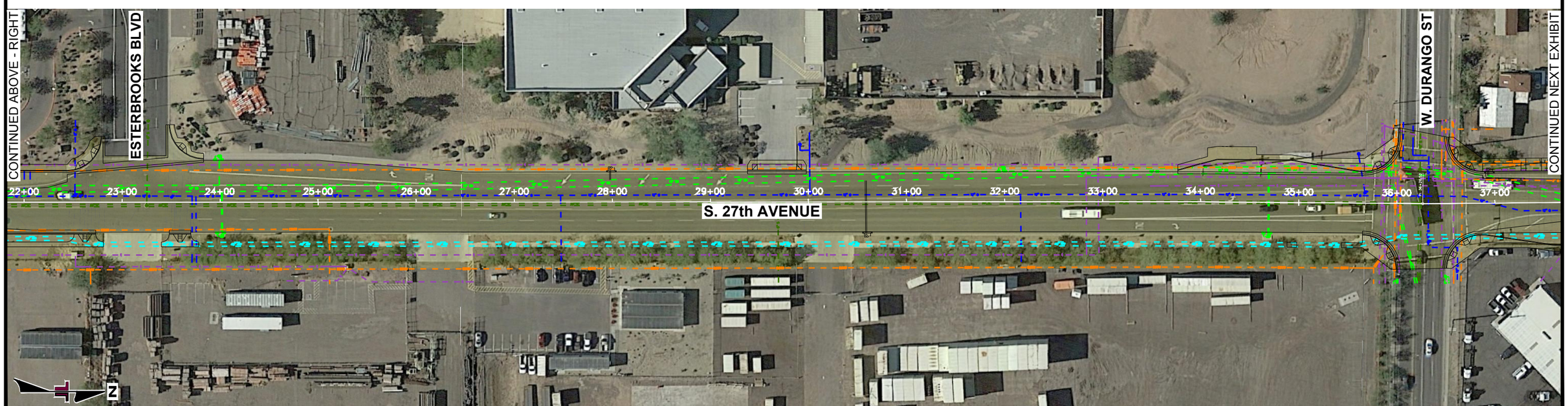
This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

FIELD EXPLORATION



SITE IMAGE SOURCE: GOOGLE EARTH, PRO, 2016 OVERLAY GRAPHICS SOURCE: DIBBLE ENGINEERING, JULY 2014



LEGEND:

- APPROXIMATE BORING LOCATION
- GAS LINES
- IRRIGATION
- ELECTRIC
- STORM DRAIN
- SEWER
- TELCOM
- WATER

APPROXIMATE SCALE
1" = 100'
0 50' 100'

Project Mngr:	JRH
Drawn By:	KLJ
Checked By:	JRH
Approved By:	DRC
Project No.	65165171
Scale:	AS SHOWN
File No.	65165171.DWG
Date:	10/27/2016

Terracon
Consulting Engineers and Scientists
4685 South Ash Avenue, Suite H-4 Tempe, AZ 85282
PH. (480) 897-8200 FAX. (480) 897-1133

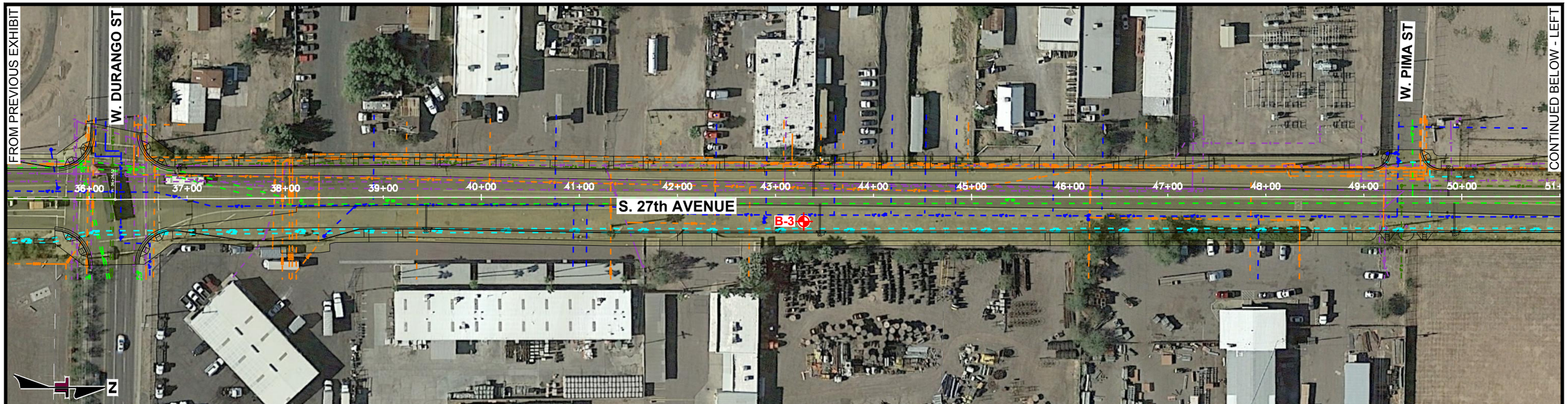
SITE PLAN AND BORING LOCATIONS

27TH AVENUE (ST85100341)

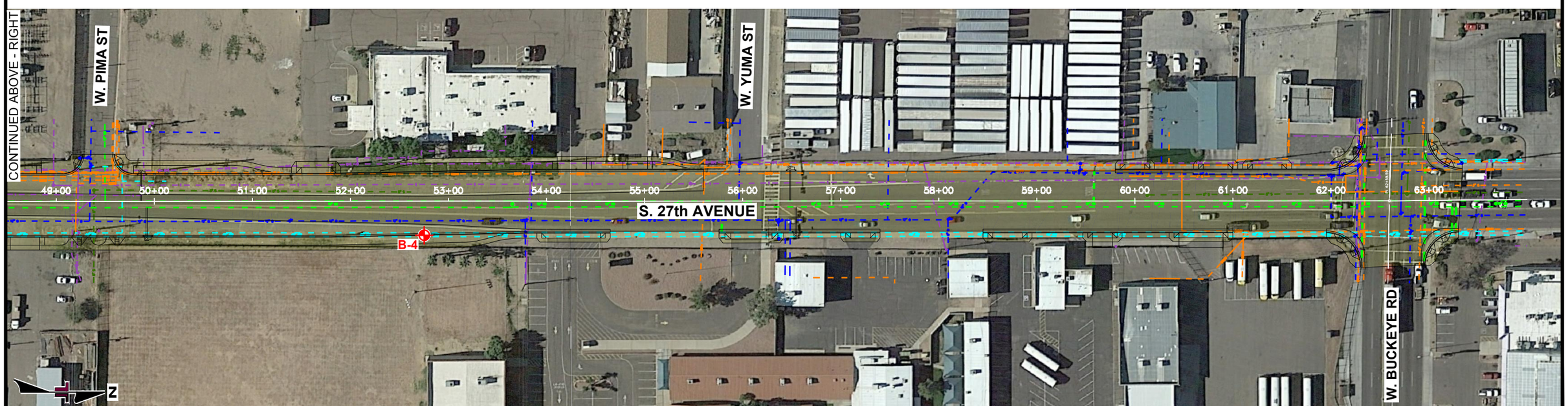
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
PHOENIX, ARIZONA

EXHIBIT

A-1



SITE IMAGE SOURCE: GOOGLE EARTH, PRO, 2016 OVERLAY GRAPHICS SOURCE: DIBBLE ENGINEERING, JULY 2014



LEGEND:

- APPROXIMATE BORING LOCATION
- GAS LINES
- IRRIGATION
- ELECTRIC
- STORM DRAIN
- SEWER
- TELCOM
- WATER

APPROXIMATE SCALE
1" = 100'
0 50' 100'

Project Mngr: JRH	Project No. 65165171
Drawn By: KLJ	Scale: AS SHOWN
Checked By: JRH	File No. 65165171.DWG
Approved By: DRC	Date: 10/27/2016

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SITE PLAN AND BORING LOCATIONS

27TH AVENUE (ST85100341)

LOWER BUCKEYE ROAD TO BUCKEYE ROAD
PHOENIX, ARIZONA

EXHIBIT
A-2

Field Exploration Description

A total of four borings were advanced at the site on September 27, 2016. The borings were advanced to a depth of approximately five (5) feet below the ground surface in the right unpaved shoulder area of the existing roadway in the planned widening areas. The approximate boring locations are shown on the attached Site Plan and Borings Locations diagrams, Exhibits A-1 and A-2. The latitude and longitude coordinates presented on the boring logs were determined using Google Earth Pro and should be considered approximate.

The test borings were advanced with a truck-mounted Diedrich D-120 drill rig utilizing 8-inch outside diameter hollow-stem augers. Each borehole was backfill with auger cuttings upon completion. A hand tamper was used to compact the borehole backfill materials.

A continuous lithologic log of each boring was recorded by the field geologist during the drilling operations. At selected intervals, samples of the subsurface materials were taken by ring-lined barrel samplers in general accordance with ASTM Standards. Penetration resistance measurements were obtained by driving the ring-lined barrel samplers into the subsurface materials with a 140-pound automatic hammer falling 30 inches. The penetration resistance value is a useful index in estimating the consistency or relative density of materials encountered. Bulk samples of subsurface materials were also obtained from the auger cuttings.

Groundwater conditions were evaluated in the borings at the time of site exploration.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

Bulk	Shelby Tube	Split Spoon
Rock Core	Macro Core	Modified California Ring Sampler
Grab Sample	No Recovery	Modified Dames & Moore Ring Sampler

WATER LEVEL

- Water Initially Encountered
- Water Level After a Specified Period of Time
- Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
N	N value
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

Terracon

EXHIBIT A-4

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	$PI > 7$ and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			$PI < 4$ or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K,L,M,N]
						Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K,L,M,P]
						Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] $PI \geq 4$ and plots on or above "A" line.
[O] $PI < 4$ or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.

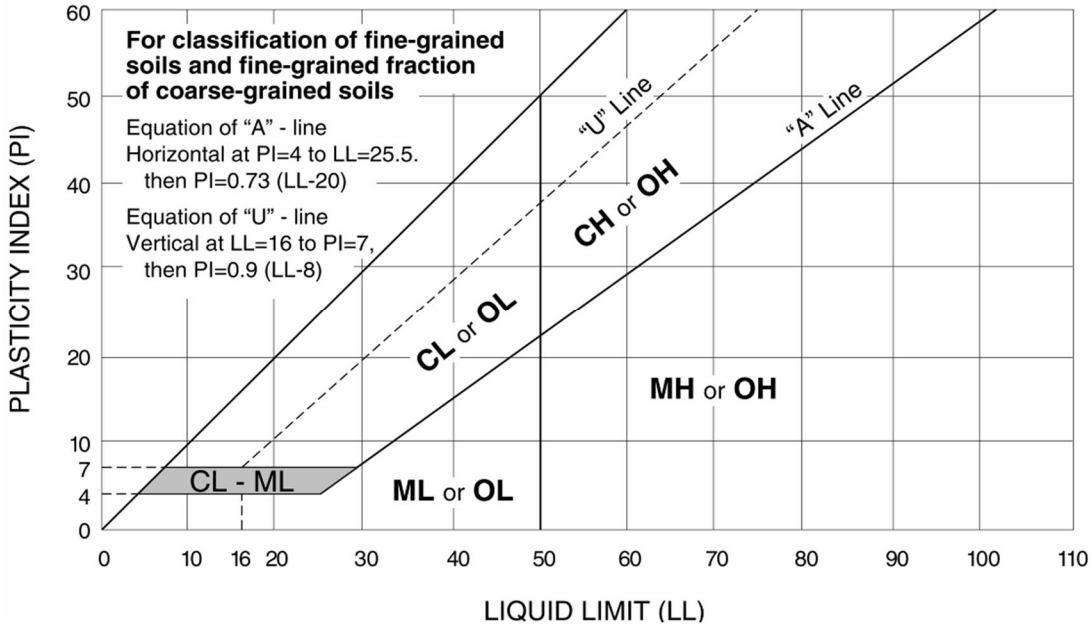

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EXHIBIT A-5

BORING LOG NO. B-1

PROJECT: 27th Avenue Improvements

CLIENT: T.Y. Lin International
Tempe, Arizona

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

LOCATION See Exhibit A-1

Latitude: 33.434104° Longitude: -112.117156°

Station: 15+00 Offset: 35' Right

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.3 **FILL - SILTY SAND WITH GRAVEL (SM)**, 3-inch thick surface layer								
	SANDY LEAN CLAY (CL), trace gravel, brown, very stiff				11-11	8	98	27-16-11	60
	5.0 ***Boring Terminated at 5 Feet***	5							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:
City of Phoenix Project No. ST85100341

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

Boring Started: 9/27/2016 | Boring Completed: 9/27/2016

Drill Rig: D-120 | Driller: D&S Drilling

Project No.: 65165171 | Exhibit: A-6

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 65165171.GPJ TERRACON2015.GDT 10/28/16

BORING LOG NO. B-2

PROJECT: 27th Avenue Improvements

CLIENT: T.Y. Lin International
Tempe, Arizona

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

LOCATION See Exhibit A-1

Latitude: 33.431501° Longitude: -112.117143°

Station: 21+75 Offset: 35' Right

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SILTY SAND WITH GRAVEL (SM), 8-inch thick surface layer 0.8								
	SANDY SILT (ML), trace gravel, brown, stiff 5.0				6-9	8	92	22-19-3	56
	Boring Terminated at 5 Feet	5							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:
City of Phoenix Project No. ST85100341

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

Boring Started: 9/27/2016 | Boring Completed: 9/27/2016

Drill Rig: D-120 | Driller: D&S Drilling

Project No.: 65165171 | Exhibit: A-7

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 65165171.GPJ TERRACON2015.GDT 10/28/16

BORING LOG NO. B-3

PROJECT: 27th Avenue Improvements

CLIENT: T.Y. Lin International
Tempe, Arizona

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

LOCATION See Exhibit A-2

Latitude: 33.425305° Longitude: -112.117085°

Station: 43+25 Offset: 25' Right

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - SILTY SAND WITH GRAVEL (SM), loose								
	1.5				10-7	10	98		
	SANDY SILTY CLAY (CL-ML), brown, stiff							23-17-6	55
	5.0	5							
	Boring Terminated at 5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:
City of Phoenix Project No. ST85100341

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

Boring Started: 9/27/2016 | Boring Completed: 9/27/2016

Drill Rig: D-120 | Driller: D&S Drilling

Project No.: 65165171 | Exhibit: A-8

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 65165171.GPJ TERRACON2015.GDT 10/28/16

BORING LOG NO. B-4

PROJECT: 27th Avenue Improvements

CLIENT: T.Y. Lin International
Tempe, Arizona

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

LOCATION See Exhibit A-2

Latitude: 33.423728° Longitude: -112.117082°

Station: 52+75 Offset: 35' Right

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.3 **FILL - SILTY SAND WITH GRAVEL (SM)**, 3-inch thick surface layer								
	SANDY LEAN CLAY (CL), brown, stiff				7-7	12	95	28-14-14	68
	5.0 ***Boring Terminated at 5 Feet***	5							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:
City of Phoenix Project No. ST85100341

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

Boring Started: 9/27/2016 | Boring Completed: 9/27/2016

Drill Rig: D-120 | Driller: D&S Drilling

Project No.: 65165171 | Exhibit: A-9

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 65165171.GPJ TERRACON2015.GDT 10/28/16

APPENDIX B

LABORATORY TESTING

Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) described in Appendix A. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

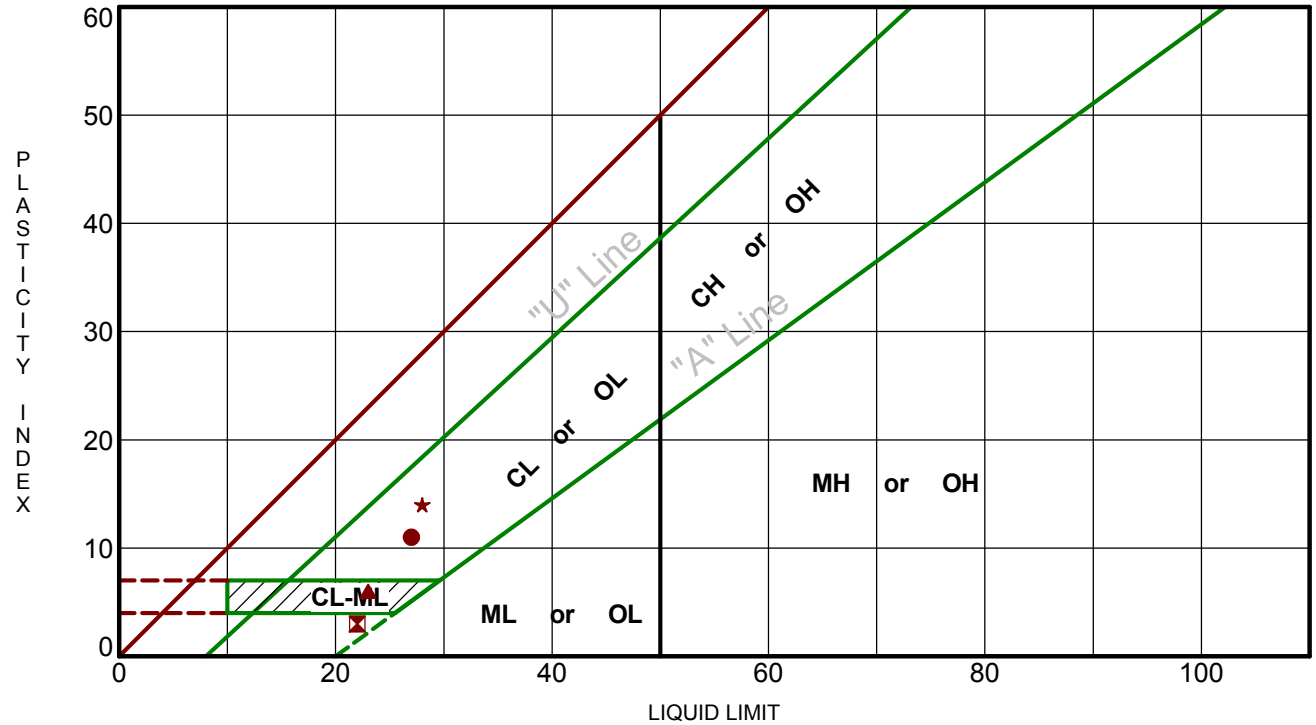
Laboratory tests were conducted on selected soil samples and the test results are presented in this appendix. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- Atterberg Limits
- R-Value
- Sieve Analysis
- Moisture-Density Relationship

ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
●	B-1	0.5 - 5	27	16	11	60	CL	SANDY LEAN CLAY
⊠	B-2	1 - 5	22	19	3	56	ML	SANDY SILT
▲	B-3	1.5 - 5	23	17	6	55	CL-ML	SANDY SILTY CLAY
★	B-4	0.5 - 5	28	14	14	68	CL	SANDY LEAN CLAY

PROJECT: 27th Avenue Improvements

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

PROJECT NUMBER: 65165171

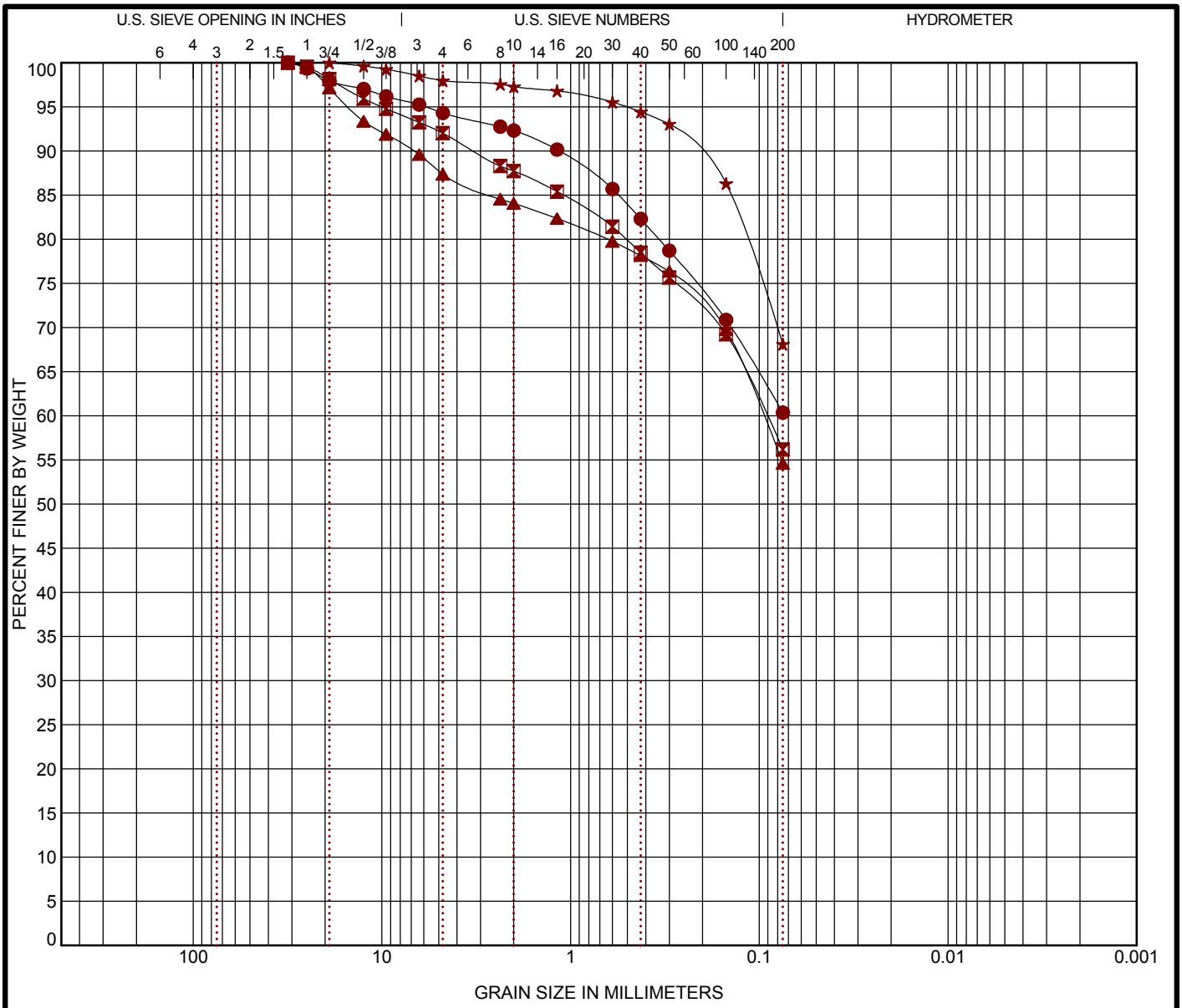
CLIENT: T.Y. Lin International
Tempe, Arizona

EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS 65165171.GPJ TERRACON2015.GDT 10/28/16

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	LL	PL	PI	Cc	Cu
●	B-1	0.5 - 5	SANDY LEAN CLAY (CL)	27	16	11		
⊠	B-2	1 - 5	SANDY SILT (ML)	22	19	3		
▲	B-3	1.5 - 5	SANDY SILTY CLAY (CL-ML)	23	17	6		
★	B-4	0.5 - 5	SANDY LEAN CLAY (CL)	28	14	14		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Fines
●	B-1	0.5 - 5	31.5				5.7	33.9	60.4
⊠	B-2	1 - 5	31.5	0.092			8.0	35.8	56.2
▲	B-3	1.5 - 5	31.5	0.096			12.6	32.8	54.6
★	B-4	0.5 - 5	19				2.0	29.9	68.1

PROJECT: 27th Avenue Improvements

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ

PROJECT NUMBER: 65165171

CLIENT: T.Y. Lin International
Tempe, Arizona

EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 65165171.GPJ TERRACON2015.GDT 10/28/16

SUMMARY OF GRAIN SIZE DISTRIBUTION

Borehole No.	Depth (ft.)	USCS Soil Class.	Atterberg Limits		SILT or CLAY	SAND								GRAVEL								COBBLES and BOULDERS
						Fine			Medium			Coarse		Fine				Coarse				
			LL	PI	#200	#100	#50	#40	#30	#16	#10	#8	#4	1/4"	3/8"	1/2"	3/4"	1"	1½"	2"	3"	>3"
B-1	0.5	CL	27	11	60	71	79	82	86	90	92	93	94	95	96	97	98	99				
B-2	1	ML	22	3	56	69	76	78	81	85	88	88	92	93	95	96	98	100				
B-3	1.5	CL-ML	23	6	55	70	76	78	80	82	84	85	87	90	92	93	97	100				
B-4	0.5	CL	28	14	68	86	93	94	96	97	97	98	98	99	99	100	100					

REMARKS
1.
2.
3.
4.

PROJECT: 27th Avenue Improvements

SITE: Lower Buckeye Road to Buckeye Road
Phoenix, Arizona

Terracon
4685 S Ash Ave Ste H-4
Tempe, AZ
PH. 480-897-8200 FAX. 480-897-1133

PROJECT NUMBER: 65165171

CLIENT: T.Y. Lin International
Tempe, Arizona

EXHIBIT: B-4

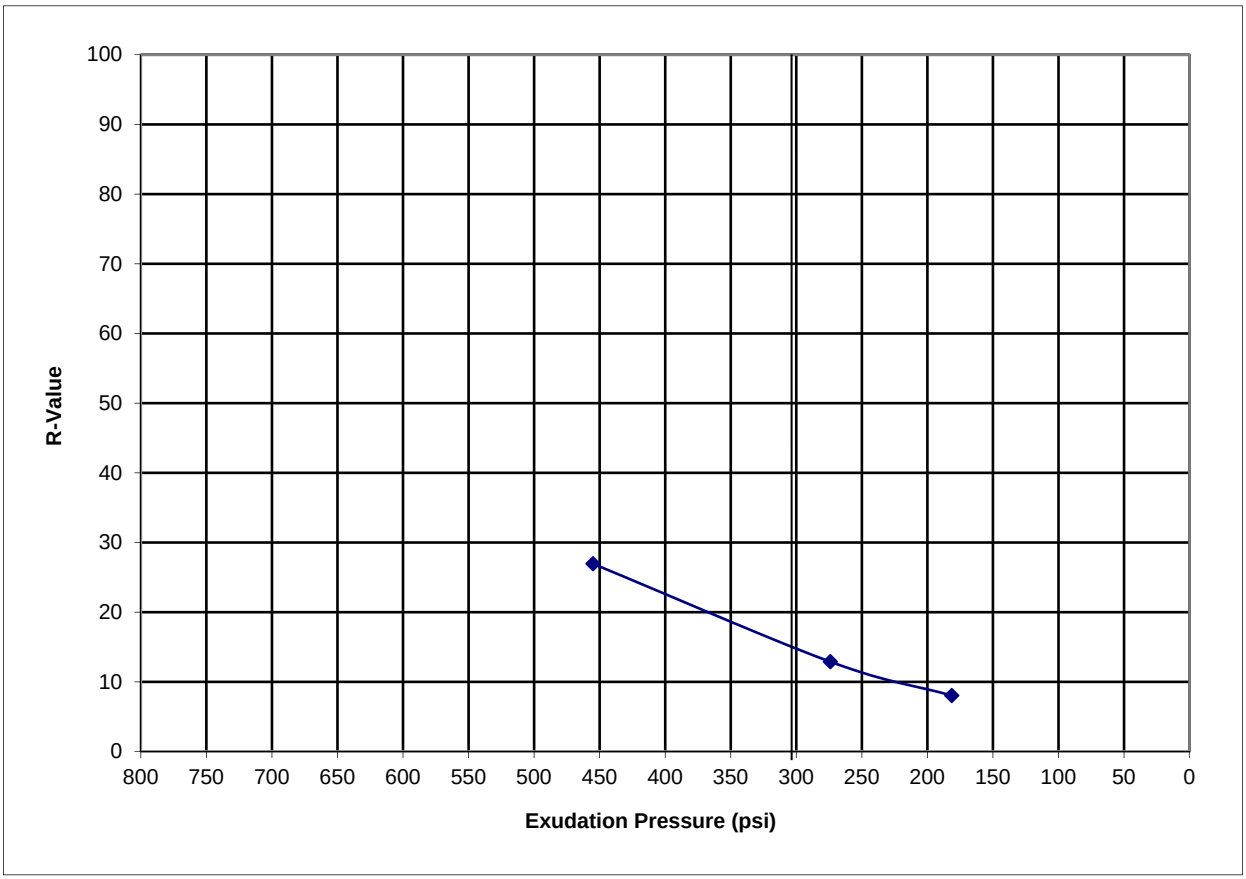
THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SIEVE ANALYSES - TABULAR 65165171.GPJ TERRACON2012.GDT 10/28/16

PROJECT:	27th Avenue Improvements	**JOB NO:**	65165171
LOCATION:	Lower Buckeye Road to Buckeye Road	**WORK ORDER NO:**	
MATERIAL:	Sandy Lean Clay (CL)	**LAB NO:**	
SAMPLE SOURCE:	B-1 @ 0.5 - 5.0 feet	**DATE SAMPLED:**	10/07/16

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	**A**	**B**	**C**
Moisture Content	17.2%	15.5%	13.8%
Compaction Pressure (psi)	*	75	150
Specimen Height (inches)	2.58	2.55	2.47
Dry Density (pcf)	112.8	116.3	120.7
Horiz. Pres. @ 1000lbs (psi)	63.0	55.0	42.0
Horiz. Pres. @ 2000lbs (psi)	138.0	129.0	104.0
Displacement	4.93	4.06	3.65
Expansion Pressure (psi)	0.0	0.0	0.0
Exudation Pressure (psi)	181	274	455
R Value	8	13	27

* HAND TAMPED



R Value at 300 PSI = 15

AASHTO R18

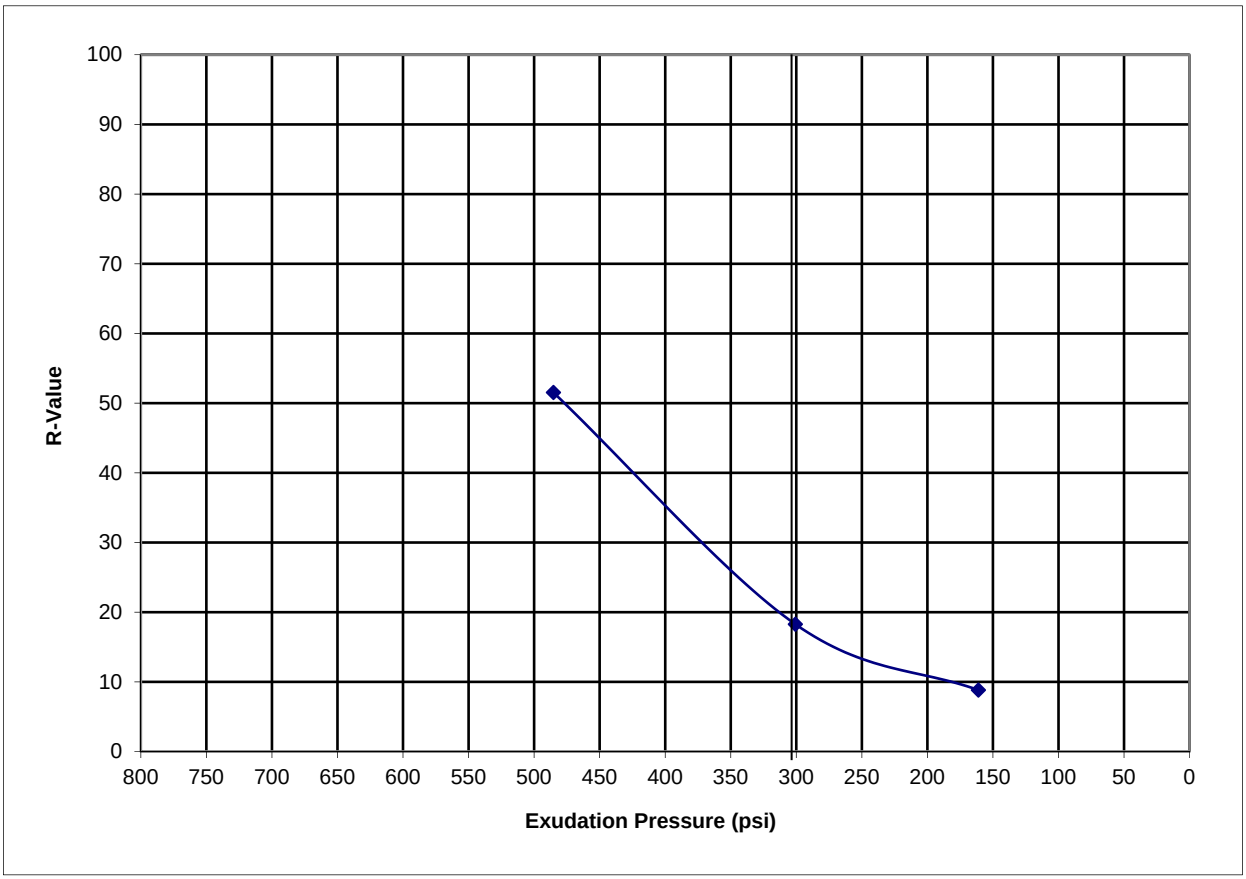
EXHIBIT: B-5

PROJECT:	27th Avenue Improvements	**JOB NO:**	65165171
LOCATION:	Lower Buckeye Road to Buckeye Road	**WORK ORDER NO:**	
MATERIAL:	Sandy Silty Clay (CL-ML)	**LAB NO:**	
SAMPLE SOURCE:	B-3 @ 1.5 - 5.0 feet	**DATE SAMPLED:**	10/07/16

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	**A**	**B**	**C**
Moisture Content	14.4%	12.7%	10.9%
Compaction Pressure (psi)	*	100	350
Specimen Height (inches)	2.50	2.47	2.41
Dry Density (pcf)	119.2	122.9	128.8
Horiz. Pres. @ 1000lbs (psi)	64.0	52.0	26.0
Horiz. Pres. @ 2000lbs (psi)	138.0	118.0	59.0
Displacement	4.12	3.98	3.68
Expansion Pressure (psi)	0.0	0.0	1.2
Exudation Pressure (psi)	161	301	485
R Value	9	18	52

* HAND TAMPED

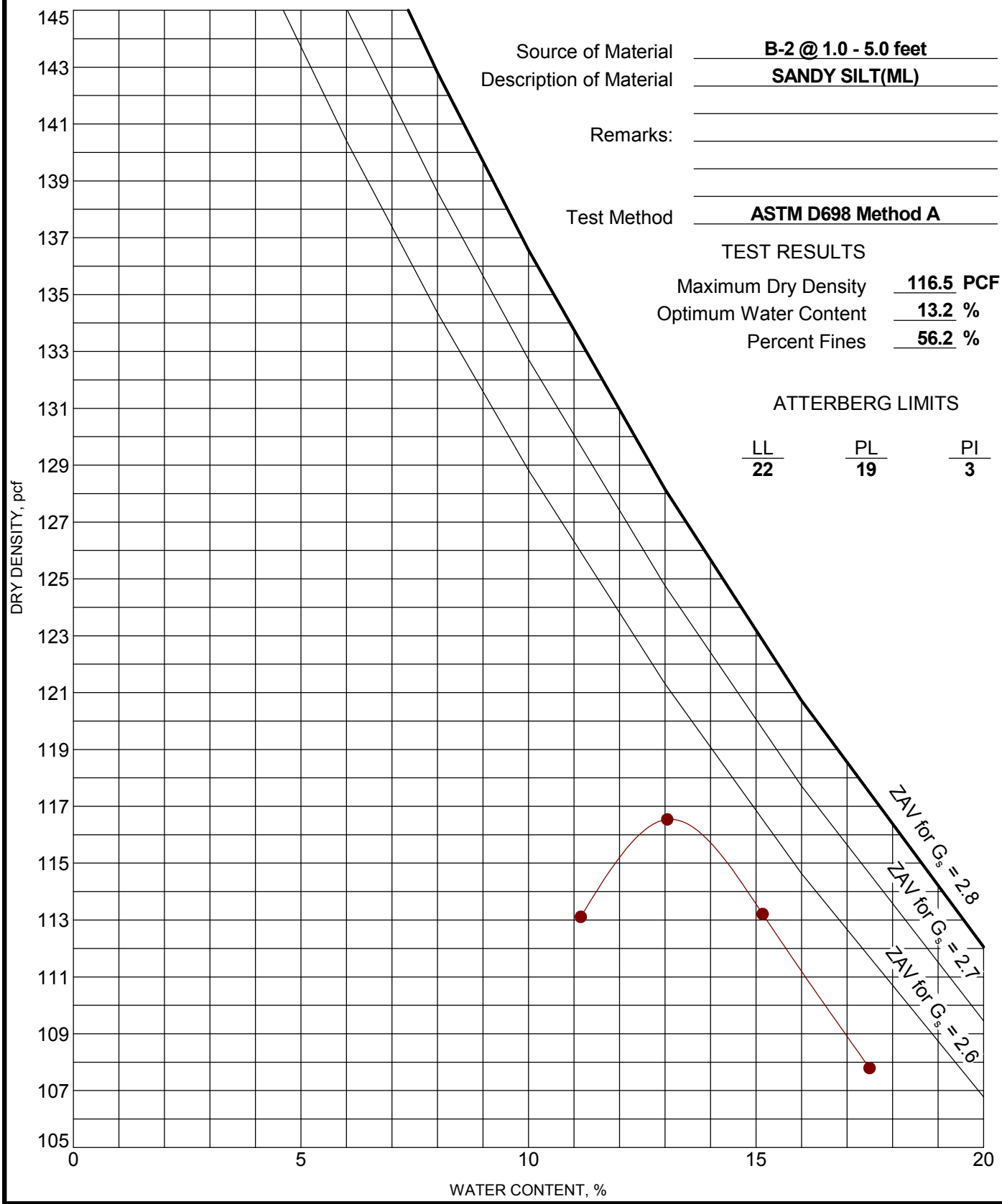


R Value at 300 PSI = 18

EXHIBIT: B-6

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-2 @ 1.0 - 5.0 feet**
Description of Material	**SANDY SILT(ML)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**116.5**	**PCF**
Optimum Water Content	**13.2**	**%**
Percent Fines	**56.2**	**%**

ATTERBERG LIMITS

LL	PL	PI
22	**19**	**3**

PROJECT: 27th Avenue Improvements	Terracon 4685 S Ash Ave Ste H-4 Tempe, AZ	PROJECT NUMBER: 65165171
SITE: Lower Buckeye Road to Buckeye Road Phoenix, Arizona		CLIENT: T.Y. Lin International Tempe, Arizona
		EXHIBIT: B-7

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V1 65165171.GPJ TERRACON2015.GDT 10/28/16

APPENDIX C

DESIGN RESILIENT MODULUS ANALYSIS

Design Resilient Modulus Analysis

Project Data

PROJECT NAME, LOCATION and SEASONAL VARIATION FACTOR

Project Name:	27th Avenue Improvements
Location:	Lower Buckeye Road to Buckeye Road
Seasonal Variation Factor:	1.0

Laboratory Test Data

Boring No. Point ID	Boring Location	Depth (ft)	LL	PI	-#200	Laboratory R-Value	Correlated R-Value
B-1		0.3	27	11	60	15	28.4
B-2		1	22	3	56		41.0
B-2		1.5	23	6	55	18	37.0
B-4		0.3	28	14	68		22.6

Mean R-Value and Modulus Calculations

Number of Laboratory Tested R-Values:	2	(Nt)
Average of Laboratory Tested R-Value Results:	16.50	(Rt)
Standard Deviation of Laboratory Tested R-Values:	2.12	(SDt)
Number of Correlated R-Value:	4	(Nc)
Average of Correlated R-Value Results:	32.24	(Rc)
Standard Deviation of Correlated R-Values:	8.32	(SDc)
Adjusted Average of Correlated R-Values:	32.24	(Rc)

Calculation for Mean R-Value:

$$R_{mean} = \frac{N_t' R_t' SD_c^2 + N_c' R_c' SD_t^2}{N_t' SD_c^2 + N_c' SD_t^2}$$

R_{mean} = **18.3**

Seasonal Variation Factor for Project Location= **1.0**

Design Resilient Modulus M_r (adjusted for SVF)= **11,234** psi

BID PROPOSAL
CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
PROJECT TITLE: 27TH AVENEUE – LOWERE BUCKEYE ROAD TO BUCKEYE ROAD IMPROVEMENT
PROJECT NO.:ST854100341
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 cash, 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 360 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary materials and/or equipment and approvals.

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

ADDENDUM NO.	DATE	ADDENDUM NO.	DATE
_____	_____	_____	_____
_____	_____	_____	_____

City of Phoenix
BID PROPOSAL

Project No: ST85100341
27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
1 E6992000	"Allowance For Stormwater Pollution Prevention Best Management Practices (BMP'S)"	Job	1.00	$25,000.00	$25,000.00
2 M1042005	Allowance for Extra Work	Job	1.00	$350,000.00	$350,000.00
3 M2010010	Clearing and Grubbing	Lump Sum	1.00	$	$
4 M3010001	Subgrade Preparation	Sq. Yd.	36,434.00	$	$
5 M3210100	Asphalt Concrete Surface Course, Type D 1/2 For Driveway, Sidewalk and Parking Lot Connections	Ton	163.00	$	$
6 M3210115	Asphalt Concrete Surface Course, Type D 1/2, 1-1/2" Thick	Ton	3,279.00	$	$
7 M3210330	Asphalt Concrete Base Course, Type A 1-1/2, 3" Thick	Ton	13,120.00	$	$
8 M3240090	Portland Cement Concrete Pavement, Class A, 9" Thick	Sq. Yd.	385.00	$	$
9 M3290100	Emulsified Asphalt For Tack Coat, Type SS-1h	Ton	19.20	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
10 M3304100	Power Broom	Hour	8.00	$	$
11 M3400400	Concrete Sidewalk, Std. Detail P-1230	Sq. Ft.	29,464.00	$	$
12 M3400415	Truncated Domes for Sidewalk Ramps Std. Detail P-1232	Sq. Ft.	228.00	$	$
13 M3400543	Concrete Driveway Entrance, Std. Detail P-1243	Sq. Ft.	1,784.00	$	$
14 M3400555	Concrete Driveway Entrance, Std. Detail P-1255-1	Sq. Ft.	8,325.00	$	$
15 M3400558	Concrete Driveway Entrance, Std. Detail P-1255-3, (9" Thick)	Sq. Ft.	141.00	$	$
16 M3400566	Concrete Driveway Entrance, Standard Detail P-1255-2 (9" Thick)	Sq. Ft.	2,190.00	$	$
17 M3401260	Concrete Bus Shelter/Accessory Pad, Std. Detail P-1260	Sq. Ft.	1,960.00	$	$
18 M3402201	Combined Concrete Curb and Gutter, Std. Detail 220, Type "A", H=6"	Lin. Ft.	6,637.00	$	$
19 M3402203	Concrete Roll Curb and Gutter, Standard Detail 220, Type "C"	Lin. Ft.	87.00	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
20 M3402221	Concrete Single Curb, Std. Detail 222, Type "A"	Lin. Ft.	722.00	$	$
21 M3450020	Adjust Existing Manhole Frame and Cover, MAG Std Detail 422	Each	18.00	$	$
22 M3450025	Rebuild Manhole Grade Adjustment	Each	2.00	$	$
23 M3450040	Adjust Existing Utility Frame and Cover, Manhole or Utility Riser	Each	19.00	$	$
24 M3450270	Adjust Existing Sewer Clean-out Frame & Cover, Standard Detail P-1270	Each	1.00	$	$
25 M3453001	Adjust Existing Type "A" Water Valve, Standard Detail P-1391 and P-1391-1	Each	29.00	$	$
26 M3500005	Remove Existing Manhole	Each	3.00	$	$
27 M3500010	Remove Portland Cement Concrete Single Curb; Curb and Gutter; Header Curb or Embankment Curb	Lin. Ft.	1,586.00	$	$
28 M3500020	Remove Portland Cement Concrete Sidewalk, Driveway, Valley Gutter & Slab	Sq. Ft.	6,852.00	$	$
29 M3500030	Remove Structures, Backfill & Compact	Job	3.00	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
30 M3500035	Remove Existing Catch Basin, Manhole, and Sump; Backfill and Compact	Job	4.00	$	$
31 M3500040	Remove Pipe, Backfill & Compact	Lin. Ft.	1,915.00	$	$
32 M3500060	Remove Asphalt Concrete Pavement	Sq. Yd.	35,810.00	$	$
33 M3500109	Remove Block Wall	Lin. Ft.	132.00	$	$
34 M3500150	Remove Tree, 12" Diam. and Larger	Each	14.00	$	$
35 M3500200	Remove and Salvage Existing Overhead Sign Structure	Job	1.00	$	$
36 M3500300	Miscellaneous Removal and Other Work	Job	1.00	$	$
37 M3500402	Relocate Traffic Sign	Each	4.00	$	$
38 M3505000	Relocate Existing Mailbox	Each	1.00	$	$
39 M3513120	2" PVC Electrical Conduit	Lin. Ft.	65.00	$	$

City of Phoenix

BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
40 M3513125	2-1/2" SCH 40 PVC Conduit	Lin. Ft.	1,340.00	$	$
41 M3515030	L.E.D. Street Luminaire (97 W, Remove and Replace Existing Luminaire)	Each	3.00	$	$
42 M3515031	L.E.D. Street Luminaire (149 W, Remove and Replace Existing Luminaire)	Each	1.00	$	$
43 M3515042	Furnish and Install Street Light Per C.O. P. Street Lighting Procedures, Standards and Specifications Manual, latest edition.	Each	27.00	$	$
44 M3515045	Remove Existing Light Poles Standard, Per Plan	Each	1.00	$	$
45 M3515052	Furnish and Install LED Street Light Per C.O.P. Street Lighting Procedures, Standards and Specifications Manual, latest edition.	Each	9.00	$	$
46 M4005103	Relocate Ornamental Iron Fence	Lin. Ft.	343.00	$	$
47 M4012000	Traffic Control Devices	Job	1.00	$	$
48 M4013000	Allowance for Uniformed, Off-duty Law Enforcement Officer	Job	1.00	$50,000.00	$50,000.00
49 M4051201	Survey Marker, MAG Standard Det. 120 -1, Type "A"	Each	4.00	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
50 M4154001	Safety Post / Bollard	Each	4.00	$	$
51 M4200019	16' Wide Double Swing Chain Link Gate, 72" High, ADOT Det. C-12.20	Each	1.00	$	$
52 M4200028	Chain Link Gate, ADOT Detail C-12.20 (26' Wide, Double Swing Gate, 72" High, Type 2)	Each	1.00	$	$
53 M4200029	Chain Link Gate, ADOT Detail C-12.20 (5' Wide Single Swing Gate, 72" High, Type 2)	Each	1.00	$	$
54 M4200075	Chain Link Fence, ADOT Detail C -12.20, Type 2, H=6'	Lin. Ft.	114.00	$	$
55 M4200134	Relocate Manual Roll / Slide Wrought Iron Gate	Each	2.00	$	$
56 M4200135	Relocate Motorized Slide Wrought Iron Gate	Each	1.00	$	$
57 M4200136	Relocate Manual Roll / Slide Chain Link Gate	Each	2.00	$	$
58 M4200137	Remove and Relocate Steel Pipe Swing Gate	Each	1.00	$	$
59 M4201002	Relocate Chain Link Fence Per Plans	Lin. Ft.	1,077.00	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
60 M4252005	Boulder Relocation	Each	2.00	$	$
61 M4304102	Decomposed Granite, 3/8" Minus, Stabilized, 2" Thick	Sq. Ft.	41,887.00	$	$
62 M4712002	Traffic Signal, No. 5 Junction Box	Each	6.00	$	$
63 M4712003	Traffic Signal, No. 7 Junction Box	Each	2.00	$	$
64 M4721001	Foundation for Type A Signal Pole	Each	1.00	$	$
65 M4721003	Foundation for Type LM Signal Pole	Each	8.00	$	$
66 M4721004	Foundation for Type SM Signal Pole	Each	2.00	$	$
67 M4721005	Foundation for Type SR Signal Pole	Each	6.00	$	$
68 M4722001	Foundation for Power Pedestal	Each	3.00	$	$
69 M4722002	Foundation for Controller Cabinet	Each	3.00	$	$

City of Phoenix

BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
70 M4751001	Electrical Power Service Pedestal Cabinet (120/240 Volt) (Meyers MEUGL-W/TB)	Each	3.00	$	$
71 M5051530	Concrete Catch Basin, Type "M-1, L=3- Ft" Phx. Supp. Detail P-1569-1	Each	12.00	$	$
72 M5051535	Concrete Catch Basin, Type "M-1, L=6- Ft" Phx. Supp. Detail P-1569-1	Each	6.00	$	$
73 M5055043	Irrigation Junction Box, MAG Standard Detail 504, Per Plans	Each	1.00	$	$
74 M5100017	Block Wall (Decorative Retaining Wall, Match Existing)	Lin. Ft.	15.00	$	$
75 M6014900	Trenching For Street Light Circuit	Lin. Ft.	6,630.00	$	$
76 M6100122	1-1/2" and 2" Water Service Replacement Per Special Provisions (Contingent Item)	Lin. Ft.	100.00	$	$
77 M6101801	Relocate Existing Water Meter, Box, and Cover	Each	10.00	$	$
78 M6103706	Waterline Realignment, 6" and 8", Contingent Item	Each	1.00	$	$
79 M6103710	Waterline Realignment, 10" and 12", Contingent Item	Each	1.00	$	$

City of Phoenix
BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
80 M6108010	Relocate Fire Hydrant	Each	3.00	$	$
81 M6180623	Storm Sewer Lateral Pipe Connection, Special Detail 1577	Each	10.00	$	$
82 M6181012	12" Catch Basin Connector Pipe	Lin. Ft.	180.00	$	$
83 M6181015	15" Catch Basin Connector Pipe	Lin. Ft.	446.00	$	$
84 M6185018	18" Rubber Gasket Reinforced Concrete Pipe, Class V (Private Irrigation)	Lin. Ft.	429.00	$	$
85 M6250016	Storm Sewer Manhole Base Transition, Phx. Supp. Detail P-1560 and MAG Std. Detail 522 and 423	Each	4.00	$	$
86 M6309065	Debris Cap including Locator Coil, Furnished by City of Phoenix, Install	Each	50.00	$	$
87 M9011001	Wireless Network Radio	Each	1.00	$	$
88 M9021001	PTZ CCTV Camera	Each	3.00	$	$
89 S5051520	Manhole (SRVWUA Irrigation) Per Plans (Contingent)	Each	1.00	$	$

City of Phoenix

BID PROPOSAL

Project No: ST85100341

27th Avenue: Lower Buckeye to Buckeye Road

Item No.	Description	Unit	Quantity	Unit Price	Total
90 S5055050	Concrete Pipe Collars, All Sizes (SRVWUA Details) (Contingent)	Each	2.00	$	$
91 S6189030	30" R.G.R.C.P. (SRVWUA Irrigation) Class V (Contingent)	Lin. Ft.	610.00	$	$
TOTAL BASE BID					$

_____ and _____/100

TOTAL WRITTEN IN WORDS

PROPOSAL SUBMITTAL

PROJECT TITLE: 27th Avenue - Lower Buckeye Road to Buckeye Road Roadway Improvement
PROJECT NO.: ST85100341

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)

S U R E T Y B O N D

Project No.:ST85100341

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 **27th Avenue – Lower Buckeye Road to Buckeye Road Roadway Improvement**_____

_____

_____

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., 2018

_____
Principal

_____
Title

_____
Mailing Address

_____

_____
Surety

_____
WITNESS:

_____

A.M. BEST RATING:

City of Phoenix

Small Business Enterprise Program

SBE – DESIGN BID BUILD (DBB) CONTRACT CLAUSE

PROJECT #: ST85100341 **CONTRACT #: TBD**

PROJECT NAME: 27th Avenue: Lower Buckeye Road to Buckeye Road Major Street Improvement

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

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

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

SBE Required Goal = ___18_____%

An annual SBE subcontracting participation goal of 18% has been established under this Contract. The Prime Contractor is required to demonstrate good faith efforts to utilize certified SBE firms to achieve this goal during the life of this contract.

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

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

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

SBE PROGRAM DEFINITIONS

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

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

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

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

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

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

Purchaser for purposes of this contract means the City.

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

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

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

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

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

SECTION I. SBE CERTIFIED FIRMS

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

The most current electronic directory of all certified **SBE** firms can be accessed at:

https://phoenix.diversitycompliance.com

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

SECTION II. SBE BID PROCEDURES

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

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

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

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

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

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

In instances where an exact dollar amount to be subcontracted with a SBE firm cannot be determined, the bidder shall indicate on Columns 3 and 4 of Part B Section 1 of the "Letter of Intent To Perform as a SBE Subcontractor/Supplier" form the minimum guaranteed hours/units and dollar amount that will be paid to the SBE firm. This situation applies only when a Contractor proposes to utilize a SBE firm that engages in work related to a broker, supplier or; a bid that is based on a per hour charge as in hauling/trucking or construction site security. Please note that this exception does not permit the Prime contractor to complete or modify any other part of the LOI document. Both, the SBE and the bidder must sign the LOI document prior to bid submittal. By signing the document, the bidder affirms that it has not altered or modified the document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

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

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

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

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

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

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

1. A cover letter addressed to the Street Transportation Procurement Section clearly indicating whether a full or partial waiver is being requested, the percentage to be waived, and the reasons the waiver is being sought.
2. If a partial waiver is being requested, a Bidder's Statement of Proposed Utilization listing firms that will satisfy the portion of the goal that will be met must be included with the bid proposal. Additionally, a Letter of Intent to Perform as a Subcontractor/Supplier from each SBE firm that is proposed to be utilized must be included with the bid proposal.
3. Proof of contact with SBE firms, including but not limited to, fax logs, telephone logs, mail receipts, etc, including documentation of the number of times that firms were contacted, the dates of contact, and the name, phone number, fax number, and address of the contact person associated with each SBE firm. Solicitation of SBE subcontractors must be consistent with the solicitation of all subcontractors and must clearly demonstrate that SBE firms had sufficient time to submit an effective response.
4. Copies of the documents submitted to all subcontractors requesting their bid. This should include the scope of work to be bid and performed on the project.
5. Copies of bid responses/quotes from all subcontractors who bid to perform work on the project in the areas that SBE firms were also bidding on, including information as to why SBE bids were not considered.
6. Documentation that shows efforts made to provide assistance to SBE firms in the areas of bonding, insurance, or other contracting requirements.
7. Documentation of attendance at the pre-bid conference held for the project.
8. Documentation of contact made with City personnel seeking assistance in identifying eligible SBE firms for contracting opportunities on the project.

SECTION IV. SBE WAIVER PROCEDURES

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

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

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

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

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

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

Supplier (or Wholesaler) is defined as firm that does not directly manufacture the product being supplied and has an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

EXAMPLE: *An SBE goal of 5% has been established on a project where the contractor has submitted a base bid of $1,000,000. This results in a dollar goal of $50,000 to be subcontracted to SBE's. The contractor proposes to contract with a SBE supplier for $100,000. Only $12,500, or 25 percent (25%), may be counted towards achievement of the SBE goal for this project. The remaining $37,500 must be achieved through the use of firms that are not suppliers or brokers.*

Broker is defined as firm that arranges or expedites services or transactions through the use of individuals not directly employed by the company. Brokers are not regular suppliers. Only costs associated with the fees and commission paid to the certified firm for providing such services may be applied towards the SBE contract goal.

The following defines the expenditures to SBE firms that are NOT subject to the 25% limitation. The following expenditures may be counted in their entirety towards fulfilling 100% of the utilization goal:

1. Expenditures to certified SBE firms that operate and maintain an establishment or factory to produce, on the premises, the materials or supplies purchased for the contract.
2. Expenditures to a certified SBE fabricator that operates and maintains a factory to substantially alter materials or supplies before resale.
3. Expenditures, including fees and commissions, charged to provide bona fide technical and professional personnel recruitment for the contract. The total cost paid that shall be comparable to the industry standards customarily charged for the same or similar services.
4. Expenditures, including fees and commissions, charged for providing bonds and insurance specifically required for the performance of the contract. The total cost shall be comparable to the industry standards charged for the same or similar services.

All SBE firms proposed to participate on this contract opportunity must be SBE certified by the City of Phoenix prior to the date and time of the bid.

Participation on the contract will be calculated based on that portion (dollar value) of the contract that the SBE actually performs with its own forces. This includes the cost of supplies and materials obtained by the SBE for the work on the contract, ***except*** in cases when; it has been determined by the City *not* to be part of the firm's certification description; the SBE is certified as a "placer", "finisher", or "installer" of those materials only, or when the supplies and/or equipment it uses to perform its work is purchased or leased from the Contractor or its affiliate.

Special emphasis and care should be taken to ensure that the following types of participation are handled properly when preparing your bid packet, as failure to correctly calculate the allowable SBE participation in the following areas shall result in your bid being declared non-responsive if the SBE goal requirement is not met:

Fees & Commissions*:* SBE firms that supply a bona fide service for a fee or commission may be counted only to the extent of the fees or commissions charged by the SBE. This includes, but is not limited to, providing professional, technical, consultant, or managerial services, and bonds or insurance specifically required for the performance of a contract. Fees must be reasonable, not excessive, compared to fees customary for similar services.

EXAMPLE: *A* SBE *firm that supplies uniformed officers for security or traffic control may count only the amounts charged as a commission. The hourly amount paid to the officers may not be counted. If the "per hour" bid amount to the prime contractor is $35, and $25 per hour will be paid to the officers, only $10 per hour can be counted towards achieving the* SBE *goal. If the firm or bidder estimates that there will be 200 hours of work bid at a rate of $35 per hour, only $2,000 of the total $7,000 bid could be counted.*

Trucking & Hauling: The amount of a trucking/hauling subcontract that may be counted towards the utilization requirements may be limited. An SBE must itself own and operate at least one fully licensed, insured, and operational truck that will be used on the contract. In addition, trucks the SBE leases without drivers under a long-term leasing agreement may be considered part of the trucking firm's workforce and counted in full, provided the leasing agreement(s) is/are for a period of not less than 6 months and; **the leased vehicles have been recorded with the City's Equal Opportunity Department's Certification Office prior to the submittal of the LOI document.**

EXAMPLE: *A* SBE *trucking firm uses seven trucks on a job; two are owned by the* SBE *and five are leased from other firms. If two of the five trucks are leased without drivers and the remaining three are leased with drivers from another firm, then the amount paid to the* SBE *for the services provided by the trucks it owns and the two it leases without drivers and operates with its own employees can be counted in full towards meeting the* SBE *requirements. The Contractor may not count any portion of the amount the SBE receives for the two trucks it leases with drivers towards the* SBE *utilization goal.*

SECTION VI. POST AWARD SBE COMPLIANCE INFORMATION - DBB

Submittal of a bid to the City of Phoenix shall constitute an agreement by the bidder to comply with the SBE utilization requirements of this section should the bidder be awarded a contract. This includes, but is not limited to, the following compliance activities:

1. The contractor shall contract, or attempt to contract, in good faith with all SBE firms listed on the Bidder's Statement of Proposed SBE Utilization form submitted with their bid. The subcontract shall be for an amount that is equal to, or greater than, the total proposed dollar amount listed on the form, with the exception of instances where the City changes a scope of work in the contract that would reduce the available work in the subcontractor's area of performance.
2. The contractor shall not reduce any of the proposed SBE scopes of work or amounts indicated on the Bidder's Statement of Proposed SBE Utilization form without first submitting a Request for Exemption and receiving approval in writing from the City's Equal Opportunity Department (EOD), Contract Compliance Division.
3. The contractor shall notify the City of Phoenix Equal Opportunity Department immediately if any firm listed on the Bidder's Statement of Proposed SBE Utilization form refuses to enter into a subcontract or fails to perform according to the requirements of the subcontract.
4. Any reduction of retention by the City to the contractor shall result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. The contractor has 14 days from the date their retention reduction takes affect to reduce retention to the subcontractors.
5. The contractor shall return all retention monies to subcontractors at such time as the work originally proposed by the subcontractor, and expressed in the original subcontract agreement, is complete and the purchaser (City) has accepted the work and paid the prime for the work performed by the subcontractor. Retention shall be paid no later than 30 days after such payment is made by the City.
6. The contractor shall act in good faith to meet the contract SBE utilization goal and provide all necessary documentation to show proof of those efforts as requested by the City.

If for any reason the SBE firm is decertified prior to the execution of a subcontract agreement, the bidder shall find additional SBE participation in the amount equivalent to or greater than that which was originally proposed for the SBE firm. Bidder shall make every good faith effort possible in finding a SBE replacement in the proposed trade area first, before considering SBE participation in other trade areas.

SECTION VII. Subcontract Assurances

Each contract signed by the Agency and the Successful Bidder and each subcontract signed by the Successful Bidder with a Subcontractor, including Subcontractors with lower tier Subcontractors must include the following assurances verbatim:

Prompt Payment of Subcontractors *The Contractor and Subcontractor shall promptly pay its lower tier subcontractors, sub consultants, or suppliers upon receipt of payment from the City of Phoenix (Agency).*

Progress Payments: In accordance with the Arizona Revised Statues (ARS), Section 34-221(G), the Contractor(s) shall promptly pay its subcontractors, sub consultants, or suppliers within seven (7) calendar days of receipt of each progress payment from the Agency. Any diversion by the Contractor(s) of payments received for work performed on the contract, or failure to reasonably account for the application or use of such payments, constitutes grounds for a declaration of breach of the contract with the Agency.

Retention Payments: If the Agency reduces the Contractor's retention, the Contractor shall correspondingly, within 14 days, reduce the retentions held against the Subcontractors and suppliers that have performed satisfactory work.

Release of Retention: The Contractor(s) shall ensure prompt and full payment of retentions to Subcontractors and suppliers when their work is complete, the Agency has accepted the work, and the Agency has paid the Contractor for the work. The Contractor shall pay each Subcontractor's and supplier's retention no later than 30 days after the Agency pays Contractor for the completed scope of work.

Changes to Subcontracts and Values *The City of Phoenix prohibits Contractor(s) from altering the Contractor's Statement of Proposed SBE Utilization form without receiving prior, written consent from the City. The Equal Opportunity Department must be informed, in writing, and in advance of the following:*

- *Reduction to the scope of work performed by subcontractors working on the contract*
- *Changes in any of the subcontract values resulting in a reduced dollar amount*
- *Replacement and/or release of any subcontractor after contract award*

Contractor(s) and Subcontractor(s) are required to complete a Request for Exemption Form and have the written approval of the Contract Compliance Office prior to taking action on any of the above listed matters related to SBE subcontractors.

In the event that any provision of this subcontract varies from the provisions of the contract or subcontract, the provisions for SBE contract compliance as contained in Administrative Regulation 1.89, Section IX, shall provide definitive guidance.

Disclaimer: *Nothing in this section prevents the Contractor or Subcontractor from enforcing its subcontract with a lower tier Subcontractor or supplier for defective work, late performance, and other claims arising under the Subcontract.*

SECTION VIII. RECORDS and REPORTING REQUIREMENTS

1. **Records**

During performance of the Contract, the Successful Submitter shall keep all records necessary to document DBE and Small Business participation. The Successful Submitter shall provide the records to the Agency within 72 hours of the Agency's request and at final completion of the Contract. The Agency will prescribe the form, manner, and content of reports. The required records may include but not limited to:

a) A complete listing of all Subcontractors and suppliers on the project;
b) Each Subcontractor's and supplier's scope performed;
c) The dollar value of all subcontracting work, services, and procurement;
d) Copies of all executed Subcontracts, purchase orders, and invoices: and
e) Copies of all payment documentation.

2. **Reports**

a. The contractor shall participate in all compliance reviews determined necessary by the City. This includes, but is not limited to participating in on-site reviews, providing monthly utilization reports of SBE activity, providing signed copies of subcontracts and/or purchase orders with each SBE listed on the Bidder's Statement of Proposed SBE Utilization form, and complying with any and all requests for information the City deems appropriate for effectively monitoring this contract for compliance with the SBE Program requirements.

b. The contractor shall provide regular, monthly report/audit information that will assist us in effectively monitoring your compliance with the SBE Program requirements. This shall include listing all subcontractors working on the contract and reporting payments into the Certification and Compliance System https://phoenix.diversitycompliance.com. Reporting audits shall include all payments received from the City and payments you have issued to all subcontractors and suppliers. **Copies of the first 2 pages of the Pay Request submittal are required with each report. All Monthly audit reports are to be completed online by the 15th of every month.** (https://phoenix.diversitycompliance.com).

i. The total of all payments received from the City during the previous month.
ii. The first two pages of each payment application submitted for those payments.
iii. All payments made to Subcontractors during the previous month.

Before the Agency processes the Successful Submitter's final payment and/or outstanding retention held against the Successful Submitter, the Successful Submitter shall submit to the Agency a final certification of full and final payment to each Subcontractor in the form prescribed by the Agency. The form must be completed and certified by the Successful Submitter's and each Subcontractor's duly authorized agents.

SECTION IX. PERFORMANCE OF A COMMERCIALLY USEFUL FUNCTION

The prime contractor may count only expenditures to SBE subcontractors that perform a commercially useful function in the work of the contract, as defined in Chapter 18 Article VI of the City Code. A "commercially useful function" constitutes performing real and actual services related to the contract.

SBE subcontractors may enter into second-tier subcontracts consistent with normal industry practices. If an SBE subcontracts greater than twenty-five **(25)** percent of the work of their contract, the SBE subcontractor shall be presumed not to be performing a commercially useful function. In this event, the prime contractor will not be allowed to claim any expenditure to the SBE subcontractor.

SECTION X. FAILURE TO COMPLY WITH THE SBE PROGRAM REQUIREMENTS

If the Equal Opportunity Department determines that the contractor will fail, or has failed, to meet the SBE subcontracting goals, and/or has failed to act in good faith to ensure compliance with the SBE conditions of its contract; it shall deem the contractor "noncompliant" and not in good standing. A noncompliant status shall result in the rejection of all future contract bids or offers for all projects or other procurements with the City until such time that the contractor has cured its breaches and demonstrates that it has faithfully performed its approved SBE utilization plan and all other provisions of this article required to be deemed in good standing. In addition to this action, the City may also exercise its option to impose any or all of the following remedies:

1. Withholding from the contractor ten percent (10%) of all future payments on the involved eligible project until it is determined that the contractor is in compliance;

2. Withholding from the contractor all future payments on the involved project until it is determined that the contractor is in compliance

Failure to cure a non-compliance status within the time frame provided by the City may result in further action, including but not limited to imposing any or all of the following sanctions:

1. Rejection of all future bids or offers from the contractor for any eligible project with the City or any of its departments or divisions for a period of (1) year after substantial completion of the contract.

2. Cancellation of the contract.

City of Phoenix

Small Business Enterprise Program

CONTRACTOR'S STATEMENT OF PROPOSED SBE UTILIZATION (DBB)

PROJECT NUMBER/NAME: 27th Avenue: Lower Buckeye Road to Buckeye Road Major Street Improvement **Required SBE Goal:** 18.00 %

	COMPANY NAME	SERVICES TO BE PROVIDED	SUPPLIER- (YES or NO) May not satisfy more than 25% of the Goal	SBE $ AMOUNT from LOI Tables - Sections C, D, or E	Countable SBE $ Amount (towards proposed goal)
SBE FIRMS					

($_____) - $000,000.00 - ($_____) = ($_____)
Total Bid - Allowances & Contingencies - Alternates = Base Bid

($_____) ÷ ($_____) X 100 = _____%
Total Proposed SBE Dollars ÷ Base Bid X 100 = Proposed SBE %

Total Proposed SBE Dollars

$_____

Proposed SBE Percentage must equal to or exceed the Required SBE Required Goal Percentage.

All additional contract dollars, including selected alternates, will be subject to the Proposed SBE Goal %. NO rounding allowed.

Do NOT propose SBE dollars in scopes related to Alternates, Allowances, or Contingencies as part of meeting the required SBE %.

I hereby certify by signing below the foregoing SBE firms shall be contracted to work on the trades identified above and/or supply material/equipment for this project.

*The information shown above is a **true reflection of the proposed subcontracts**.*

COMPANY NAME: _____ EMAIL: _____ PHONE: _____

NAME & TITLE: _____

SIGNATURE: _____ DATE: _____

City of Phoenix

Small Business Enterprise Program

Letter of Intent (LOI) To Perform as an SBE Subcontractor

(THIS FORM ***MUST*** BE COMPLETED BY THE SBE SUBCONTRACTOR – BOTH SBE SUBCONTRACTOR & PRIME SIGNATURE ARE REQUIRED)

Project Number: ST85100341 **Contract #:**	**Project Description: 27th Avenue: Lower Buckeye Rd to Buckeye Rd. Major Street Improvement**

TO: _____ (Insert Name of Prime Contractor)

FROM: _____ (Insert Name of SBE Firm)

A. The undersigned declares that the firm bidding to perform the work described herein, has been granted certification by the City of Phoenix (COP) as a Small Business Enterprise (SBE) in the area(s) of:

(COP) Certification Description:

B. The undersigned is bidding to perform the following scope(s) of work on the above referenced project:

SECTION 1 - COMPLETE THIS PORTION IF THE SCOPE OF WORK IS BEING BID BY UNIT PRICE OR HOURLY RATE SUPPLIER, BROKER, TRUCKING, HAULING, UNIFORMED OFFICERS MUST USE THIS SECTION			
Scope of Work	**Unit/Hourly Rate**	**# of Units/Hours**	**Total Quote Amount**
			$

SECTION 2 - GENERAL OR SPECIALTY CONSTRUCTION TRADE AREAS MUST USE THIS SECTION	
Scope of Work	**Total Quote Amount**
	$

C. Of the Total Quote Amount reflected in Part B-SECTION 2, the following scope(s) of work with the given amount **will not** be performed by the SBE or **is/are not** covered under the SBE's certification description:

Scope(s) of Work _____ **Amount $**_____

Subtract Amount in Part C above from the Total Quote Amount in Part B-Section 2 =* *$*_____

* ***Only this amount shall be reflected on the Bidder's Statement of Proposed Utilization.***

D. If trucking services are included in Part B - SECTION 1 above, SBE **MUST** complete the following:

Of the Total Quote Amount noted in part B-Section 1, the SBE affirms that the amount of * $_____ shall be performed by drivers the firm employs, and trucks the SBE owns and leases without drivers.

(*The amount referenced above is transferred from Step 9 of the Worksheet (L.O.I.W.-1). *Only this amount shall be on the Statement of Proposed Utilization)*

E. All subcontractors providing Broker or Traffic Control/Security Services indicated in Part B-SECTION 1 above

MUST Complete the Following:

Rate of the SBE's fees/commissions _____%; for a Total Amount in fees/commissions of: $_____

The Percentage and Total Amount referenced above is transferred from Steps 2 and 3 of the Worksheet (page L.O.I. W.-1).
Only the Total Amt in fee/commissions shall be reflected on the Bidders Statement of Proposed Utilization.

Should the prime contractor receiving this form be selected for award of the contract, the undersigned affirms that he/she will enter into an agreement to perform the work bid herein.

_____ _____

(SBE Subcontractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

By signing this LOI document, the Prime Contractor affirms that it has not altered or modified this document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

_____ _____

(Prime Contractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

City of Phoenix
Small Business Enterprise Program

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR/SUPPLIER
INSTRUCTIONS AND WORKSHEET - *L.O.I. W.-1*

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

Part I. Trucking and Hauling: SBEs should indicate on Part B-Section 1 and Part D, of the LOI form, the information regarding trucks to be used in executing the contract. The City allows the counting of all payments for services provided by trucks which the SBE owns. Trucks which the SBE leases on a long-term basis and are operated with drivers the SBE employs may also be counted in full. The payments for short-term leased trucks, with or without SBE employed drivers cannot be counted.
Only trucks for which leasing agreements have been submitted and approved by EOD as part of the SBE firm's current certification file shall be considered eligible for counting towards the goal.

STEP ONE	STEP TWO	STEP THREE
Value of work expected to be performed by trucks owned by the SBE (2 Trucks)	Value of work expected to be performed by trucks leased (**with drivers**) by the SBE on a long-term basis (2 Trucks)	Combined value of work expected to be performed by other trucking firms and/or trucks leased (**without drivers**) by the SBE (3 Trucks)
$20,000	**$20,000**	**$33,000**

STEP FOUR	STEP FIVE	STEP SIX
Estimated value for services provided by all trucks the SBE will use on the contract**.** **(Add Steps One, Two, and Three)**	Expected value of work performed by trucks not eligible for counting as SBE participation **(Value in Step Three)**	Total estimated value that can be counted for SBE participation **(Subtract Step Five from Step Four)** **$73,000 - $33,000**
$73,000	**$33,000**	**=$40,000**

Part II. Fees and Commissions: Insert the information from below under Step Three-Commission/Fees Percentage and the Countable Amount for SBE Participation into Part E of the LOI form. This part is applicable for the use of uniformed officers to provide traffic control and security and other services provided at an hourly rate by non-employees of the SBE contractor.

(The following information is provided as a sample only)

STEP ONE		
Total Number of Hours	Per Hour Bid Amount	Calculation Formula: Total Gross Bid Amount
200	**$35**	**200 × $35 = $7,000**

STEP TWO			
Per Hour Bid Amount	Officers Hourly Rate	SBE Firm Commission/Fee	Calculation Formula: Fees/Commissions Percentage
$35	**$25**	**$10**	**(10 / 35) * 100 = 28.57%**

STEP THREE		
Gross Bid Amount (from Step One)	Commission/Fee % (from Step Two)	Calculation Formula: Amount Countable for SBE Participation
$7,000	**28.57%**	**$7,000 × .2857 = $2,000**

Part III. Construction Trade Areas: SBE must indicate in the Scope of Work of Part B-Section 2 of the LOI form, ***all*** scope(s) of work associated with the Total Quote Amount. The SBE must complete Part C of the LOI form by entering the Scope of Work and amount not expected to be performed by the SBE or which is not covered under the SBE's certification description. Subtracting this amount from the Total Quote Amount in Part B-Sect. 2 will result in the portion of work that can be counted as SBE participation.

CITY OF PHOENIX
LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST85100341 **PROJECT TITLE: 27TH AVENUE – LOWER BUCKEYE ROAD TO BUCKEYE ROAD IMPROVEMENT**

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
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐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 amount **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, as in Paragraph D – List of Major Subcontractors and Suppliers in the Information for Bidders that ALL vendors are listed or you will be disqualified. If you are self-performing the work, you must still list any suppliers for materials, or list any contractors that will assist you in any form.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

CITY OF PHOENIX
LIST OF ALL SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST85100341 **PROJECT TITLE: 27TH AVENUE – LOWER BUCKEYE ROAD TO BUCKEYE ROAD IMPROVEMENT**

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
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐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, as in Paragraph D - List of All Subcontractors and Suppliers in the Information for Bidders that ALL vendors are listed or you will be disqualified. If you are self-performing the work, you must still list any suppliers for materials, or list any contractor's that will assist you in any form.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

Authorized Contact for this Disclosure Statement

Name:_____

Title:_____

E-mail:_____

Phone number:_____

FAX number:_____

List any other DBA, trade name, other identity, or EIN used in the last five (5) 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:_____

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:** _____

SBE CLAUSE

CITY OF PHOENIX
STREET TRANSPORTATION DEPARTMENT
DESIGN & CONSTRUCTION MANAGEMENT DIVISION
27TH AVENUE - LOWER BUCKEYE ROAD
TO BUCKEYE ROAD ROADWAY IMPROVEMENT
ST85100341

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T·Y·LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

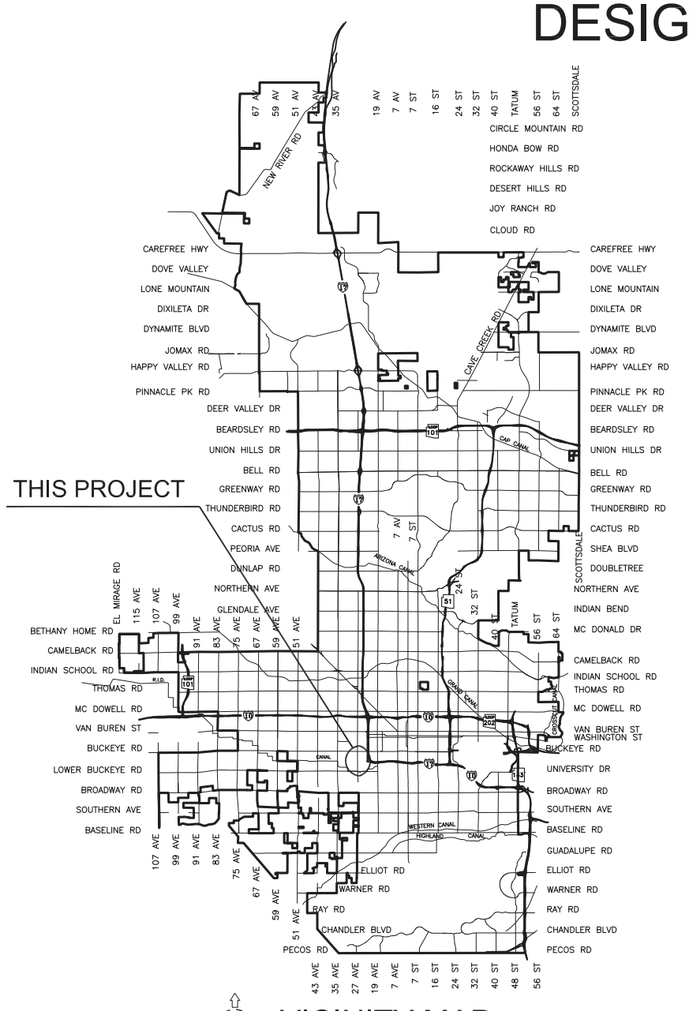
REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

MAYOR
THELDA WILLIAMS

CITY MANAGER
ED ZUERCHER

CITY COUNCIL

DISTRICT NO 1.	THELDA WILLIAMS
DISTRICT NO 2.	JIM WARING
DISTRICT NO 3.	DEBRA STARK
DISTRICT NO 4.	LAURA PASTOR
DISTRICT NO 5.	VANIA GUEVARA
DISTRICT NO 6.	SAL DICICCIO
DISTRICT NO 7.	MICHAEL NOWAKOWSKI
DISTRICT NO 8.	FELICITA MENDOZA



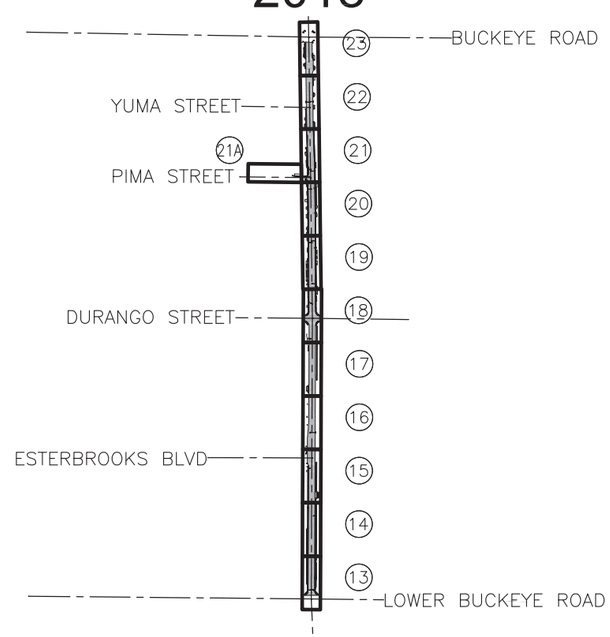
City of Phoenix N

VICINITY MAP
NTS

City Benchmark:

27th Avenue and Durango Street
BCHH
El. 1046.82
City of Phoenix Datum (NGVD 29)

2018



LENGTH OF PROJECT = 5,215 LF = 0.987 MILES

City of Phoenix N

KEY MAP
NTS

INDEX OF SHEETS

1	COVER SHEET
2	LEGEND AND NOTE SHEET
3	ROADWAY SUMMARY SHEET
4	CONTROL SHEET
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24 - 31	DRIVEWAY PROFILE SHEETS
32 - 42	PAVING DETAILS
43	PRIVATE IRRIGATION SHEET
44 - 49	CONNECTOR PIPE PROFILES
50	ALTERNATE PIPE CHART
51 - 54	STREET LIGHT PLANS
55 - 63	TRAFFIC SIGNAL PLANS
1 - 12	TRAFFIC SIGNAL DETAILS
1 - 4	SRP IRRIGATION PLANS

UTILITIES

SRP POWER	ANTHONY LAWRENCE	602-236-4921
SRP IRRIGATION	VICTOR LUCERO	602-236-5586
SRP COMMUNICATIONS	TROY DAMRON	602-236-8503
APS	BOBBY GARZA	602-371-7989
RID	DAVID BURAS	602-707-4743
SOUTHWEST GAS	VALERIE GALLARDO-WELLER	602-484-5342
CENTURY LINK	JOHN NEVLIS	602-630-6891
COX	RYAN QUAGLIATA	602-469-7113
SPRINT	DAVID JETER	559-408-5760
ZAYO	MATT BURKE	480-206-7860
COP WATER & SEWER	LARRY VALENZUELA	602-262-4035

APPROVED _____ 9/25/2018
ASSISTANT STREET TRANSPORTATION DIRECTOR — DATE

APPROVED _____ 9/13/18
DEPUTY STREET TRANSPORTATION DIRECTOR — DATE

ROOSEVELT IRRIGATION DISTRICT APPROVAL

The Roosevelt Irrigation District (RID) has reviewed these plans solely for conformance to RID standards and specifications as related to RID irrigation and/or drainage facilities. RID makes no representations or warranties regarding the suitability, and/or adequacy, of the items being constructed to meet, fulfill, or otherwise satisfy, their intended purpose. RID approves these plans for concept only and accepts no liability for errors or omissions.

_____ 9/13/18
ROOSEVELT IRRIGATION DISTRICT — DATE

Two working days before you dig,
CALL FOR THE BLUE STAKES
263–1100
Blue Stake Center

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

PROJECT NUMBER: ST85100341 27TH AVENUE — FINAL

PROJECT QUARTER SECTIONS 7–22, 7–23, 8–22 & 8–23

27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

LEGEND AND NOTES

LEGEND

- BENCHMARK
- NEW SURVEY MONUMENT – M.A.G. DETAIL 120–1 TYPE "B"
- NEW SURVEY MONUMENT – M.A.G. DETAIL 120–1 TYPE "A"
- EXISTING SURVEY MONUMENT – M.A.G. DETAIL 120–1 TYPE "B"
- COMBINED CURB & GUTTER – M.A.G. DETAIL 220 TYPE "A"
- BACKFILL TYPE & SQ. YD. PVMT. REPLACEMENT – C.O.P. DETAIL P1200
- EXISTING CONCRETE PAVEMENT OR SIDEWALK
- NEW CONCRETE SIDEWALK – STD. DETAIL P–1230
- NEW CONCRETE DRIVEWAY OR ALLEY ENT. PER DETAIL NO. ON PLANS
- NEW CONCRETE SIDEWALK RAMP PER DETAIL ON PLANS
- AVERAGE GROUND ELEVATION AT R/W LINE
- EXISTING DITCH
- 24" IRR (SRP) EXISTING IRRIGATION LINE W/SIZE (NOTE PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- NEW IRRIGATION STANDPIPE – M.A.G. DETAIL 503
- NEW IRRIGATION VALVE – M.A.G. DETAIL 506 W/ CONC. SCOURING BASIN
- IRRIGATION BERM
- NEW IRRIGATION STRUCTURE PER DETAIL ON PLANS
- 12" DIP W EXISTING WATER LINE W/SIZE & TYPE (12" AND SMALLER)
- 36" DIP W EXISTING WATER LINE W/SIZE & TYPE (GREATER THAN 12")
- ADJUST EXIST. WATER VALVE BOX – C.O.P. DETAIL P1391
- 3/4" W WATER SERVICE W/SIZE AND WATER METER BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- T.N.= EXISTING WATER VALVE W/TOP OF OPERATING NUT ELEVATION
- 8" VCP S EXISTING SANITARY SEWER LINE W/SIZE & TYPE (12" AND SMALLER)
- 36" VCP S EXISTING SANITARY SEWER LINE W/SIZE & TYPE (GREATER THAN 12")
- EXISTING MANHOLE
- M NEW MANHOLE
- SPHB CATCH BASIN, GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB & GUTTER INLET (LENGTH TO SCALE)
- 36" SD (RCP) EXISTING STORM DRAIN LINE W/SIZE & TYPE (GREATER THAN 12")
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- 4"G EXISTING GAS LINE W/SIZE
- E EXISTING UNDERGROUND ELECTRIC CABLE OR SINGLE CONDUIT
- E–4D EXISTING UNDERGROUND ELECTRIC DUCT (SPECIFY NUMBER)
- T EXISTING TELEPHONE BURIED CABLE OR SINGLE CONDUIT
- T–4D EXISTING UNDERGROUND TELEPHONE DUCT (SPECIFY NUMBER)
- CATV EXISTING UNDERGROUND CABLE TV
- FO EXISTING UNDERGROUND FIBER OPTIC LINE
- EXISTING TRAFFIC SIGNAL POLE W/MAST ARM & SIGNAL INDICATIONS
- EXISTING STREET OR TRAFFIC SIGN
- EXISTING UTILITY POLE W/LINE INDICATING WIRE DIRECTION
- EXISTING WIRE FENCE
- EXISTING BLOCK FENCE
- EXISTING WOOD FENCE
- MAIL BOX
- EXISTING POWER POLE DOWN GUY ANCHOR
- EXISTING STREET LIGHT & POLE
- EXISTING TREE OR STUMP TO BE REMOVED – MORE THAN 12" DIA.
- EXISTING TREE TO BE TRANSPLANTED BY CONTRACTOR
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE OR MONUMENT LINE
- EXISTING TREE TO BE REMOVED (NON PAY ITEM)
- EXISTING TREE TO REMAIN

NOTES

ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CONTRACT SPECIAL PROVISIONS AND DETAILS, CITY OF PHOENIX SUPPLEMENTS TO MAG STANDARD SPECIFICATIONS AND DETAILS, AND MAG STANDARD SPECIFICATIONS AND DETAILS, IN THAT ORDER OF PRECEDENCE, AT THE TIME OF CONSTUCTION BID.

ALL STORM SEWER MANHOLES ARE TO BE CONSTRUCTED WITHOUT STEPS.

PIPE CONNECTIONS TO EXISTING CONCRETE PIPE MAINS SHALL BE MADE IN ACCORDANCE WITH DETAILS CALLED OUT ON THE PLANS. CONNECTION TO MAINS SHALL NOT BE CLOSER THAN 5', CENTER TO CENTER.

PIPE CONNECTIONS TO NEW PRECAST CONCRETE PIPE MAINS, SHALL BE MADE WITH FACTORY MADE WYES OR TEES. THE DETAIL OF THE FITTINGS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. PIPE CONNECTIONS TO NEW CAST IN PLACE CONCRETE PIPE MAINS SHALL BE MADE PER C.O.P. DETAIL P–1576.

CATCH BASIN CONNECTOR PIPES SHALL BE LAID ON A STRAIGHT ALIGNMENT AND SLOPE UNLESS OTHERWISE SPECIFIED. IF BREAKS IN ALIGNMENT OR SLOPE ARE NECESSARY TO MEET FIELD CONDITIONS. THE MAXIMUM DEFLECTION SHALL BE 22–1/2 . THE BEND SHALL BE COLLARED ACCORDING TO M.A.G. DETAIL 505. ANY ANGLE BENDS GREATER THAN 22–1/2 SHALL BE PREFABRICATED.

CONNECTOR PIPES SHALL CONNECT TO CATCH BASIN WALLS AT AN ANGLE NOT TO EXCEED 22–1/2 FROM PERPENDICULAR.

FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL VERTICAL AND HORIZONTAL CONTROLS, ARE LOCATED ONLY APPROXIMATELY AND TO THE BEST AVAILABLE INFORMATION PROVIDED BY VARIOUS OWNERS OF THE FACILITIES, AND SUPPLEMENTED BY VISUAL SURFACE INFORMATION WHERE APPROPRIATE. ACCURACY, LOCATION AND COMPLETENESS OF THIS INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATION OF CONSTRUCTION.

TWO WORKING DAYS BEFORE CONSTRUCTION, THE CONTRACTOR SHALL CONTACT BLUESTAKE TO FIND AND FLAG UNDERGROUND UTILITIES. THE CONTRACTOR SHALL CONTACT OTHER APPROPRIATE UTILITIES DIRECTLY IF THEY ARE NOT ON BLUESTAKE SYSTEM.

VERTICAL CONTROL IS BASED ON PHOENIX DATUM NGVD–29

UNLESS OTHERWISE NOTED, STATIONS SHOWN ON PIPE PROFILES ARE ALONG CENTERLINE OF PIPE.

UNLESS OTHERWISE NOTED, PIPE SHALL BE BEDDED IN ACCORDANCE WITH CITY OF PHOENIX DETAIL P1200.

CATCH BASINS ARE STATIONED PERPENDICULAR TO THE CENTERLINE OF THE STREET AT THE CENTERLINE OF THE MAINTENANCE BASIN.

SANITARY SEWER MAINS AND TAPS CROSSING OVER STORM DRAIN MAINS SHALL BE SUPPORTED PER M.A.G. DETAIL 403–1, 403–2, OR 403–3.

ALL EXISTING PRECAST CONCRETE SAFETY CURBS AND ALL EXISTING WOODEN PARKING CURBS, WHICH ARE INSIDE THE RIGHT OF WAY AND APPROXIMATELY PARALLEL TO THE NEW CURB LINE, SHALL BE RESET ON THE RIGHT OF WAY DIRECTLY OPPOSITE THEIR EXISTING LOCATION, WITH THE BACK EDGE ON THE RIGHT OF WAY LINE. ALL OTHER PRECAST CONCRETE SAFETY CURBS INSIDE THE STREET RIGHT OF WAY SHALL BE SALVAGED AND STOCK PILED FOR THE OWNER AT THE RIGHT OF WAY LINE.

EXISTING PRECAST CONCRETE SAFETY CURBS OUTSIDE THE RIGHT OF WAY, WHICH ARE DISTURBED BY NEW CONSTRUCTION SHALL BE RESET IN THEIR ORIGINAL POSITION BY THE CONTRACTOR.

ALL EXISTING DRIVEWAYS AND ALL EXISTING ALLEYS SHALL BE GRADED TO MATCH THE NEW WORK IN ACCORDANCE WITH STD. DETAIL P–1164, UNLESS OTHERWISE SPECIFIED. EXISTING SURFACING SHALL BE REMOVED AND REPLACED AS NECESSARY.

UNLESS OTHERWISE PROVIDED ON THE PLANS, EXISTING A.C. OR P.C.C. DRIVEWAYS AND SIDEWALKS WHICH FALL WITHIN OR ABUT THE RIGHT OF WAY SHALL BE CONNECTED TO THE NEW WORK AS FOLLOWS:

THE SPACE BETWEEN THE BACK OF NEW DRIVEWAY ENTRANCES AND EXISTING A.C. DRIVEWAYS SHALL BE FILLED WITH A MINIMUM OF 3" A.C.S.C. ON 100% COMPACTED NATIVE SOIL. WHERE EXISTING PAVEMENT AND BASE THICKNESS EXCEED THE MINIMUMS, MATCH THE EXISTING.

THE SPACE BETWEEN THE BACK OF NEW SIDEWALKS AND EXISTING PRIVATE SIDEWALKS, AND THE SPACE BETWEEN THE BACK OF NEW DRIVEWAY ENTRANCES AND EXISTING P.C.C. DRIVEWAYS SHALL BE FILLED WITH P.C.C.. THE THICKNESS AND CLASS SHALL MATCH THAT OF THE NEW SIDEWALK OR DRIVEWAY ENTRANCE.

UNLESS OTHERWISE PROVIDED ON THE PLANS, THE SPACE BETWEEN THE BACK OF THE NEW SIDEWALKS, AND EXISTING A.C. PARKING LOTS, WHICH FALL WITHIN OR ABUT THE R/W SHALL BE FILLED WITH 2" A.C.S.C. ON 100% COMPACTED NATIVE SOIL.

EXISTING IRRIGATION BERMS DISTURBED BY NEW CONSTRUCTION SHALL BE RECONSTRUCTED AS SHOWN ON PLANS.

M.A.G. ALLEY ENTRANCE DETAILS 260, 261, 262 AND 263, WHICH ARE INDICATED TO BE MODIFIED ON THESE PLANS SHALL BE CONSTRUCTED ACCORDING TO THE DETAIL NUMBER EXCEPT THAT THE SLAB SHALL BE 9" THICK. DRIVEWAYS DESIGNATED ON THE PLANS AS M.A.G. DETAILS 250 AND 251 SHALL BE RESIDENTIAL DRIVEWAYS 5" THICK. ALL OTHER DRIVEWAYS SHALL BE CITY OF PHOENIX DETAILS P1255.

CATCH BASIN ACCESS FRAME AND COVERS SHALL BE CONSTRUCTED PER C.O.P. DETAIL P1561.

STRUCTURAL NOTES

"CLEAR" DIMENSIONS FOR DEPTH OF REINFORCING STEEL ARE FROM FACE OF CONCRETE TO FACE OF BARS.

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED OR ROUNDED.

ALL EXPOSED CONCRETE SURFACES SHALL BE FINISHED IN ACCORDANCE WITH ARIZONA DEPT. OF TRANSPORTATION STANDARD SPECIFICATION 601–3.05 – FINISHING FORMED CONCRETE, UNLESS OTHERWISE SPECIFIED.

ROOSEVE T IRRIGATION DISTRICT GENERA NOTES

1. THE TERM "DISTRICT" IN THESE NOTES AND PLANS SHALL REFER TO THE ROOSEVELT IRRIGATION DISTRICT.
2. THE DISTRICT CONSTRUCTION OBSERVER MUST APPROVE THE SCHEDULING OF ALL CONSTRUCTION ACTIVITIES WITHIN THE DISTRICT RIGHT-OF-WAY OR EASEMENT. THE DISTRICT MAY REQUIRE THAT SOME OR ALL OF THE CONSTRUCTION FOR THE PROJECT BE COMPLETED DURING A SCHEDULED DRY-UP OF THE MAIN CANAL.
3. ALL CONSTRUCTION PLANS AFFECTING DISTRICT FACILITIES MUST BE REVIEWED AND APPROVED BY THE DISTRICT.
4. THE CONTRACTOR SHALL CONTACT THE DISTRICT'S CONSTRUCTION OBSERVER AT (602) 284-7017, A MINIMUM OF 14 CALENDAR DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A RIGHT-OF-WAY CROSSING PERMIT FROM THE DISTRICT BEFORE ANY WORK CAN COMMENCE WITHIN DISTRICT RIGHT-OF-WAY OR EASEMENT.
6. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR REVIEW BY THE DISTRICT'S ENGINEER AS MAY BE NECESSARY FOR THE EXECUTION OF THE WORK AND AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.
7. ALL EXISTING DISTRICT FACILITIES DISTURBED BY NEW CONSTRUCTION SHALL BE RECONSTRUCTED TO CURRENT RID STANDARDS.
8. ALL CONSTRUCTION INCLUDING, BUT NOT LIMITED TO: EQUIPMENT, FENCING, SPOILS, ETC. MUST REMAIN OUTSIDE OF DISTRICT RIGHT-OF- WAY OR EASEMENT UNLESS OTHERWISE APPROVED BY THE DISTRICT CONSTRUCTION OBSERVER.
9. EXISTING DISTRICT FACILITIES MUST REMAIN OPERATIONAL, AND SHALL NOT BE DISTURBED OR RENDERED INACCESSIBLE TO RID OPERATIONS AND MAINTENANCE STAFF.
10. UTILITIES INCLUDE ANY WATER, SEWER, RECLAIMED WATER, GAS, ELECTRICAL, LANDSCAPE IRRIGATION, COMMUNICATION, ETC.

ROOSEVE T IRRIGATION DISTRICT GRADING NOTES

1. THE CONTRACTOR SHALL PROVIDE SMOOTHLY AND EVENLY GRADED FINISHED GROUND SURFACES ABOUT ALL DISTRICT FACILITIES WITHIN THE PROJECT AREA AND BLEND SMOOTHLY INTO EXISTING GRADES.
2. THE CONTRACTOR SHALL IMPORT ADDITIONAL FILL MATERIAL OR EXPORT EXCESS CUT MATERIAL AS REQUIRED TO PROVIDE SATISFACTORY FINISHED GRADING ABOUT DISTRICT FACILITIES AS INDICATED ON THE APPROVED PLANS OR AS DIRECTED BY THE DISTRICT CONSTRUCTION OBSERVER.
3. FINISHED SURFACES SHALL BE GRADED TO DIRECT DRAINAGE AWAY FROM DISTRICT FACILITIES.
4. O&M ROADS ADJACENT TO CANAL PRISM SHALL BE CONSTRUCTED WITH A MINIMUM ELEVATION 6" ABOVE ADJACENT FIELDS AND A 2% CROSS SLOPE AWAY FROM CANAL PRISM AREA UNLESS OTHEWISE NOTED.

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

LEGEND AND NOTE SHEET

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18	2	63	.
SCALE: N.T.S.					

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

APPROXIMATE QUANTITIES

BID ITEM NUMBER	DESCRIPTION REMOVALS	UNIT	QUANTITY / PLAN SHEET NUMBERS												
			13	14	15	16	17	18	19	20	21	21A	22	23	TOTAL
M3500005	Remove Existing Manhole	EA	-	-	1	-	1	1	-	-	-	-	-	-	3
M3500010	Remove Portland Cement Concrete Single Curb; Curb and Gutter; Header Curb or Embankment Curb	LF	-	-	11	10	100	188	235	48	247	87	301	359	1,586
M3500020	Remove Portland Cement Concrete Sidewalk, Driveway, Valley Gutter & Slab	SF	599	-	122	-	1,199	702	-	-	244	-	1,175	2,811	6,852
M3500030	Remove Structures, Backfill & Compact	JOB	-	-	-	-	-	-	-	-	3	-	-	-	3
M3500035	Remove Existing Catch Basin, Manhole, and Sump; Backfill and Compact	JOB	4	-	-	-	-	-	-	-	-	-	-	-	4
M3500040	Remove Pipe, Backfill & Compact	LF	100	500	10	-	333	500	200	-	272	-	-	-	1,915
M3500060	Remove Asphalt Concrete Pavement	SY	3,014	3,176	3,617	3,632	3,390	4,066	2,867	3,064	2,975	36	3,679	2,294	35,810
M3500109	Remove Block Wall	LF	-	-	-	-	-	-	113	-	-	-	-	19	132
M3500150	Remove Tree, 12" Diam. and Larger	EA	-	-	-	-	-	-	-	12	2	-	-	-	14
M3500200	Remove and Salvage Existing Overhead Sign Structure	JOB	-	-	-	-	-	-	1	-	-	-	-	-	1
M3500300	Remove Existing Wrought Iron Man Gate	EA	-	1	-	-	-	-	-	-	-	-	-	-	1
M3500402	Relocate Traffic Sign	EA	-	1	2	-	1	-	-	-	-	-	-	-	4

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

BID ITEM NUMBER	DESCRIPTION PAVING	UNIT	QUANTITY / PLAN SHEET NUMBERS												
			13	14	15	16	17	18	19	20	21	21A	22	23	TOTAL
M3010001	Subgrade Preparation	SY	2,571	3,398	3,581	3,632	3,398	3,968	3,398	3,398	3,449	19	3,411	2,211	36,434
M3210100	Asphalt Concrete Surface Course, Type D 1/2 For Driveway, Sidewalk and Parking Lot Connections	TON	-	-	-	-	-	12	62	41	6	-	27	15	163
M3210115	Asphalt Concrete Surface Course, Type D 1/2, 1-1/2" Thick	TON	231	306	322	327	306	357	306	306	310	2	307	199	3,279
M3210360	Asphalt Concrete Base Course, Type A 1-1/2, 3" Thick	TON	926	1,224	1,290	1,308	1,224	1,428	1,224	1,224	1,242	6	1,228	796	13,120
M3240090	Portland Cement Pavement, Class A, 9" Thick	SY	-	-	111	-	45	-	-	-	-	131	-	98	385
M3290100	Emulsified Asphalt For Tack Coat, Type SS-1h	TON	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	19.2
M3400400	Concrete Sidewalk, Std. Detail P-1230	SF	4,492	5,785	3,531	-	385	2,942	3,290	3,594	3,711	-	997	737	29,464
M3400415	Truncated Domes for Sidewalk Ramps, Std. Detail P-1232	SF	40	-	20	-	-	80	-	-	28	-	-	60	228
M3400543	Concrete Driveway Entrance, Std. Detail P-1243	SF	-	-	1,784	-	-	-	-	-	-	-	-	-	1,784
M3400555	Concrete Driveway Entrance, Std. Detail P-1255-1	SF	-	-	-	-	499	891	1,137	2,340	375	-	1,817	1,266	8,325
M3400558	Concrete Driveway Entrance, Std. Detail P-1255-3, (9" Thick)	SF	-	-	-	-	-	-	-	-	-	-	141	-	141
M3400566	Concrete Driveway Entrance, Std. Detail P-1255-2, (9" Thick)	SF	-	-	-	-	-	-	1,579	504	107	-	-	-	2,190
M3401260	Concrete Bus Shelter/Accessory Pad, Std. Detail P-1260	SF	560	-	-	-	-	320	-	400	400	-	-	280	1,960
M3402201	Combined Concrete Curb and Gutter, Std. Detail 220, Type "A", H=6"	LF	719	990	617	-	70	638	970	990	968	-	361	314	6,637
M3402203	Concrete Roll Curb and Gutter, Standard Detail 220, Type "C"	LF	-	-	-	-	-	-	-	-	-	87	-	-	87
M3402221	Concrete Single Curb, Std. Detail 222, Type "A"	LF	-	-	-	-	20	-	420	162	10	-	29	81	722
M3450020	Adjust Existing Manhole Frame and Cover, MAG Std Detail 422	EA	-	3	3	1	1	3	2	1	3	-	-	1	18
M3450040	Adjust Existing Utility Manhole Frame and Cover, Manhole or Utility Riser	EA	2	-	3	1	-	4	2	2	2	-	2	1	19
M3450270	Adjust Existing Sewer Clean-out Frame & Cover, Standard Detail P-1270	EA	-	-	-	-	-	-	1	-	-	-	-	-	1
M3453001	Adjust Existing Type "A" Water Valve, Standard Detail P-1391 and P-1391-1	EA	2	1	2	-	2	8	2	2	3	-	3	4	29
M3505000	Relocate Existing Mailbox	EA	-	-	-	-	-	-	1	-	-	-	-	-	1
M4005103	Relocate Ornamental Iron Fence	LF	-	-	-	-	-	-	-	-	61	-	156	126	343
M4051201	Survey Marker, MAG Standard Det. 120, Type 'A'	EA	-	-	1	-	-	1	-	-	1	-	1	-	4
M4154001	Safety Post / Bollard	EA	-	-	-	-	-	-	-	-	4	-	-	-	4
M4200019	Chain Link Gate, ADOT Detail C-12.20 (16' Wide Double Swing Gate, 72" High, Type 2)	EA	-	-	-	-	-	-	-	-	-	1	-	-	1
M4200028	Chain Link Gate, ADOT Detail C-12.20 (26' Wide Double Swing Gate, 72" High, Type 2)	EA	-	-	-	-	-	-	-	-	1	-	-	-	1
M4200029	Chain Link Gate, ADOT Detail C-12.20 (5' Wide Single Swing Gate, 72" High, Type 2)	EA	-	-	-	-	-	-	-	-	1	-	-	-	1
M4200075	Chain Link Fence, ADOT Detail C-12.20, Type 2, H=6'	LF	-	-	-	-	-	-	-	-	114	-	-	-	114
M4200134	Relocate Manual Roll / Slide Wrought Iron Gate	EA	-	-	-	-	-	-	-	-	-	-	1	1	2
M4200135	Relocate Motorized Slide Wrought Iron Gate	EA	-	-	-	-	-	-	-	-	-	-	1	-	1
M4200136	Relocate Manual Roll / Slide Chain Link Gate	EA	-	-	-	-	-	-	1	1	-	-	-	-	2
M4200137	Remove and Relocate Steel Pipe Swing Gate	EA	-	-	-	-	-	-	1	-	-	-	-	-	1
M4201002	Relocate Chain Link Fence Per Plans	LF	350	273	-	-	-	28	62	68	169	127	-	-	1,077
M4252005	Boulder Relocation	EA	-	-	-	-	-	-	2	-	-	-	-	-	2
M4304102	Decomposed Granite, 3/8" Minus, Stabilized, 2" Thick	SF	8,507	9,340	4,249	-	-	1,554	4,384	6,144	6,900	-	691	118	41,887
M5055043	Irrigation Junction Box, MAG Standard Detail 504, Per Plans	EA	-	-	-	-	-	-	-	-	1	-	-	-	1
M5100017	Block Wall (Decorative Retaining Wall, Match Existing)	LF	-	-	-	-	-	-	-	-	-	-	-	15	15
M6101801	Relocate Existing Water Meter, Box, and Cover	EA	-	-	-	-	-	-	6	3	-	1	-	-	10
M6108010	Relocate Fire Hydrant	EA	-	1	-	-	-	-	1	1	-	-	-	-	3
M6185018	18" Rubber Gasket Reinforced Concrete Pipe, Class V (Private Irrigation)	LF	-	-	-	-	-	-	-	-	429	-	-	-	429
S5051520	Manhole (SRVWUA Irrigation) Per Plans	EA	-	1	-	-	-	-	-	-	-	-	-	-	1
S5055050	Concrete Pipe Collars, All Sizes (SRWVUA Details)	EA	1	1	-	-	-	-	-	-	-	-	-	-	2
S6189030	30" RGRCP (SRWVUA Irrigation) Class V	LF	100	500	10	-	-	-	-	-	-	-	-	-	610

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

BID ITEM NUMBER	DESCRIPTION STORM DRAIN	UNIT	QUANTITY / PLAN SHEET NUMBERS												
			13	14	15	16	17	18	19	20	21	21A	22	23	TOTAL
M5051530	Concrete Catch Basin, Type "M-1", L=3', Phx. Supp. Detail P1569-1	EA	2	1	-	1	-	2	3	1	1	-	1	-	12
M5051535	Concrete Catch Basin, Type "M-1", L=6', Phx. Supp. Detail P1569-1	EA	2	-	1	-	-	1	-	-	1	-	1	-	6
M6180623	Storm Sewer Lateral Pipe Connection, Phx. Supp. Detail P1577	EA	1	-	-	1	-	2	3	1	1	-	1	-	10
M6181012	12" Catch Basin Connector Pipe, RGRCP Class IV	LF	11.0	9.0	-	-	-	-	-	-	-	160.0	-	-	180.0
M6181015	15" Catch Basin Connector Pipe, RGRCP Class IV	LF	67.5	-	12.5	46.5	-	92.5	89.0	26.0	52.0	-	60.0	-	446.0
M6250016	Storm Sewer Manhole Base Transition, Phx. Supp. Detail P-1560 and MAG Std. Detail 522 and 423	EA	-	-	1	-	-	1	-	-	1	-	1	-	4

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ROADWAY SUMMARY SHEET

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	3	63	.

SCALE: N.T.S.

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		58	.

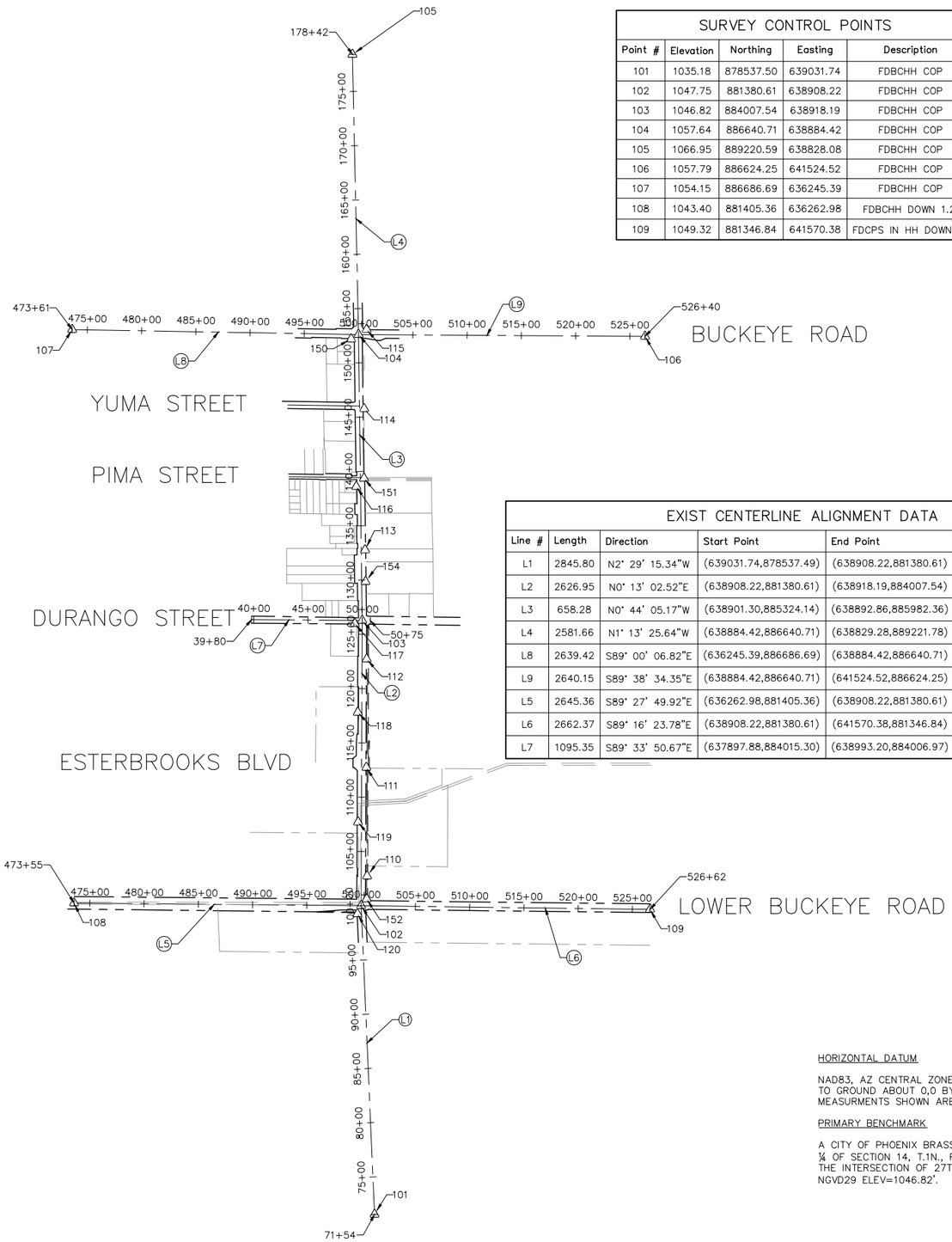
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 4/18

TRACE CONSULTING — 1201 E. Jefferson St. Suite 3, Phoenix, AZ 85034

REGISTERED LAND SURVEYOR — CA 36559 — RICHARD L. ANDERSEN — Date Signed 04/18/18 — ARIZONA, U.S.A. — EXPIRES 12-31-19

City of Phoenix N



SURVEY CONTROL POINTS

Point #	Elevation	Northing	Easting	Description
101	1035.18	878537.50	639031.74	FDBCHH COP
102	1047.75	881380.61	638908.22	FDBCHH COP
103	1046.82	884007.54	638918.19	FDBCHH COP
104	1057.64	886640.71	638884.42	FDBCHH COP
105	1066.95	889220.59	638828.08	FDBCHH COP
106	1057.79	886624.25	641524.52	FDBCHH COP
107	1054.15	886686.69	636245.39	FDBCHH COP
108	1043.40	881405.36	636262.98	FDBCHH DOWN 1.2'
109	1049.32	881346.84	641570.38	FDCPS IN HH DOWN 3"

EXIST CENTERLINE ALIGNMENT DATA

Line #	Length	Direction	Start Point	End Point	Start Station	End Station
L1	2845.80	N2° 29' 15.34"W	(639031.74,878537.49)	(638908.22,881380.61)	71+54.20	100+00.00
L2	2626.95	N0° 13' 02.52"E	(638908.22,881380.61)	(638918.19,884007.54)	100+00.00	126+26.95
L3	658.28	N0° 44' 05.17"W	(638901.30,885324.14)	(638892.86,885982.36)	139+43.66	146+01.94
L4	2581.66	N1° 13' 25.64"W	(638884.42,886640.71)	(638829.28,889221.78)	152+60.34	178+42.00
L8	2639.42	S89° 00' 06.82"E	(636245.39,886686.69)	(638884.42,886640.71)	473+60.58	500+00.00
L9	2640.15	S89° 38' 34.35"E	(638884.42,886640.71)	(641524.52,886624.25)	500+00.00	526+40.15
L5	2645.36	S89° 27' 49.92"E	(636262.98,881405.36)	(638908.22,881380.61)	473+54.64	500+00.00
L6	2662.37	S89° 16' 23.78"E	(638908.22,881380.61)	(641570.38,881346.84)	500+00.00	526+62.37
L7	1095.35	S89° 33' 50.67"E	(637897.88,884015.30)	(638993.20,884006.97)	39+79.66	50+75.02

HORIZONTAL DATUM

NAD83, AZ CENTRAL ZONE STATE PLANE COORDINATES SCALED TO GROUND ABOUT 0,0 BY A FACTOR OF 1.0001412467. ALL MEASURMENTS SHOWN ARE GROUND VALUES.

PRIMARY BENCHMARK

A CITY OF PHOENIX BRASS CAP IN HAND HOLE AT THE EAST ¼ OF SECTION 14, T.1N., R.2S., OF THE G&SRB&M LOCATED AT THE INTERSECTION OF 27TH AVE AND DURANGO.
NGVD29 ELEV=1046.82'.

△ TBM 110: SET REBAR WITH AC
@ STA: 102+72.89, 54.00'RT
TOP ELEV = 1047.54

△ TBM 111: SET CHISELED X
@ STA: 112+73.28, 43.34'RT
TOP ELEV = 1047.68

△ TBM 112: SET CHISELED X
@ STA: 122+71.23, 42.71'RT
TOP ELEV = 1047.44

△ TBM 113: SET REBAR WITH AC
@ STA: 132+75.63, 34.62'RT
TOP ELEV = 1048.30

△ TBM 114: SET REBAR WITH AC
@ STA: 145+76.13, 43.05'RT
TOP ELEV = 1052.88

△ TBM 115: SET REBAR WITH AC
@ STA: 153+05.15, 75.79'RT
TOP ELEV = 1058.65

△ TBM 116: SET REBAR WITH AC
@ STA: 138+60.33, 38.80'LT
TOP ELEV = 1050.36

△ TBM 117: SET CHISELED X
@ STA: 125+97.06, 67.87'LT
TOP ELEV = 1047.09

△ TBM 118: SET CHISELED X
@ STA: 117+80.21, 37.43'LT
TOP ELEV = 1048.08

△ TBM 119: SET REBAR WITH AC
@ STA: 107+69.72, 31.47'LT
TOP ELEV = 1048.72

△ TBM 120: SET CHISELED X
@ STA: 99+26.38, 36.75'LT
TOP ELEV = 1047.98

△ TBM 150: SET CHISELED X
@ STA: 152+20.24, 68.94'LT
TOP ELEV = 1058.18

△ TBM 151: SET PK NAIL
@ STA: 139+35.42, 33.33'RT
TOP ELEV = 1050.38

△ TBM 152: SET PK NAIL
@ STA: 100+62.42, 50.31'RT
TOP ELEV = 1048.45

△ TBM 154: SET PK NAIL
@ STA: 129+84.48, 35.19'RT
TOP ELEV = 1048.75

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CONTROL SHEET

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:4/18	DATE: 4/18	DATE: 4/18	4	58	.
SCALE: 1"=600'					

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

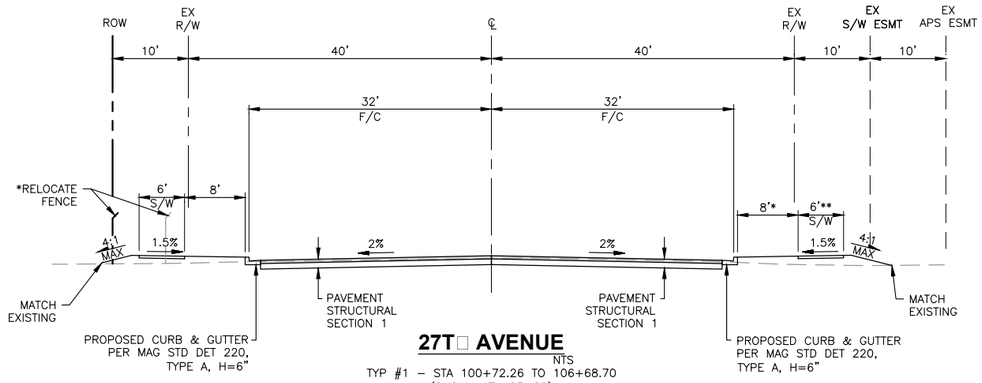
NO.	DESCRIPTION	REV BY	CKD BY	DATE

N:\2016\160604 - 27th Ave Lower Buckeye to Buckeye Survey\Project Support\Received\2018-04-25 Survey Control Sheet CAD Files\Sheets\ST85100341-011-Control.dwg 9/26/2018 11:50:23 AM Greg Shaw TY Lin Full Scale.ctb

27TH AVENUE

LOWER BUCKEYE ROAD TO

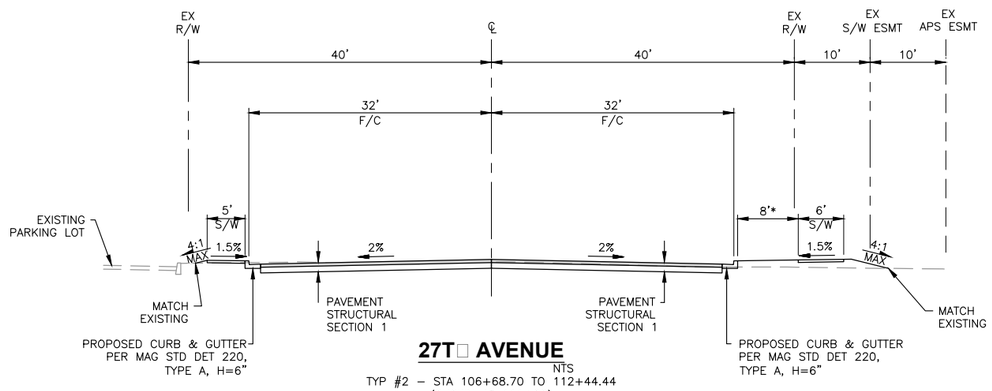
BUCKEYE ROAD



27T□ AVENUE

NTS

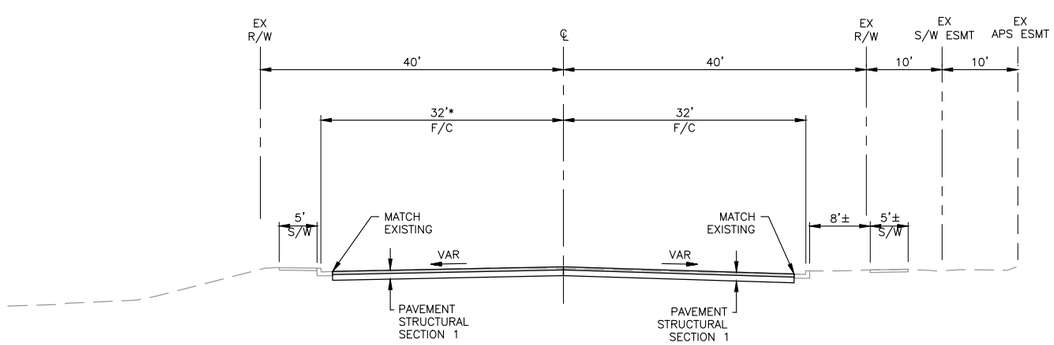
TYP #1 – STA 100+72.26 TO 106+68.70
(SHOWN AT 103+00)
*6' FROM 101+13± TO 101+77±
**ATTACHED FROM 100+73± TO 100+93±



27T□ AVENUE

NTS

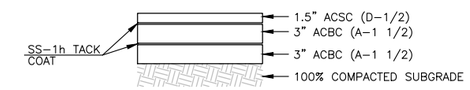
TYP #2 – STA 106+68.70 TO 112+44.44
(SHOWN AT 111+00)
*VARIES FROM 108+85± TO 109+12±



27T□ AVENUE

NTS

TYP #3 – STA 112+44.44 TO 125+66.76
(SHOWN AT 121+00)
*44' FROM 113+83± TO 114+98±
VARIES FROM 114+98± TO 116+47±



PAVEMENT STRUCTURA□ SECTION NO. □

NTS

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

REVISION BY CITY OF PHOENIX				
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TYPICAL SECTIONS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			5	63	.

Carlos Sanchez-Soria TY Lin Half Scale.ctb 9/26/2018 5:36:07 PM

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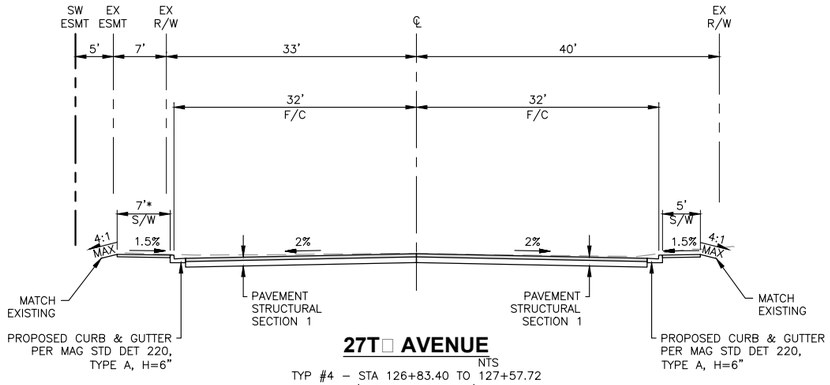
27TH AVENUE

LOWER BUCKEYE ROAD TO

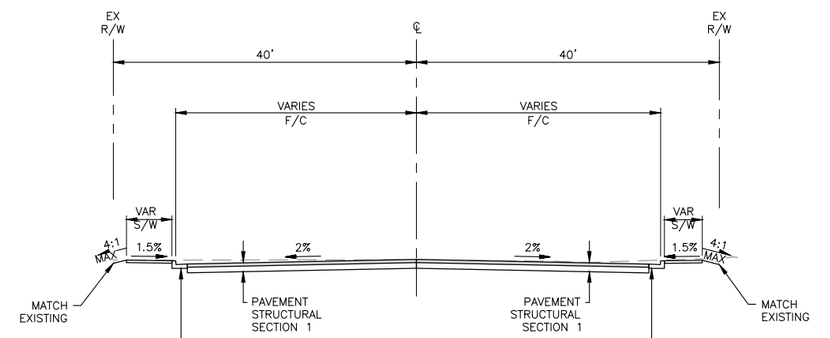
BUCKEYE ROAD



27T□ AVENUE

NTS

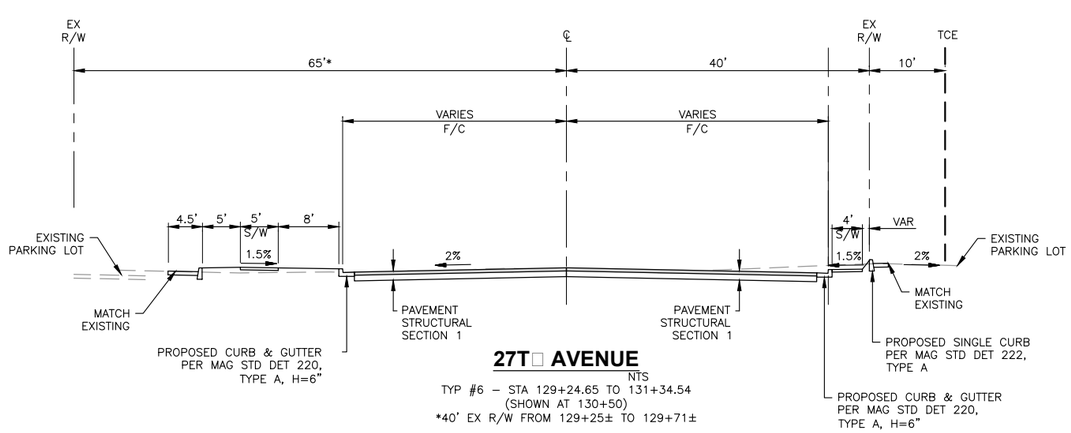
TYP #4 – STA 126+83.40 TO 127+57.72
(SHOWN AT 127+10)
*DETACHED 5' SIDEWALK FROM 126+83± TO 127+05±



27T□ AVENUE

NTS

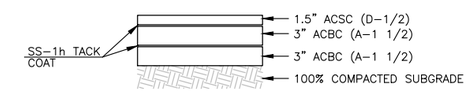
TYP #5 – STA 127+57.72 TO 129+24.65
(SHOWN AT 127+85)



27T□ AVENUE

NTS

TYP #6 – STA 129+24.65 TO 131+34.54
(SHOWN AT 130+50)
*40' EX R/W FROM 129+25± TO 129+71±



PAVEMENT STRUCTURA□ SECTION NO. □

NTS

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F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

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STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			6	63	.

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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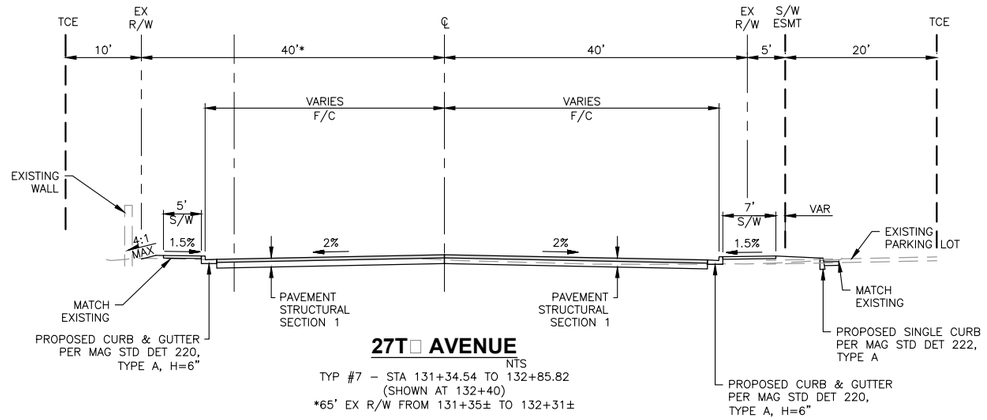
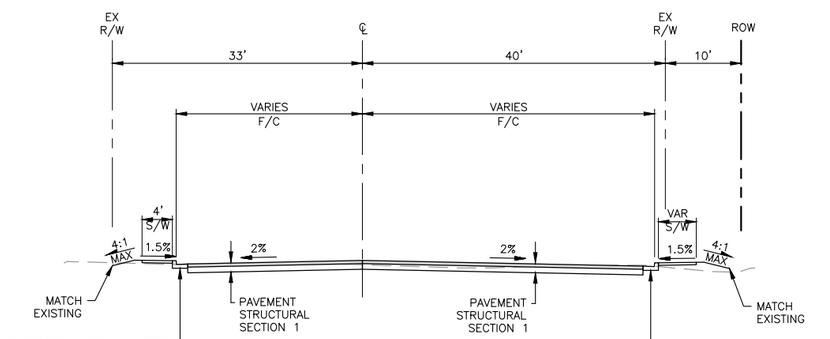
REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20



27T□ AVENUE

NTS

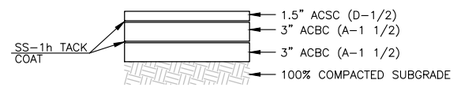
TYP #7 – STA 131+34.54 TO 132+85.82
(SHOWN AT 132+40)
*65' EX R/W FROM 131+35± TO 132+31±



27T□ AVENUE

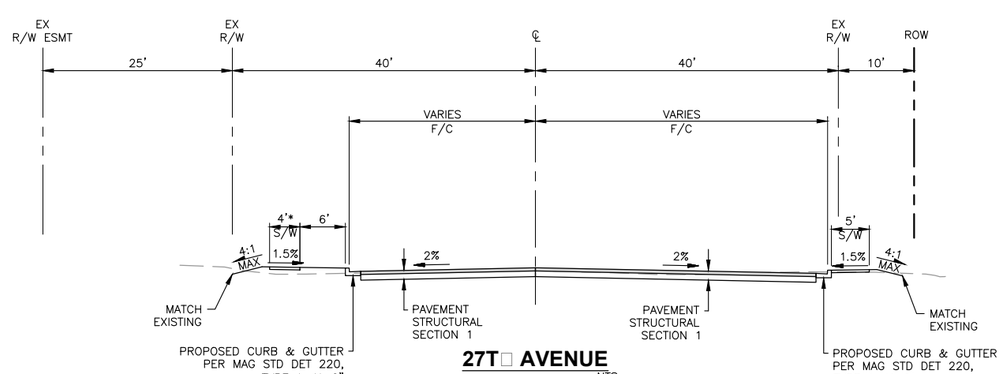
NTS

TYP #8 – STA 132+85.82 TO 133+36.55
(SHOWN AT 133+20)



PAVEMENT STRUCTURA□ SECTION NO. □

NTS



27T□ AVENUE

NTS

TYP #9 – STA 133+36.55 TO 135+02.25
(SHOWN AT 134+50)
*4' ATTACHED S/W FROM 133+37± TO 133+49±
5' ATTACHED S/W FROM 134+87± TO 135+02±

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TYPICAL SECTIONS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			7	63	.

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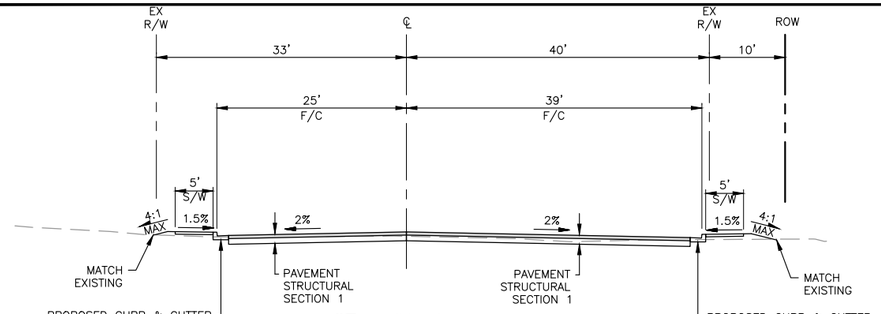
27TH AVENUE

LOWER BUCKEYE ROAD TO

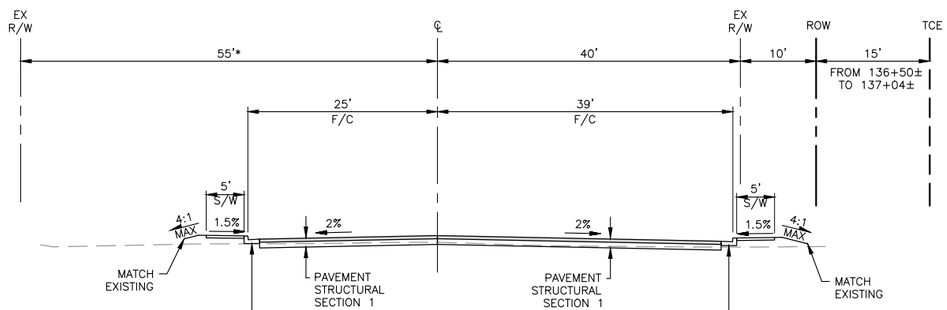
BUCKEYE ROAD



27T□ AVENUE

NTS

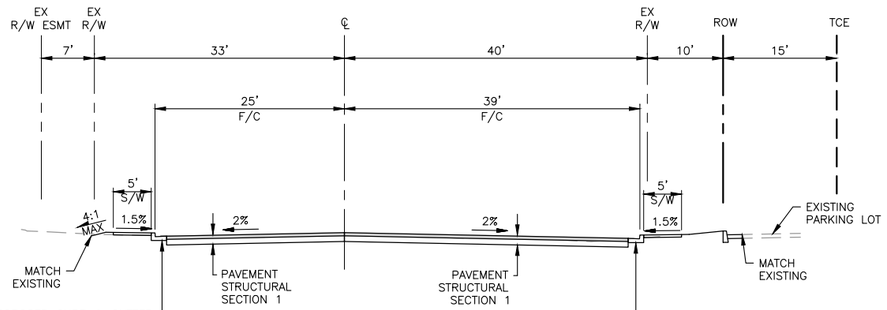
TYP #10 – STA 135+02.25 TO 135+50.00
(SHOWN AT 135+25)



27T□ AVENUE

NTS

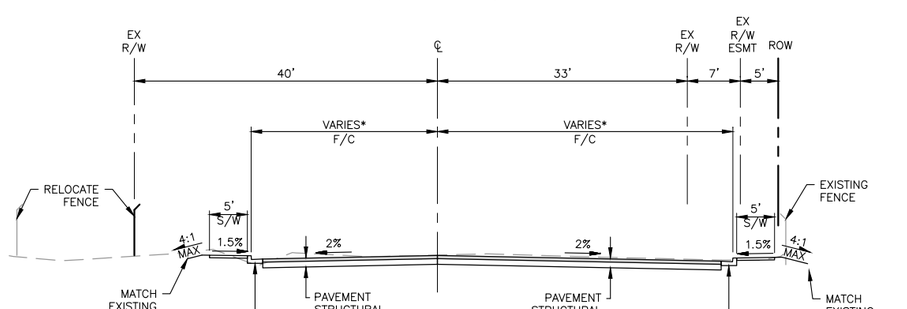
TYP #11 – STA 135+50.00 TO 137+03.59
(SHOWN AT 136+30)
*33' EX R/W FROM 135+50± TO 136+04±



27T□ AVENUE

NTS

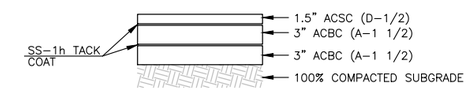
TYP #12 – STA 137+03.59 TO 139+06.54
(SHOWN AT 138+25)



27T□ AVENUE

NTS

TYP #13 – STA 139+80.61 TO 142+29.63
(SHOWN AT 141+00)
*TAPER BEGINS AT 140+40 LT, 140+40.60 RT



PAVEMENT STRUCTURA□ SECTION NO. □

NTS

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T·Y· LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

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TYPICAL SECTIONS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			8	63	.

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Carlos Sanchez-Soria 1Y Lin Half Scale.ctb

27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
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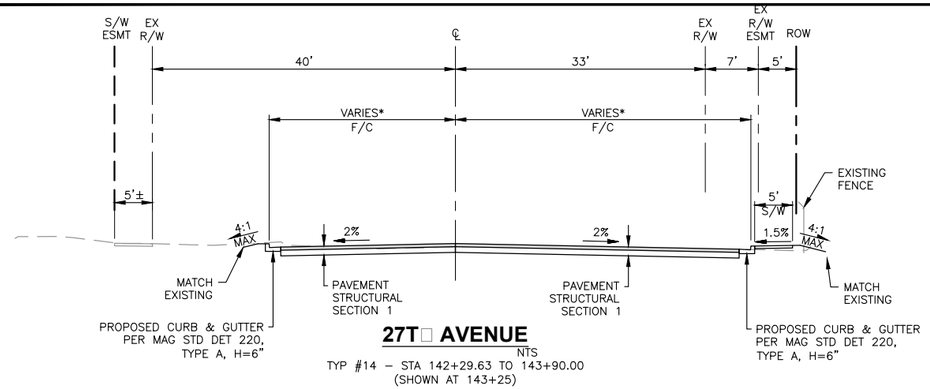
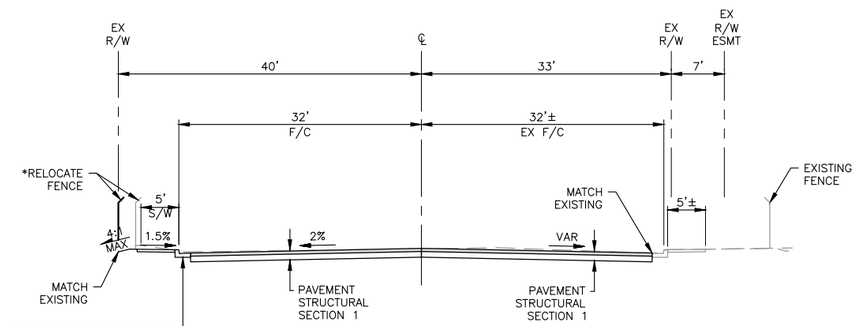
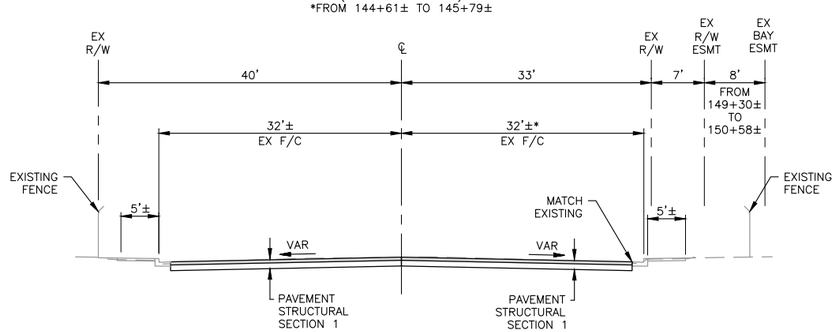


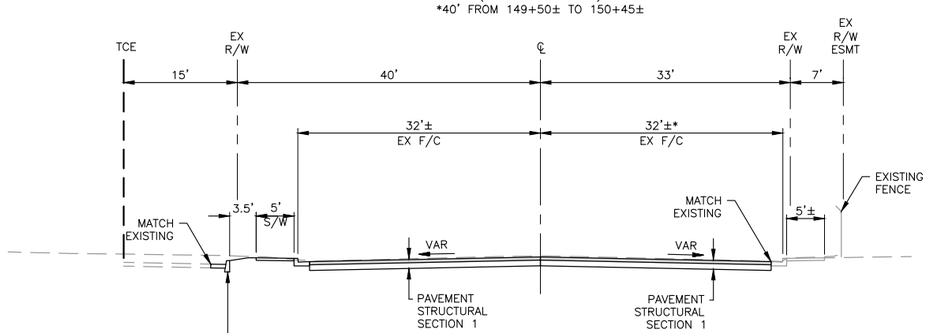
27T□ AVENUE
NTS
TYP #14 – STA 142+29.63 TO 143+90.00
(SHOWN AT 143+25)



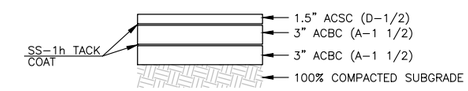
27T□ AVENUE
NTS
TYP #15 – STA 143+90.00 TO 145+82.78
(SHOWN AT 145+25)
*FROM 144+61± TO 145+79±



27T□ AVENUE
NTS
TYP #16 – STA 145+82.78 TO 150+57.96
(SHOWN AT 149+00)
*40' FROM 149+50± TO 150+45±



27T□ AVENUE
NTS
TYP #17 – STA 150+57.96 TO 152+03.68
(SHOWN AT 151+70)



PAVEMENT STRUCTURA□ SECTION NO. □
NTS

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

TYPICAL SECTIONS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			9	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

Carlos Sanchez-Soria TY Lin Half Scale.ctb 9/26/2018 5:36:23 PM

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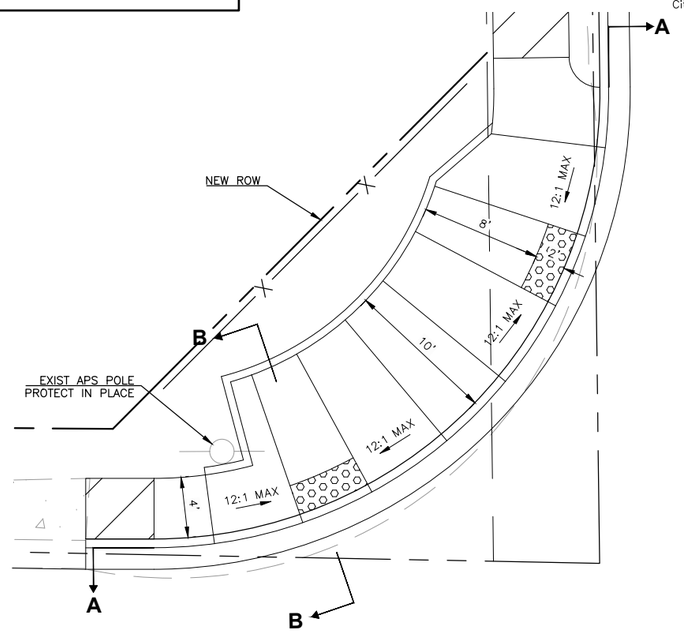
27TH AVENUE

LOWER BUCKEYE ROAD TO

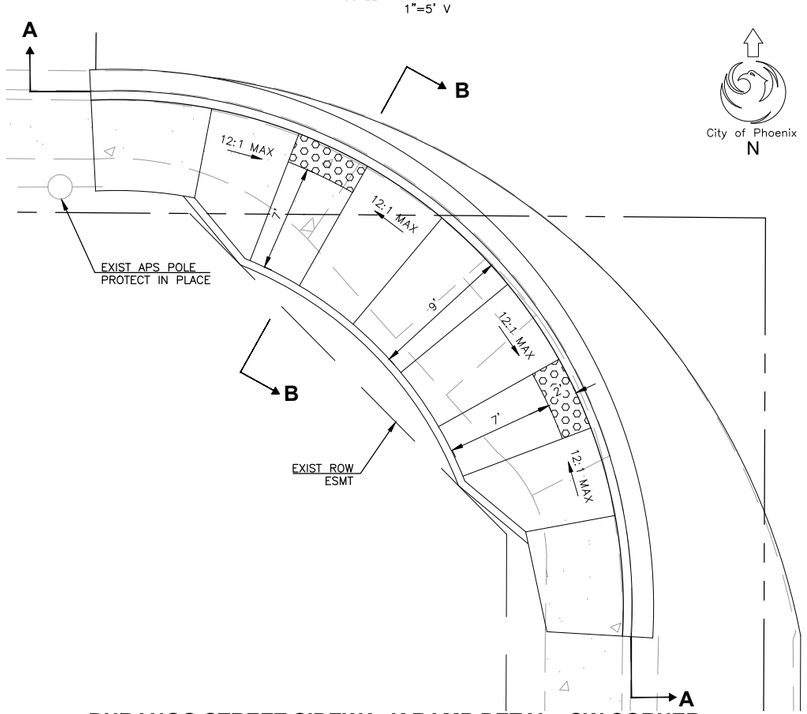
BUCKEYE ROAD



DURANGO STREET SIDEWA□K RAMP DETAI□ □NW CORNER□

SEE SHEET 18

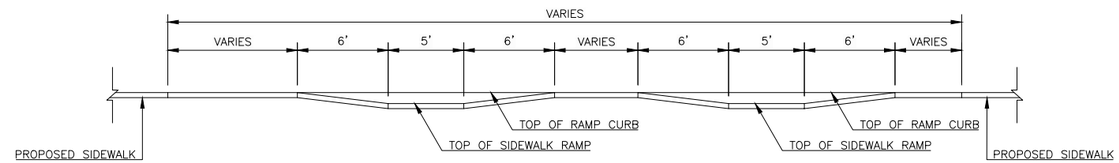
SCALE: 1"=5' H
1"=5' V



DURANGO STREET SIDEWA□K RAMP DETAI□ □SW CORNER□

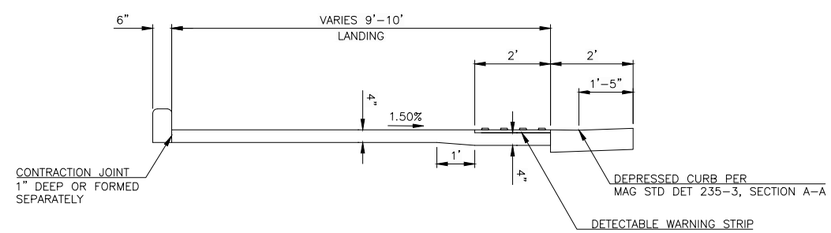
SEE SHEET 18

SCALE: 1"=5' H
1"=5' V



SECTION A-A

SCALE: 1"=5' H
1"=5' V



SECTION B-B

SCALE: 1"=2' H
1"=2' V

SEE COP STD DET P1237
FOR ADDITIONAL INFORMATION

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T·Y· LIN INTERNATIONAL
engineers | planners | scientists

T.Y.LIN INTERNATIONAL
CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
48279
CARLOS SANCHEZ SORIA
Date Signed 09/26/18
ARIZONA, U.S.A.
Expires 9/30/20

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

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DETAILS SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			10	63	.

Carlos Sanchez-Soria TY Lin Half Scale.ctb 9/26/2018 5:36:33 PM

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

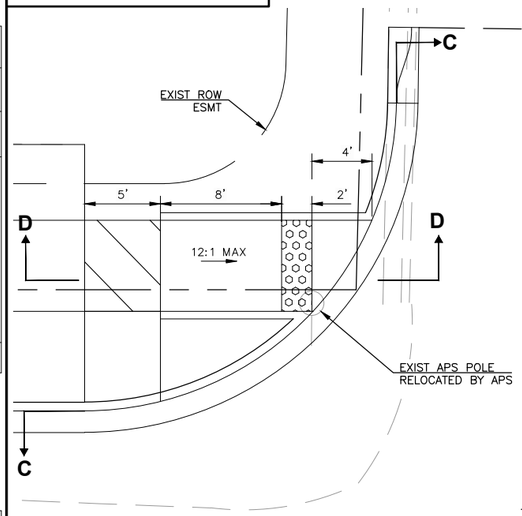
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

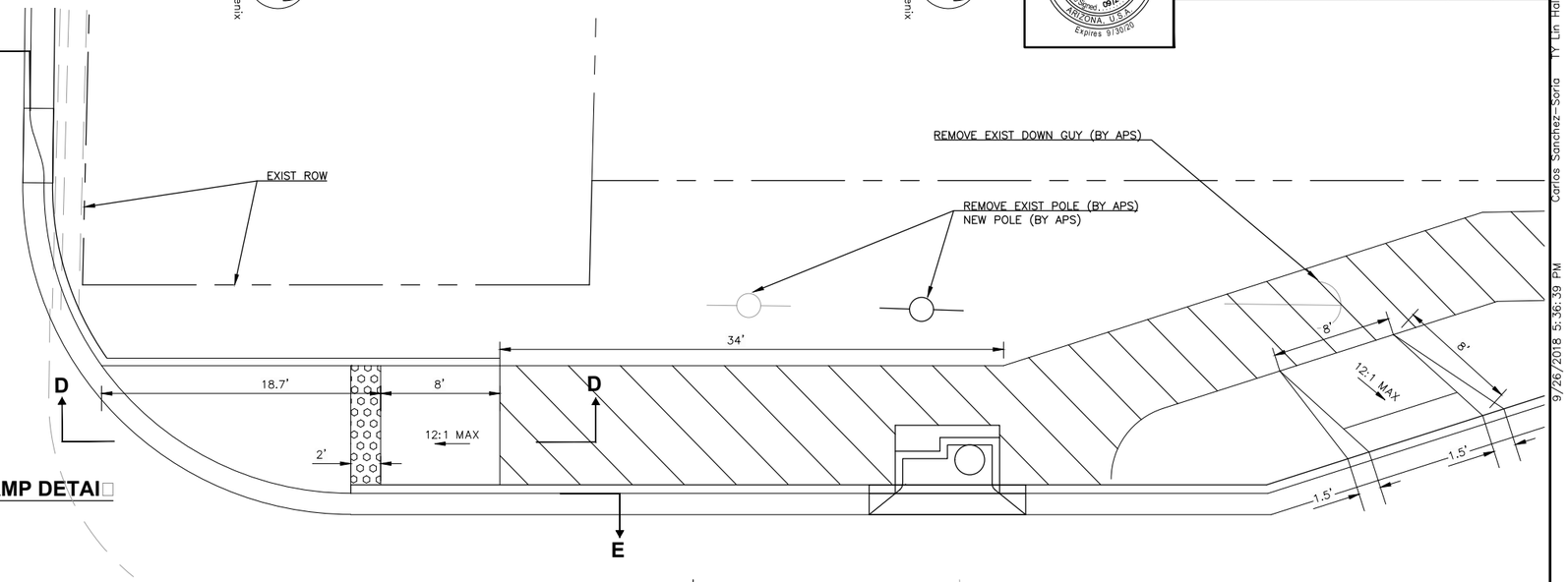
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

48279 CARLOS SANCHEZ SORIA — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20

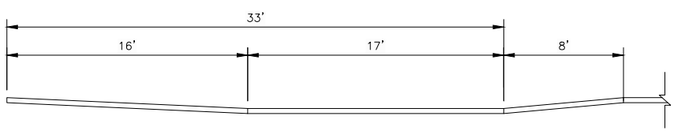
REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE





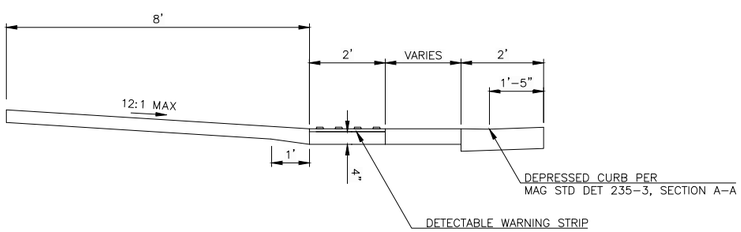
PIMA STREET SIDEWA□K RAMP DETAI□

SEE SHEET 21
SCALE: 1"=5' H
1"=5' V



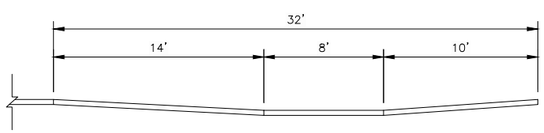
SECTION C-C

SCALE: 1"=5' H
1"=5' V



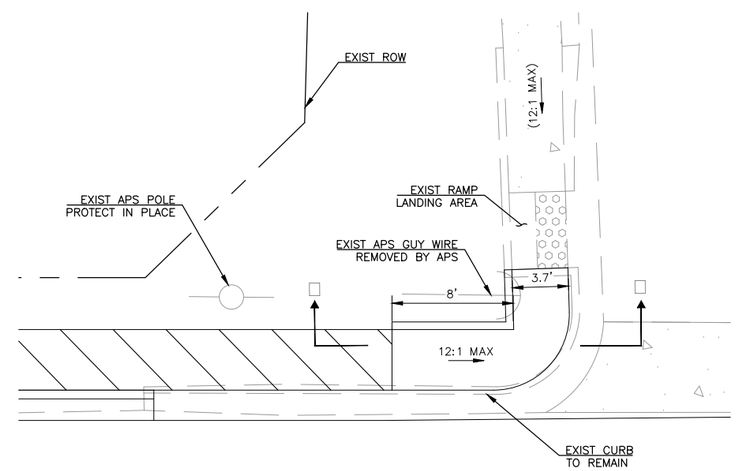
SECTION D-D

SCALE: 1"=2' H
1"=2' V



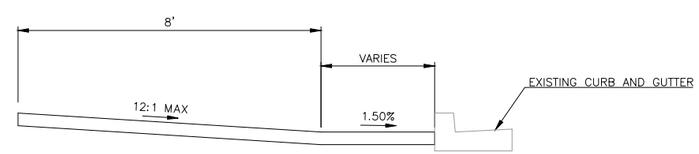
SECTION E-E

SCALE: 1"=5' H
1"=5' V



YUMA STREET SIDEWA□K RAMP DETAI□ □SOUT□□

SEE SHEET 22
SCALE: 1"=5' H
1"=5' V



SECTION □-□

SCALE: 1"=2' H
1"=2' V

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DETAILS SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18	11	63	.
SCALE: N.T.S.					

Carlos Sanchez-Soria TY Lin Half Scale.ctb 9/26/2018 5:36:39 PM

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

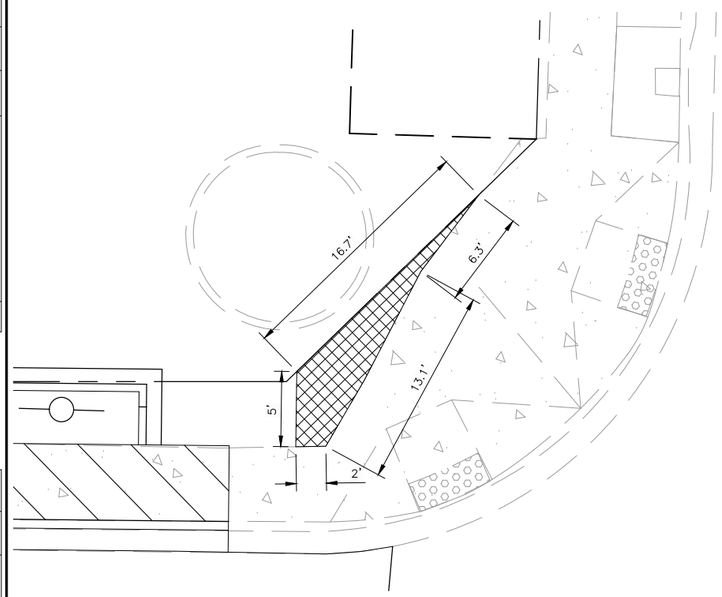
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

REVISION BY CITY OF PHOENIX

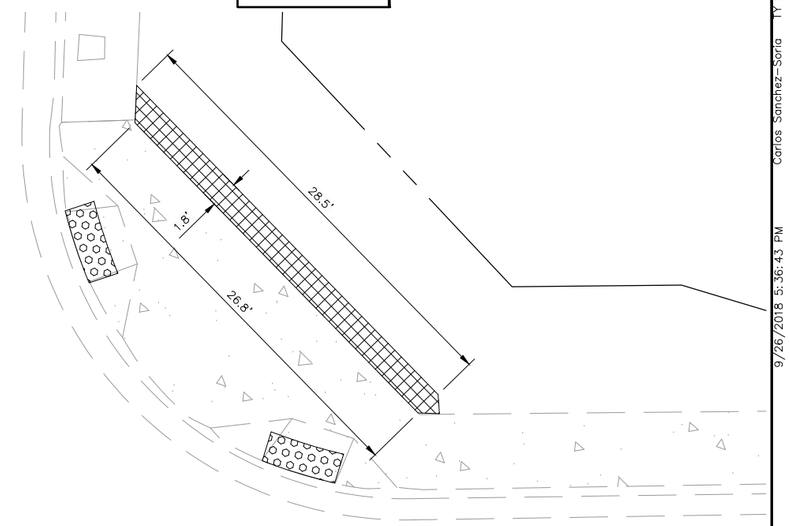
NO.	DESCRIPTION	REV BY	CKD BY	DATE



BUCKEYE ROAD SIDEWA□K RAMP DETAI□ □WEST□

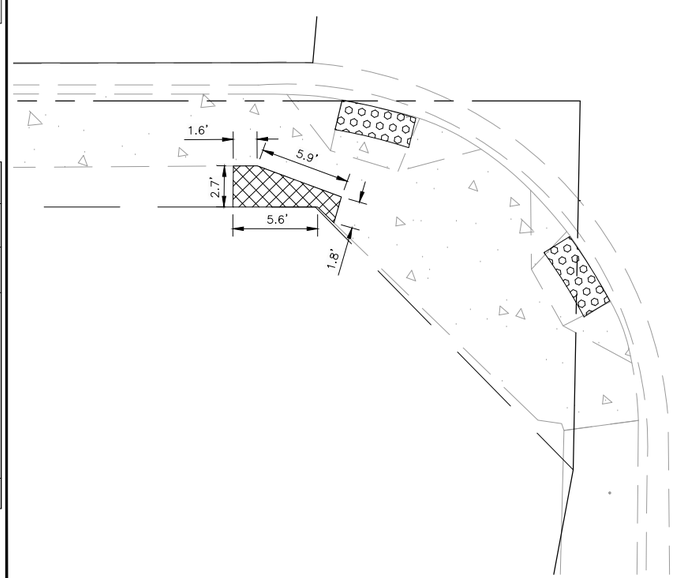
SEE SHEET 23

SCALE: 1"=5' H
1"=5' V



REVISION BY CITY OF PHOENIX

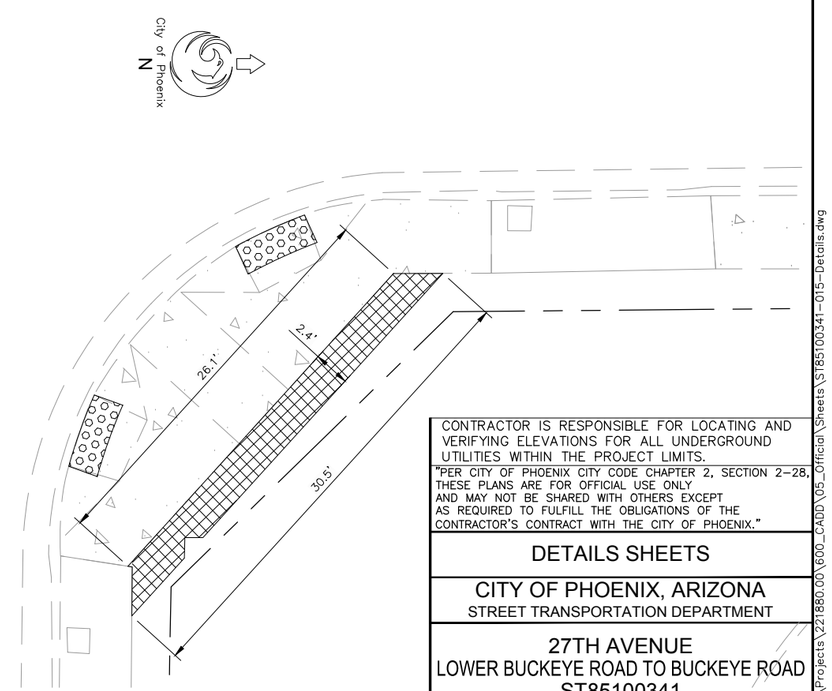
NO.	DESCRIPTION	REV BY	CKD BY	DATE



BUCKEYE ROAD SIDEWA□K RAMP DETAI□ □EAST□

SEE SHEET 23

SCALE: 1"=5' H
1"=5' V



REVISION BY CITY OF PHOENIX

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DETAILS SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			11A	63	.

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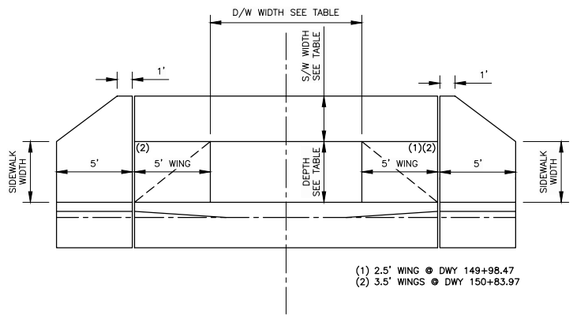
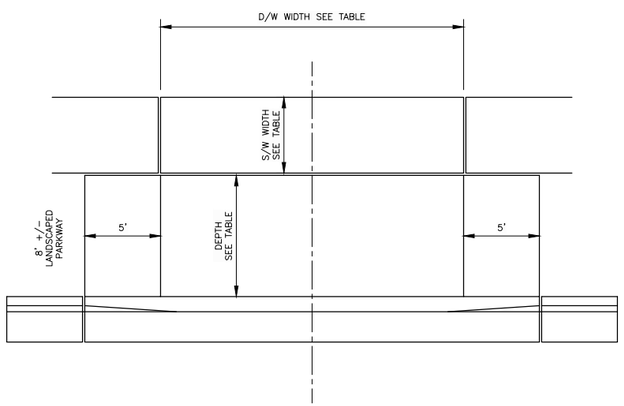
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD



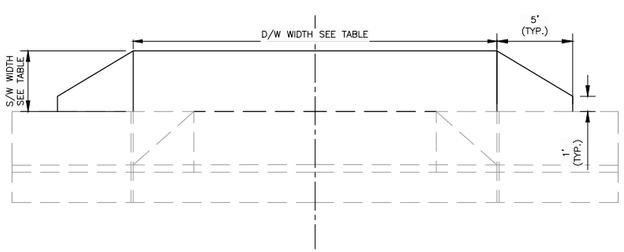
ATTAC□ED SIDEWA□K DRIVEWAY

SEE COP DET NO P1255–1
FOR ADDITIONAL INFORMATION



DETAC□ED SIDEWA□K DRIVEWAY

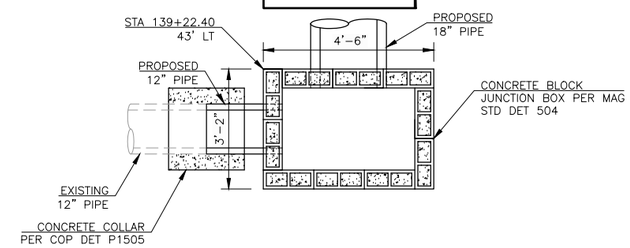
SEE COP DET NO P1255–2
FOR ADDITIONAL INFORMATION

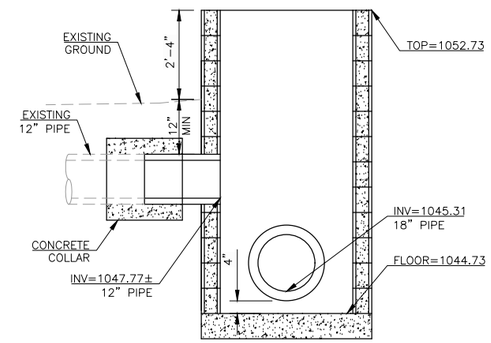


ADA RETRO□IT DRIVEWAY

SEE COP DET NO P1255–3
FOR ADDITIONAL INFORMATION

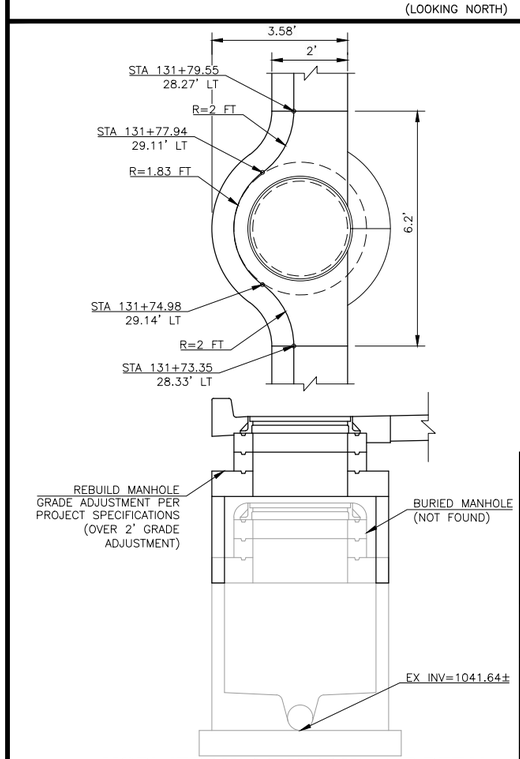
	STATION		TYPE	DRIVEWAY WIDTH	DEPTH	SIDEWALK WIDTH
	LT	RT				
LOWER BUCKEYE ROAD						
1		109+73.00	RETURN TYPE	50'	13'	6'
ESTERBROOKS BLVD						
2	119+67.50		ATTACHED SIDEWALK	40'	6'	4'
DURANGO STREET						
3	127+39.00		ATTACHED SIDEWALK	16'	4'	4'
4	128+49.97		ATTACHED SIDEWALK	40'	4'	4'
5		128+89.59	ATTACHED SIDEWALK	50'	4'	3'
6	129+45.45		DETACHED SIDEWALK	16'	4'	4'
7	130+00.01		DETACHED SIDEWALK	30'	8'	5'
8	130+88.03		DETACHED SIDEWALK	30'	8'	5'
9	131+49.65		DETACHED SIDEWALK	30'	8'	5'
10		131+50.12	ATTACHED SIDEWALK	20'	4'	3'
11		132+19.44	ATTACHED SIDEWALK	30'	4'	3'
12	132+59.06		ATTACHED SIDEWALK	20'	4'	3'
13	133+69.21		ATTACHED SIDEWALK	20'	6'	4'
14	134+19.10		DETACHED SIDEWALK	24'	6'	4'
15	134+67.09		ATTACHED SIDEWALK	20'	6'	4'
16	135+83.50		ATTACHED SIDEWALK	30'	6'	4'
17		135+91.50	ATTACHED SIDEWALK	20'	6'	4'
18	136+59.00		ATTACHED SIDEWALK	20'	6'	4'
19		136+69.50	ATTACHED SIDEWALK	20'	6'	4'
20	137+29.50		ATTACHED SIDEWALK	24'	6'	4'
21		138+69.50	ATTACHED SIDEWALK	30'	6'	4'
22	138+96.04		DETACHED SIDEWALK	21'	6'	6'
PIMA STREET						
23	141+67.42		ATTACHED SIDEWALK	25'	6'	4'
24	144+28.00		ATTACHED SIDEWALK	25'	7.5'	4'
25		144+30.00	ATTACHED SIDEWALK	55'	6'	4'
26	144+93.50		ATTACHED SIDEWALK	20'	4'	3'
YUMA STREET						
27		146+04.44	ADA RETROFIT	29.5'	5'	4'
28		147+19.00	ATTACHED SIDEWALK	20'	6'	4'
29		148+72.50	ATTACHED SIDEWALK	30'	4'	3'
30		149+70.00	ATTACHED SIDEWALK	20'	4'	3'
31	149+98.48		ATTACHED SIDEWALK	20'	4'	3'
32		150+63.73	ATTACHED SIDEWALK	33.5'	4'	3'
33	151+04.74		ATTACHED SIDEWALK	70'	4'	3'
BUCKEYE ROAD						





CONCRETE B□OCK □UNCTION BO□

SEE SHEET 21
(LOOKING NORTH)



MODI□IED CURB AND GUTTER DETAI□

SEE SHEET 19

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.
"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

DETAILS SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: N.T.S.			12	63	.

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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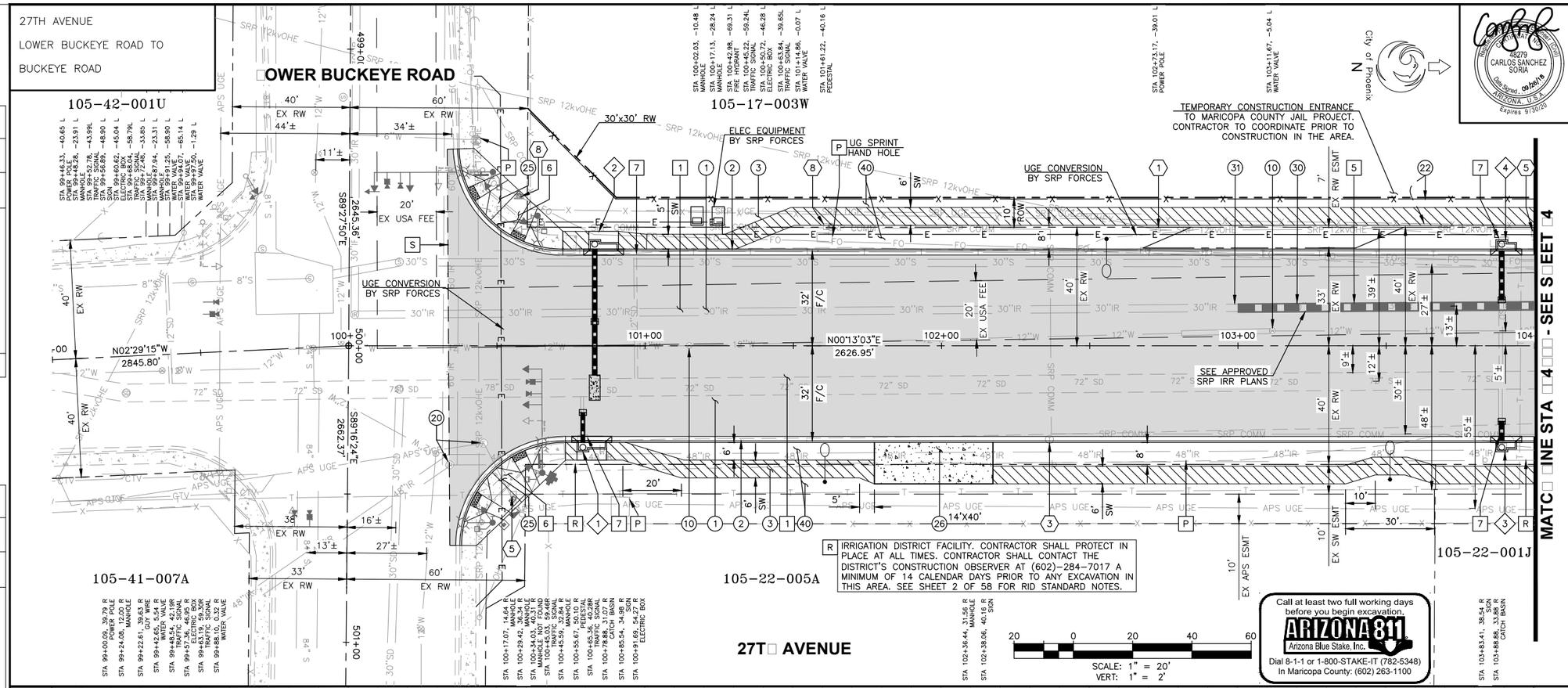
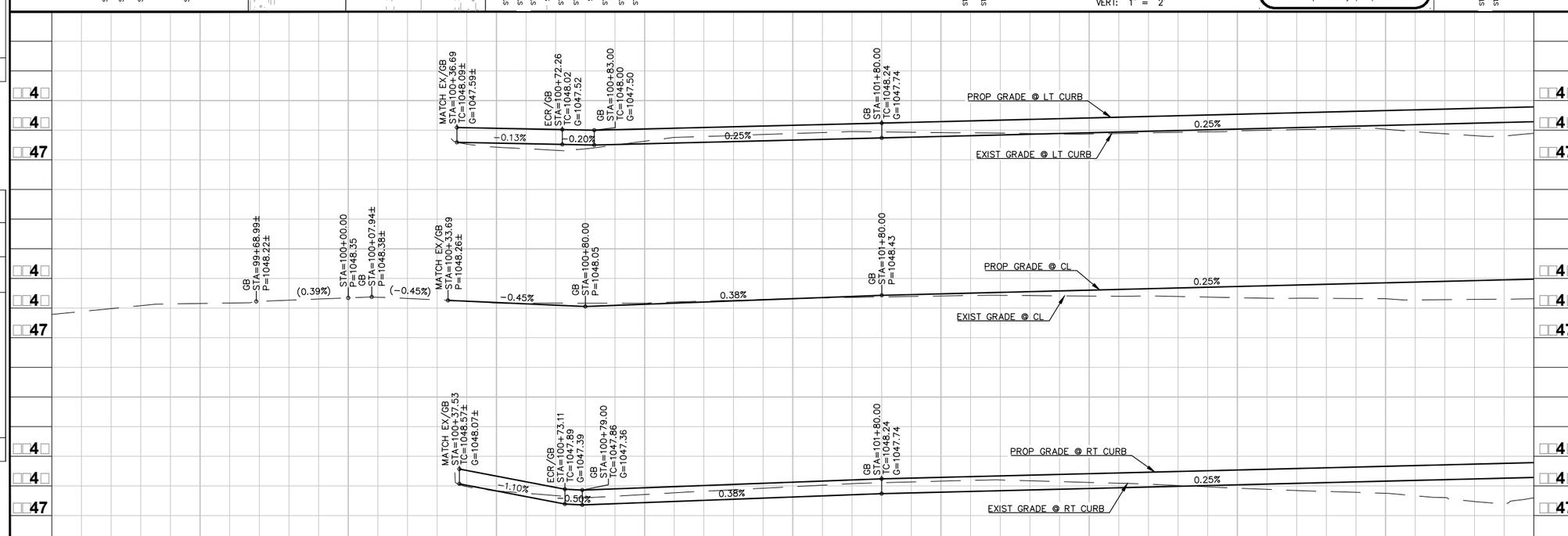
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD





F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M MATCH EXISTING
P PROTECT IN PLACE
S SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
1	12KV POWER POLE BY SRP FORCES	EA	1
3	SRP MANHOLE BY SRP FORCES	EA	1
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	2
8	FO BOX, UTILITY MARKER TO BE RELOCATED BY SPRINT FORCES	EA	2

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 100+33 TO 104+00)	SY	3,014
5	EXISTING PIPE, BACKFILL & COMPACT (103+00 TO 104+00)	LF	100
6	EXISTING CONCRETE SIDEWALK RAMP (STA 100+37 TO 100+76)	SF	599
7	EXISTING CATCH BASIN, BACKFILL & COMPACT (STA 100+78 RT, 103+89 LT & RT)	EA	4

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	2,571
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	719
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	3,566
7	CONCRETE SIDEWALK RAMP PER COP STD DET P1237	SF	925
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	2
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	2
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	350
25	CONCRETE SIDEWALK RAMP PER COP STD DET P1236	SF	926
26	BUS SHELTER CONCRETE PAD PER COP STD DET P1258 & P1260	SF	560
30	30" RGRCP CLASS V PER SRP PLANS	LF	100
31	CONCRETE PIPE COLLAR PER SRP STD. DWG. WES-SPIPECLR	EA	1
40	DECOMPOSED GRANITE, $\frac{3}{8}$" MINUS, STABILIZED, 2" THICK	SF	8,507

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
1	100+79, 32' RT	M-1 L=6' P1569-1	COP STD DET P1505	12" X 11' RGRCP CL IV
2	100+83, 32' LT	M-1 L=6' P1569-1	COP STD DET P1577	15" X 44.0' RGRCP CL IV
3	103+89, 32' RT	M-1 L=3' P1569-1	COP STD DET P1505	15" X 6.5' RGRCP CL IV
4	103+89, 32' LT	M-1 L=3' P1569-1	COP STD DET P1505	15" X 17' RGRCP CL IV

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	13	63	.
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL					

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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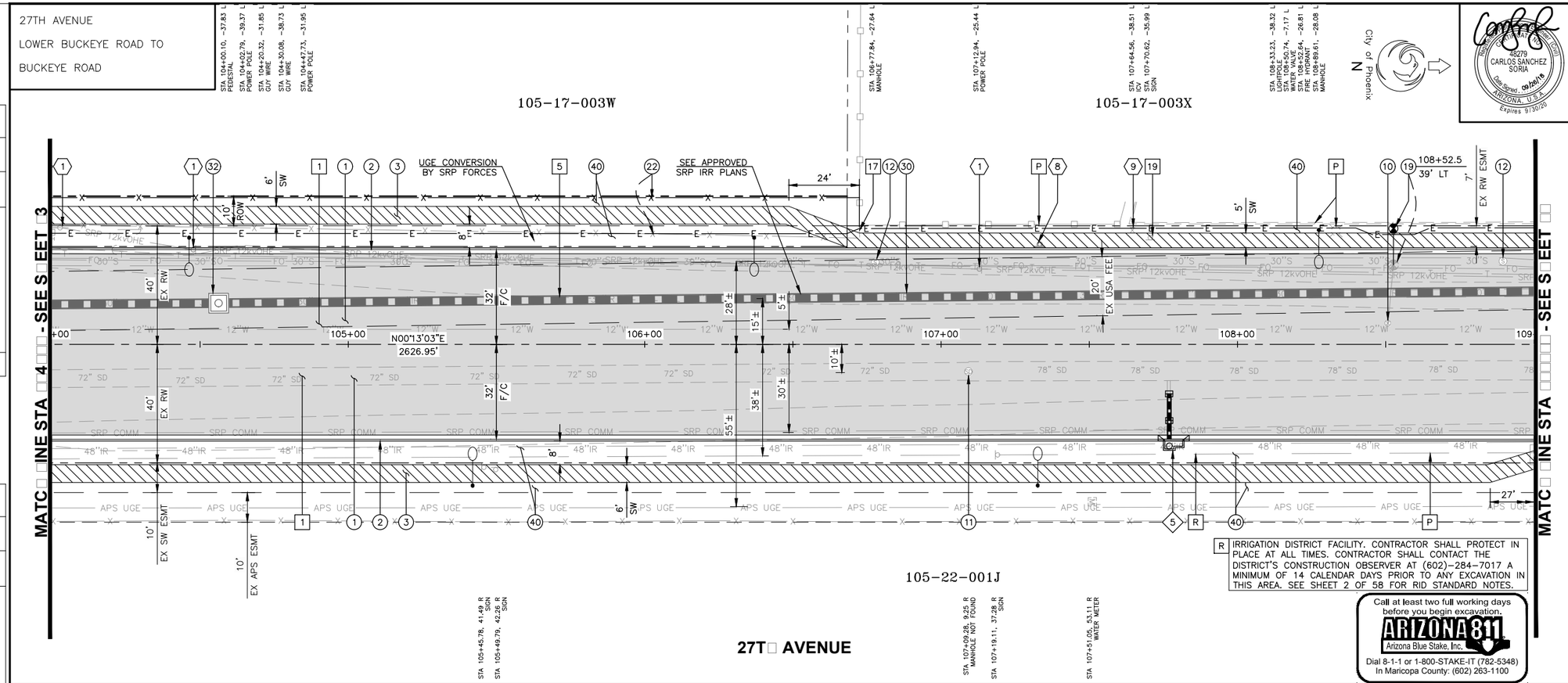
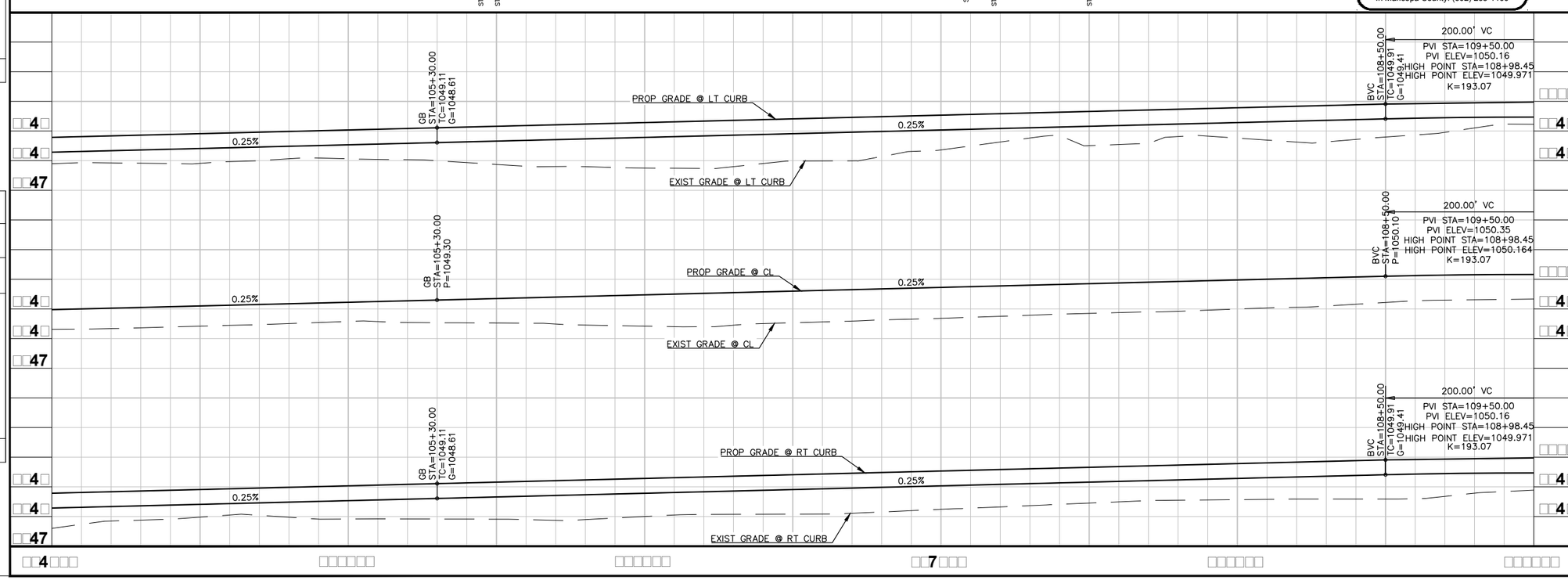
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD





F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
1	12KV POWER POLE BY SRP FORCES	EA	3
8	FO BOX, UTILITY MARKER TO BE RELOCATED BY SPRINT FORCES	EA	1
9	IRRIGATION CONTROL VALVE TO BE RELOCATED BY PROPERTY OWNER	EA	1

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 104+00 TO 109+00)	SY	3,176
5	EXISTING PIPE, BACKFILL & COMPACT (STA 104+00 TO 109+00)	LF	500
17	REMOVE AND RELOCATE EXISTING WROUGHT IRON MAN GATE (STA 106+70)	EA	1
19	REMOVE AND RELOCATE PRIVATE SIGN (INCLUDING POST). REMOVE FOUNDATION AND BACKFILL. NEW FOUNDATION REQUIRED.	EA	1

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,398
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	990
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	5,785
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	1
11	ADJUST STORM DRAIN MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	2
19	NEW FIRE HYDRANT PER COP STD DET P1360. REMOVE,SALVAGE & DELIVER TO CITY OF PHOENIX YARD ALL EXISTING FIRE HYDRANT ASSEMBLIES.	EA	1
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	273
30	30" RGRCP CLASS V PER SRP PLANS	LF	500
31	CONCRETE PIPE COLLAR PER SRP STD. DWG. WES-SPIPECLR	EA	1
32	IRRIGATION MANHOLE PER SRP PLANS	EA	1
40	DECOMPOSED GRANITE, $\frac{3}{8}$" MINUS, STABILIZED, 2" THICK	SF	9,340

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
5	107+77, 32' RT	M-1 L=3' P1569-1	COP STD DET P1505	12" X 9' RGRCP CL IV

20 0 20 40 60

SCALE: 1" = 20'
VERT: 1" = 2'

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			14	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

Carlos Sanchez-Soria TY Lin Half Scale.ctb

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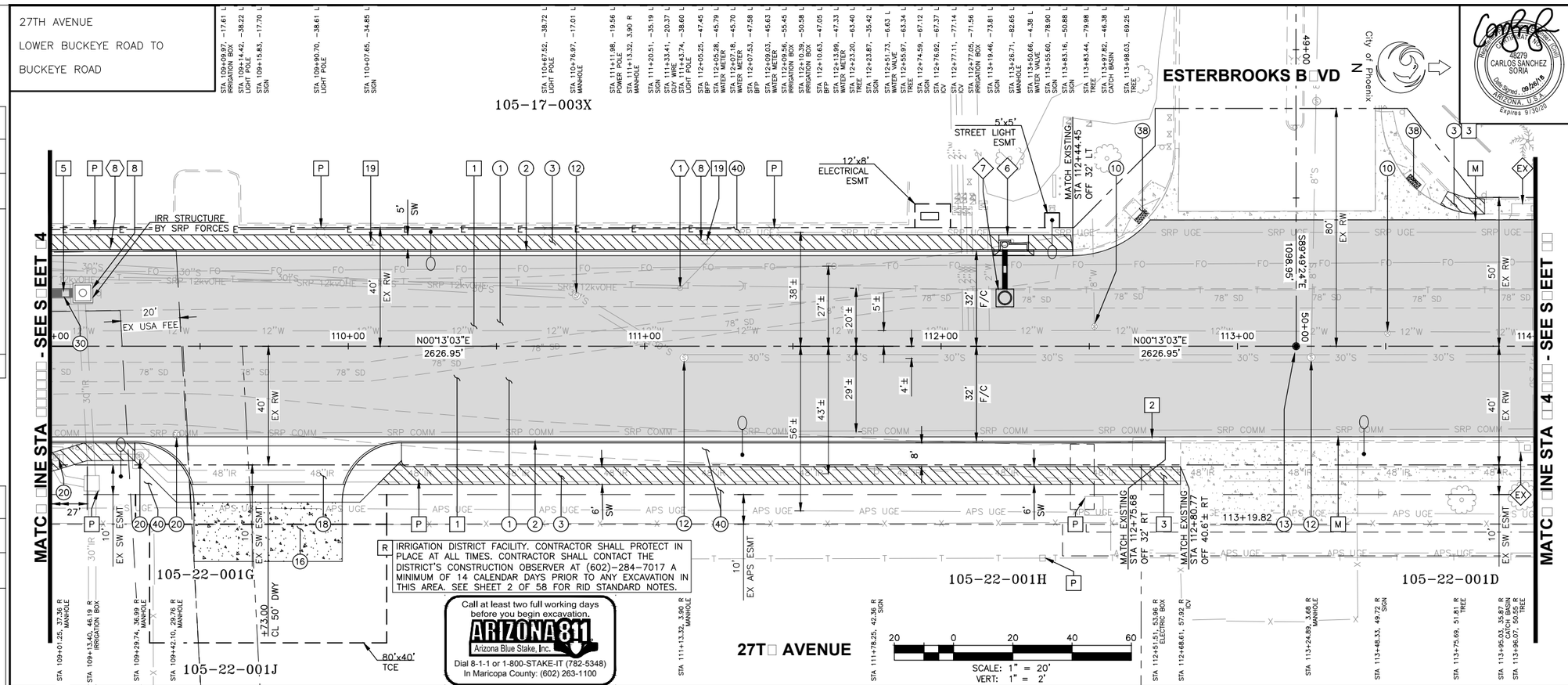
27TH AVENUE

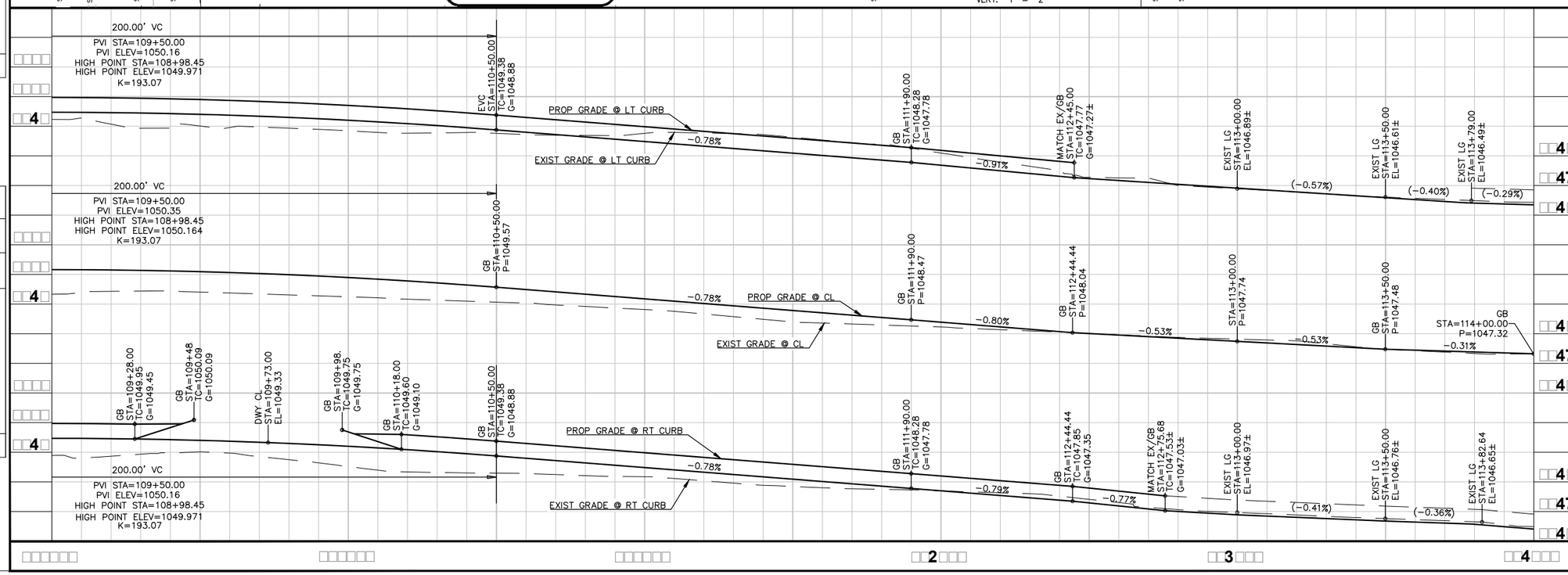
LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



IRRIGATION DISTRICT FACILITY. CONTRACTOR SHALL PROTECT IN PLACE AT ALL TIMES. CONTRACTOR SHALL CONTACT THE DISTRICT'S CONSTRUCTION OBSERVER AT (602)-284-7017 A MINIMUM OF 14 CALENDAR DAYS PRIOR TO ANY EXCAVATION IN THIS AREA. SEE SHEET 2 OF 58 FOR RID STANDARD NOTES.

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

CARLOS SANCHEZ SORIA 48279 — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
1	12KV POWER POLE BY SRP FORCES	EA	1
8	FO BOX, UTILITY MARKER TO BE RELOCATED BY SPRINT FORCES	EA	2

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 109+00 TO 114+00)	SY	3,617
2	EXISTING CONCRETE CURB & GUTTER (STA 112+65 TO 112+75)	LF	11
3	EXISTING CONCRETE SIDEWALK (STA 113+70 TO 113+83, 112+70 TO 112+81)	SF	122
5	EXISTING PIPE, BACKFILL & COMPACT (STA 109+00 TO 109+10)	LF	10
8	EXISTING IRRIGATION MANHOLE, BACKFILL & COMPACT (STA 109+00 & 109+30)	EA	1
19	REMOVE AND RELOCATE PRIVATE SIGN (INCLUDING POST). REMOVE FOUNDATION AND BACKFILL. NEW FOUNDATION REQUIRED.	EA	2

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,581
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	617
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	3,531
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	2
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	3
13	SURVEY MARKER PER MAG STD DET 120-1, TYPE A	EA	1
16	CONCRETE DRIVEWAY CONNECTION (CLASS "A"), 9" THICK	SY	111
18	CONCRETE DRIVEWAY PER COP STD DET P1243 (9" THICK)	SF	1,784
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	3
30	30" RGRCP CLASS V PER SRP PLANS	LF	10
38	TRUNCATED DOMES PER COP STD DET P1232	SF	20
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	4,249

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
6	112+22 32' LT	M-1 L=6' P1569-1	-	15" X 12.5' RGRCP CL IV
7	112+22, 16'± LT	P1560 & MAG 423 & 522		1 EA
EX	EXISTING CATCH BASIN - PROTECT IN PLACE			

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	15	63	.

SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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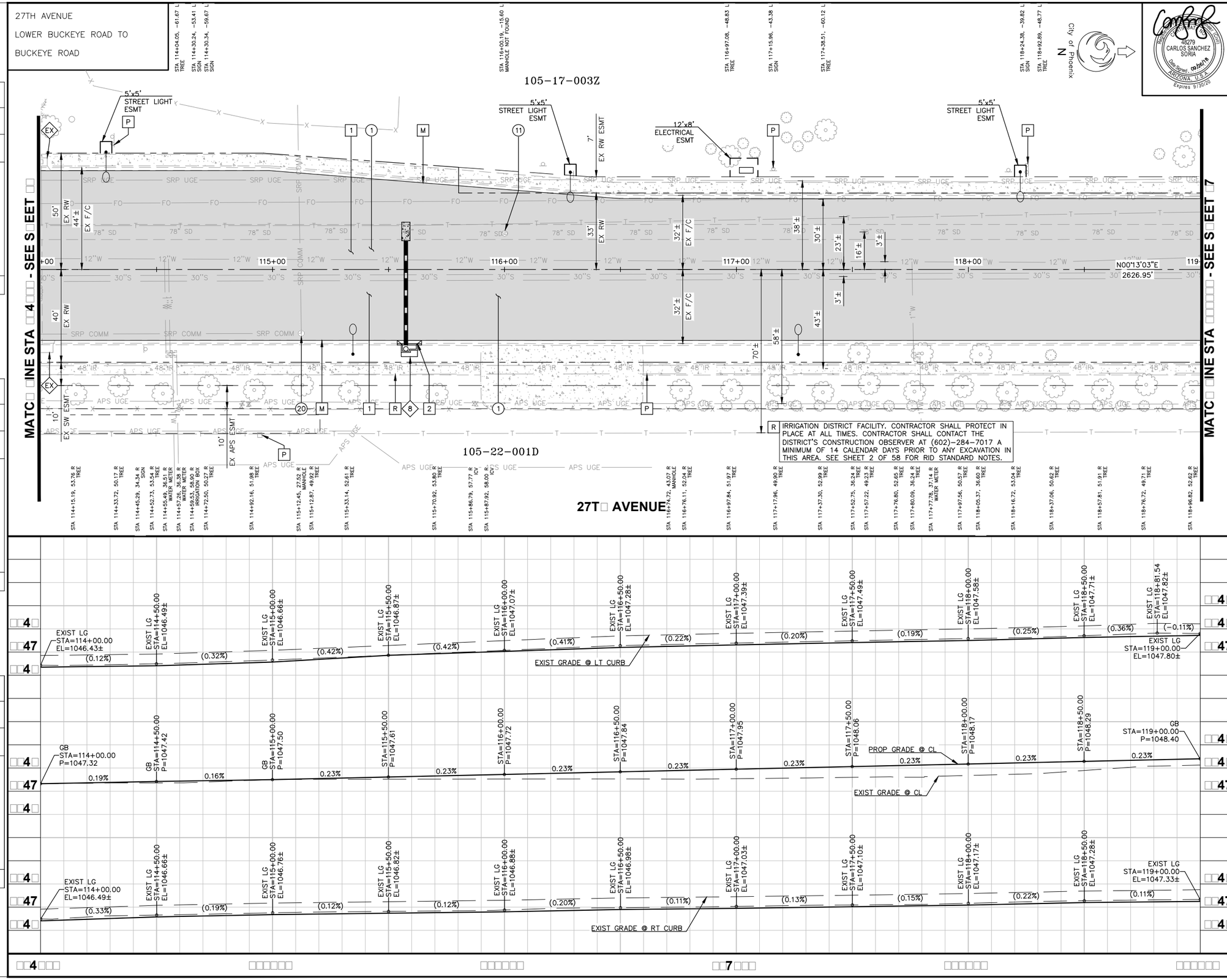
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 114+00 TO 119+00)	SY	3,632
2	EXISTING CONCRETE CURB & GUTTER (STA 115+54 TO 115+64)	LF	10

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,632
11	ADJUST STORM DRAIN MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	1

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
8	115+57, 32' RT	M-1 L=3' P1569-1	COP STD DET P1577	15" X 46.5' RGRCP CL IV

EX — EXISTING CATCH BASIN - PROTECT IN PLACE

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

20 0 20 40 60

SCALE: 1" = 20'
VERT: 1" = 2'

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			16	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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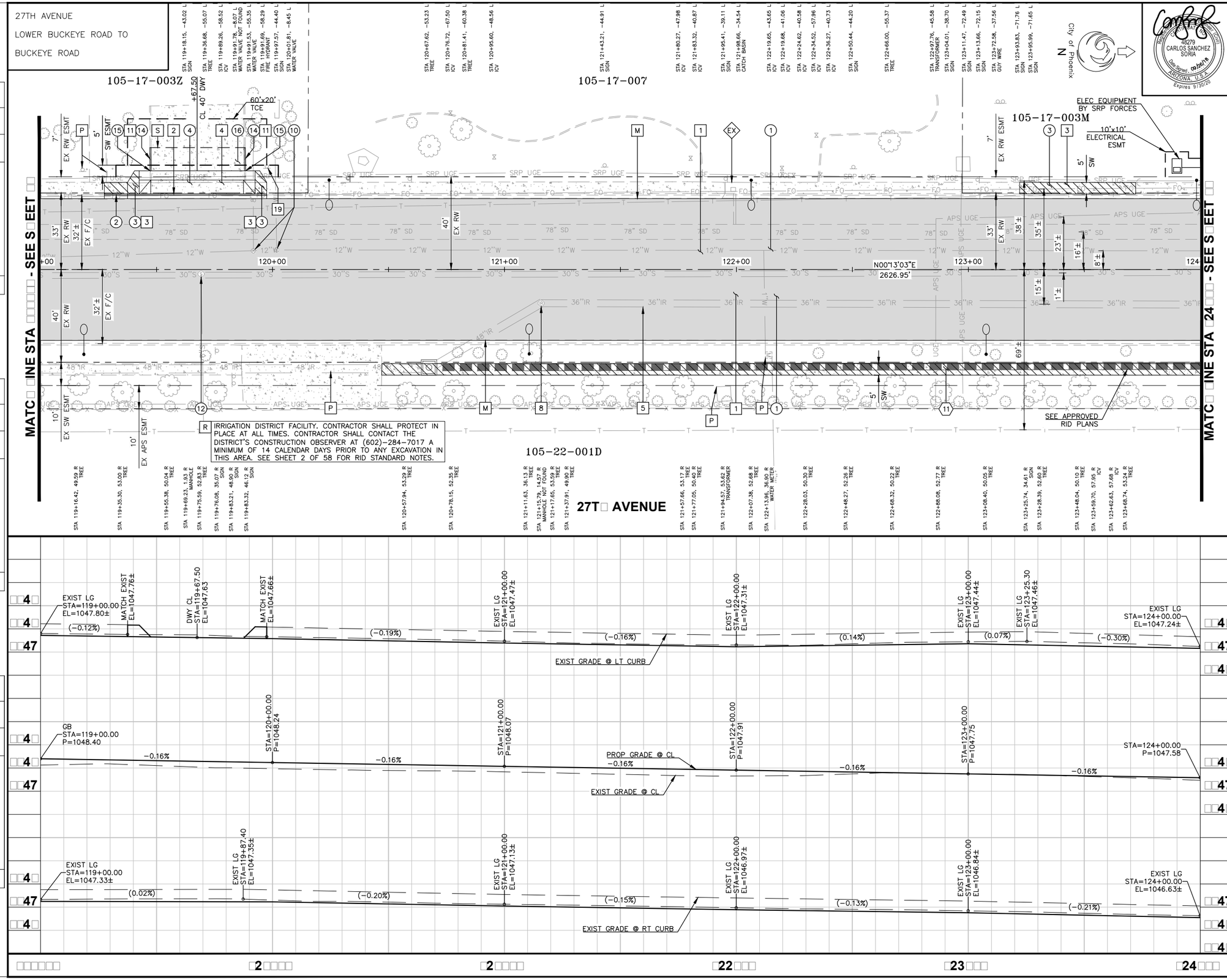
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
11	SIDEWALK REMOVAL BY RID FORCES	SF	1,720

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 119+00 TO 124+00)	SY	3,390
2	EXISTING CONCRETE CURB & GUTTER (STA 119+37 TO 119+98)	LF	70
3	EXISTING CONCRETE SIDEWALK (STA 119+37 TO 119+98)	SF	332
4	EXISTING CONCRETE DRIVEWAY (STA 119+38 TO 119+98)	SF	867
5	EXISTING PIPE, BACKFILL & COMPACT (STA 120+67 TO 124+00)	LF	333
8	EXISTING IRRIGATION MANHOLE, BACKFILL & COMPACT (STA 121+15)	EA	1
11	EXISTING CONCRETE SINGLE CURB (STA 119+47 & 119+88)	LF	30
19	REMOVE AND RELOCATE PRIVATE SIGN (INCLUDING POST). REMOVE FOUNDATION AND BACKFILL. NEW FOUNDATION REQUIRED.	EA	1

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,398
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	70
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	385
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	499
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	2
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	20
15	CURB TERMINATION PER MAG STD DET 222	EA	2
16	CONCRETE DRIVEWAY CONNECTION (CLASS "A"), 9" THICK	SY	45

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
EX	EXISTING CATCH BASIN - PROTECT IN PLACE			

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18	17	63	.

SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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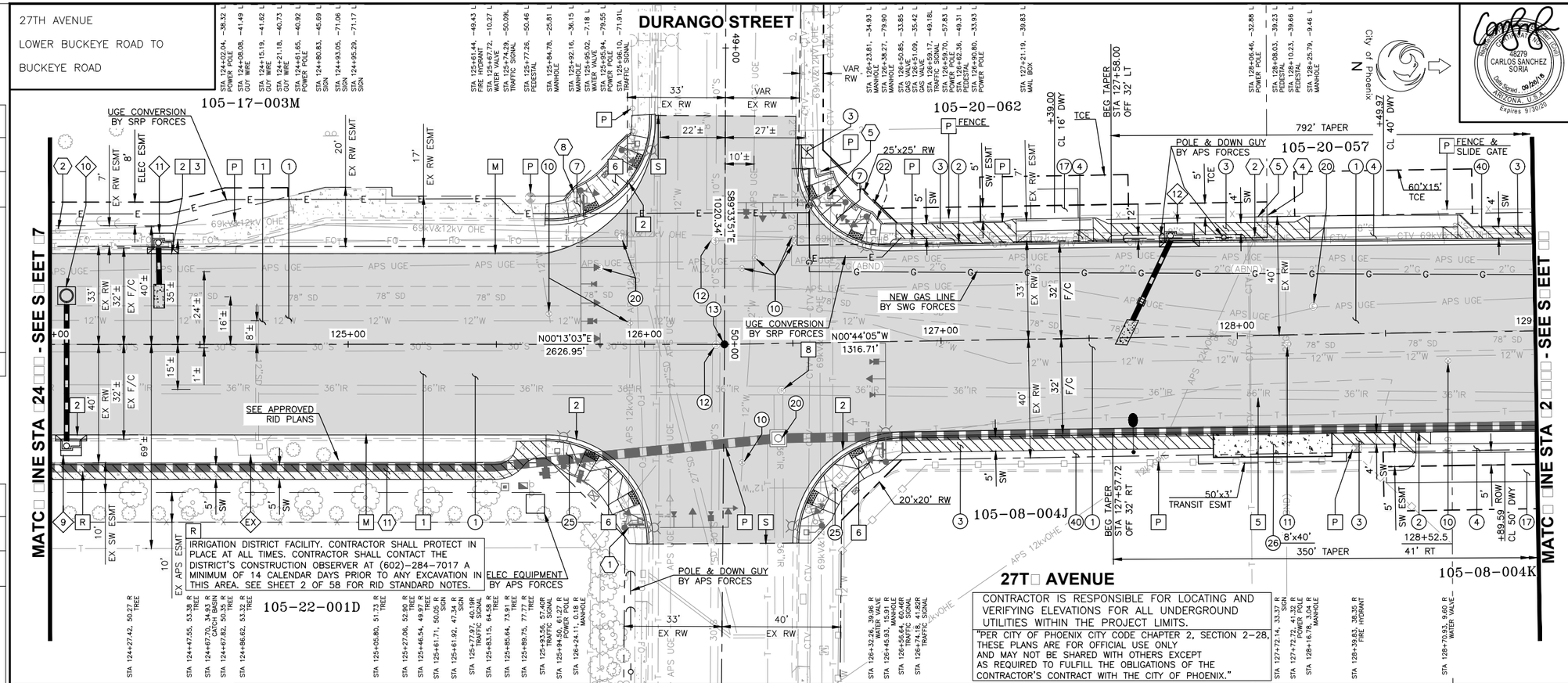
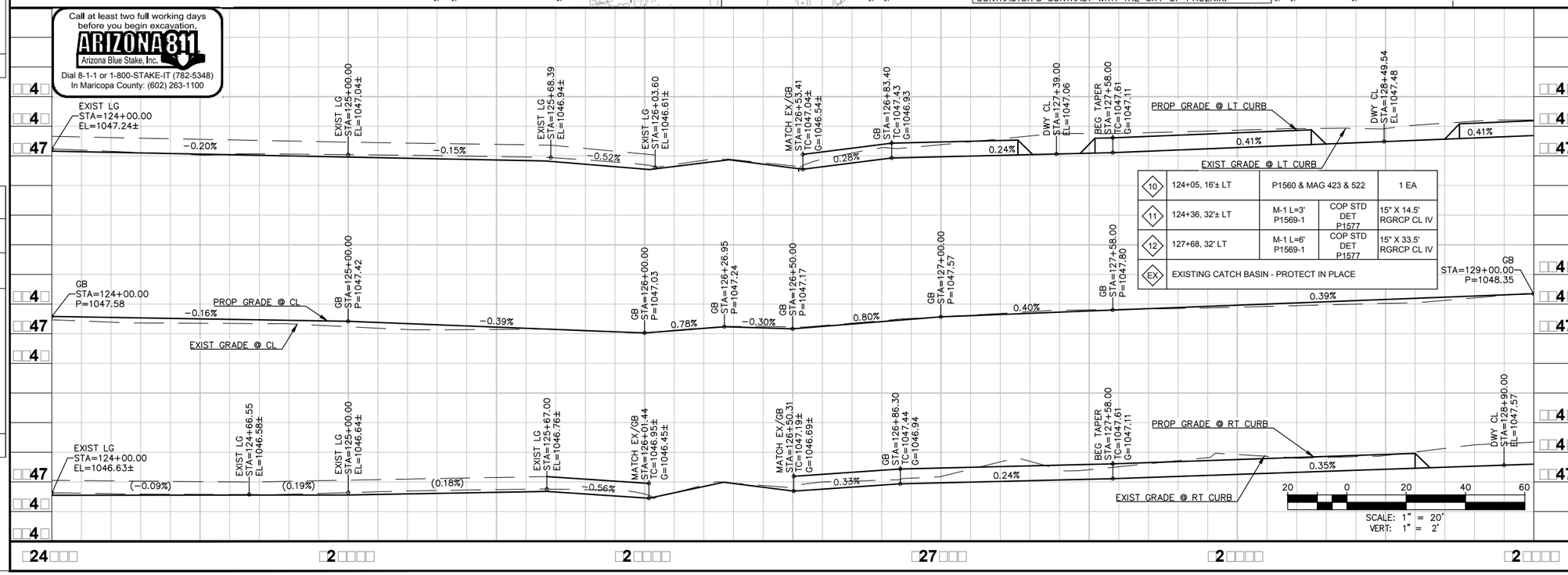
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD





10	124+05, 16'± LT	P1560 & MAG 423 & 522	1 EA
11	124+36, 32'± LT	M-1 L=3' P1569-1 / COP STD DET P1577	15" X 14.5' RGRCP CL IV
12	127+68, 32' LT	M-1 L=6' P1569-1 / COP STD DET P1577	15" X 33.5' RGRCP CL IV
EX	EXISTING CATCH BASIN - PROTECT IN PLACE		

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
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T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M MATCH EXISTING
P PROTECT IN PLACE
S SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
1	12KV POWER POLE BY APS FORCES	EA	1
2	69KV POWER POLE AND DOWN GUY BY APS FORCES	EA	2
4	CABLE TV/FO BOX, UTILITY MARKER TO BE RELOCATED BY COX FORCES	EA	1
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	2
8	FO BOX, UTILITY MARKER TO BE RELOCATED BY SPRINT FORCES	EA	1
11	SIDEWALK REMOVAL BY RID FORCES	SF	847

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 124+00 TO 129+00)	SY	4,066
2	EXISTING CONCRETE CURB & GUTTER (STA 124+01 TO 124+42, 125+65 TO 126+85)	LF	188
5	EXISTING PIPE, BACKFILL & COMPACT (STA 124+00 TO129+00)	LF	500
6	EXISTING CONCRETE SIDEWALK RAMP (STA 125+65 TO 126+02 & 126+50 TO 126+86)	SF	702
8	EXISTING IRRIGATION MANHOLE, BACKFILL & COMPACT (STA 126+45)	EA	1

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,968
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	638
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	1,391
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	891
7	CONCRETE SIDEWALK RAMP PER COP STD DET P1237 (MODIFIED). SEE SHEETS 10-11	SF	682
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	8
11	ADJUST STORM DRAIN MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	2
13	SURVEY MARKER PER MAG STD DET 120-1, TYPE A	EA	1
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	12
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	4
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	28
25	CONCRETE SIDEWALK RAMP PER COP STD DET P1236	SF	869
26	BUS SHELTER CONCRETE PAD PER COP STD DET P1258 & P1260	SF	320
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	1,502

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
9	124+05, 33' RT	M-1 L=3' P1569-1	-	15" X 44.5' RGRCP CL IV

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	18	63	.

SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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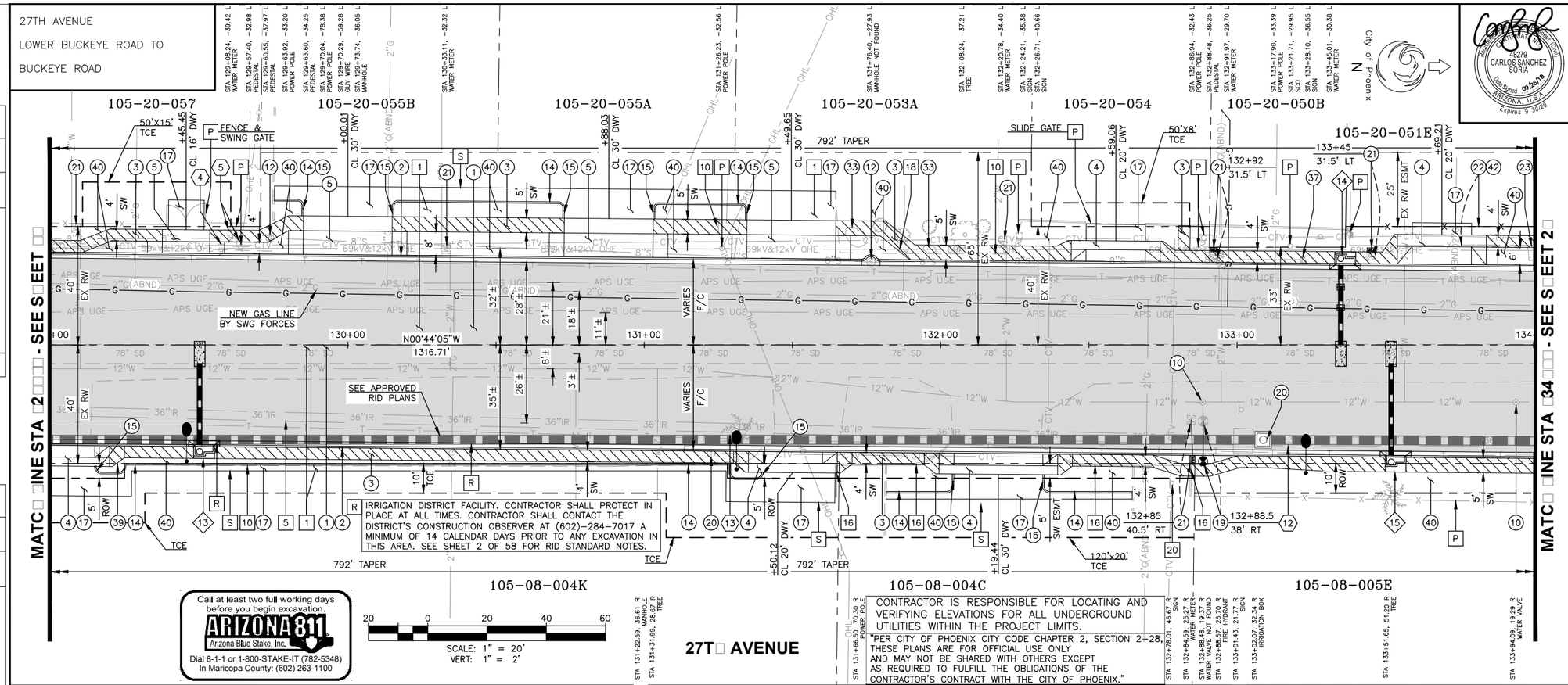
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD



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ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
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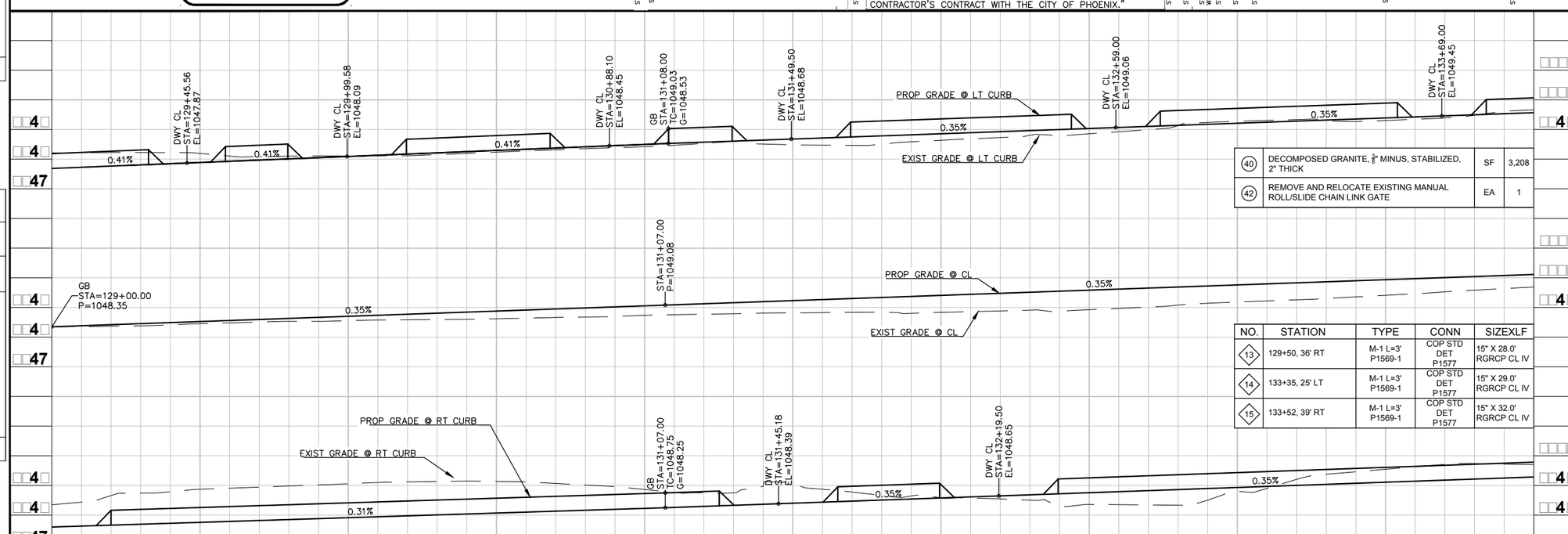
CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."



NO.	DESCRIPTION	UNIT	QTY.
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	3,208
42	REMOVE AND RELOCATE EXISTING MANUAL ROLL/SLIDE CHAIN LINK GATE	EA	1

NO.	STATION	TYPE	CONN	SIZEXLF
13	129+50, 36' RT	M-1 L=3' P1569-1	COP STD DET P1577	15" X 28.0' RGRCP CL IV
14	133+35, 25' LT	M-1 L=3' P1569-1	COP STD DET P1577	15" X 29.0' RGRCP CL IV
15	133+52, 39' RT	M-1 L=3' P1569-1	COP STD DET P1577	15" X 32.0' RGRCP CL IV

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
4	CABLE TV/FO BOX, UTILITY MARKER TO BE RELOCATED BY COX FORCES	EA	1
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	2
12	PIPE TO BE REMOVED BY RID FORCES	LF	300
13	TREE TO BE REMOVED BY RID FORCES	EA	1

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 129+00 TO 134+00)	SY	2,867
5	EXISTING PIPE, BACKFILL & COMPACT (STA 129+00 TO 134+00)	LF	200
10	EXISTING CONCRETE SAFETY CURB (STA 132+17 TO 132+23)	LF	235
16	REMOVE EXISTING BLOCK WALL AND FOOTING (STA 131+65 TO 132+85)	LF	113
18	REMOVE EXISTING POST AND FOUNDATION (STA 131+85)	EA	1
20	REMOVE AND SALVAGE EXISTING OVERHEAD SIGN STRUCTURE.	EA	1

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,398
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	970
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	3,290
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	1,137
5	CONCRETE DRIVEWAY PER COP STD DET P1255-2 (9" THICK)	SF	1,579
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	2
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	2
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	420
15	CURB TERMINATION PER MAG STD DET 222	EA	9
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	62
19	NEW FIRE HYDRANT PER COP STD DET P1360. REMOVE,SALVAGE & DELIVER TO CITY OF PHOENIX YARD ALL EXISTING FIRE HYDRANT ASSEMBLIES.	EA	1
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	2
21	RELOCATE WATER METER BOX PER COP STD DET P1342 & P1363	EA	6
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	62
23	REMOVE AND RELOCATE EXISTING MAIL BOX	EA	1
33	REMOVE & RELOCATE EXISTING BOULDERS	EA	2
37	ADJUST EXISTING SEWER CLEANOUT PER COP STD DET P1270	EA	1
39	REMOVE AND RELOCATE EXISTING STEEL PIPE SWING GATE GATE	EA	1

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			19	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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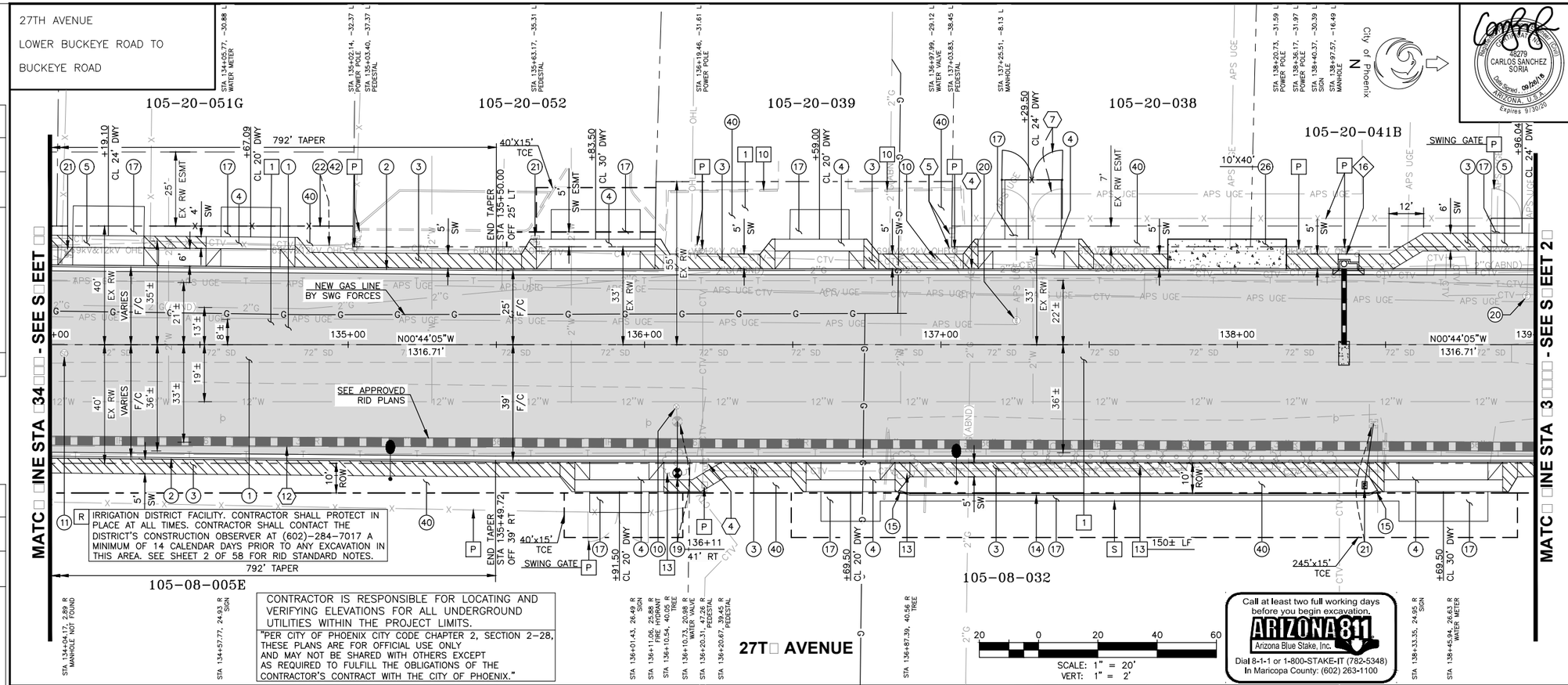
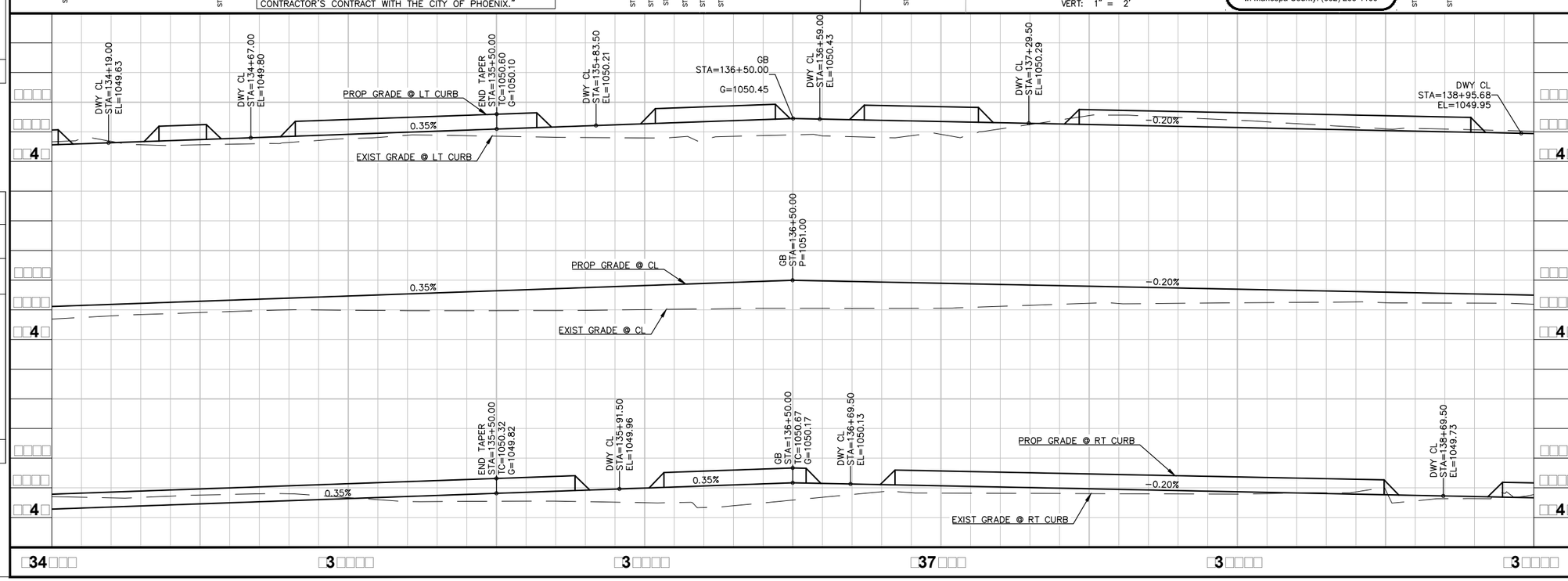
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD





F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
4	CABLE TV/FO BOX, UTILITY MARKER TO BE RELOCATED BY COX FORCES	EA	2
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	2
7	FENCE AND GATE TO BE REMOVED AND RELOCATED BY APS FORCES	EA	1
12	PIPE TO BE REMOVED BY RID FORCES	LF	500

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 134+00 TO 139+00)	SY	3,064
10	EXISTING CONCRETE SAFETY CURB (STA 136+10 TO 137+10)	LF	48
13	REMOVE EXISTING TREE, BACKFILL & COMPACT (STA 136+11)	EA	12

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,398
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	990
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	3,594
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	2,340
5	CONCRETE DRIVEWAY PER COP STD DET P1255-2 (9" THICK)	SF	504
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	2
11	ADJUST STORM DRAIN MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	162
15	CURB TERMINATION PER MAG STD DET 222	EA	2
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	41
19	NEW FIRE HYDRANT PER COP STD DET P1360. REMOVE,SALVAGE & DELIVER TO CITY OF PHOENIX YARD ALL EXISTING FIRE HYDRANT ASSEMBLIES.	EA	1
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	2
21	RELOCATE WATER METER BOX PER COP STD DET P1342 & P1363	EA	3
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	68
26	BUS SHELTER CONCRETE PAD PER COP STD DET P1258 & P1260	SF	400
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	4,680
42	REMOVE AND RELOCATE EXISTING MANUAL ROLL/SLIDE CHAIN LINK GATE	EA	1

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
16	138+36, 25' LT	M-1 L=3' P1569-1	COP STD DET P1577	15" X 26.0' RGRCP CL IV

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	20	63	.
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL					

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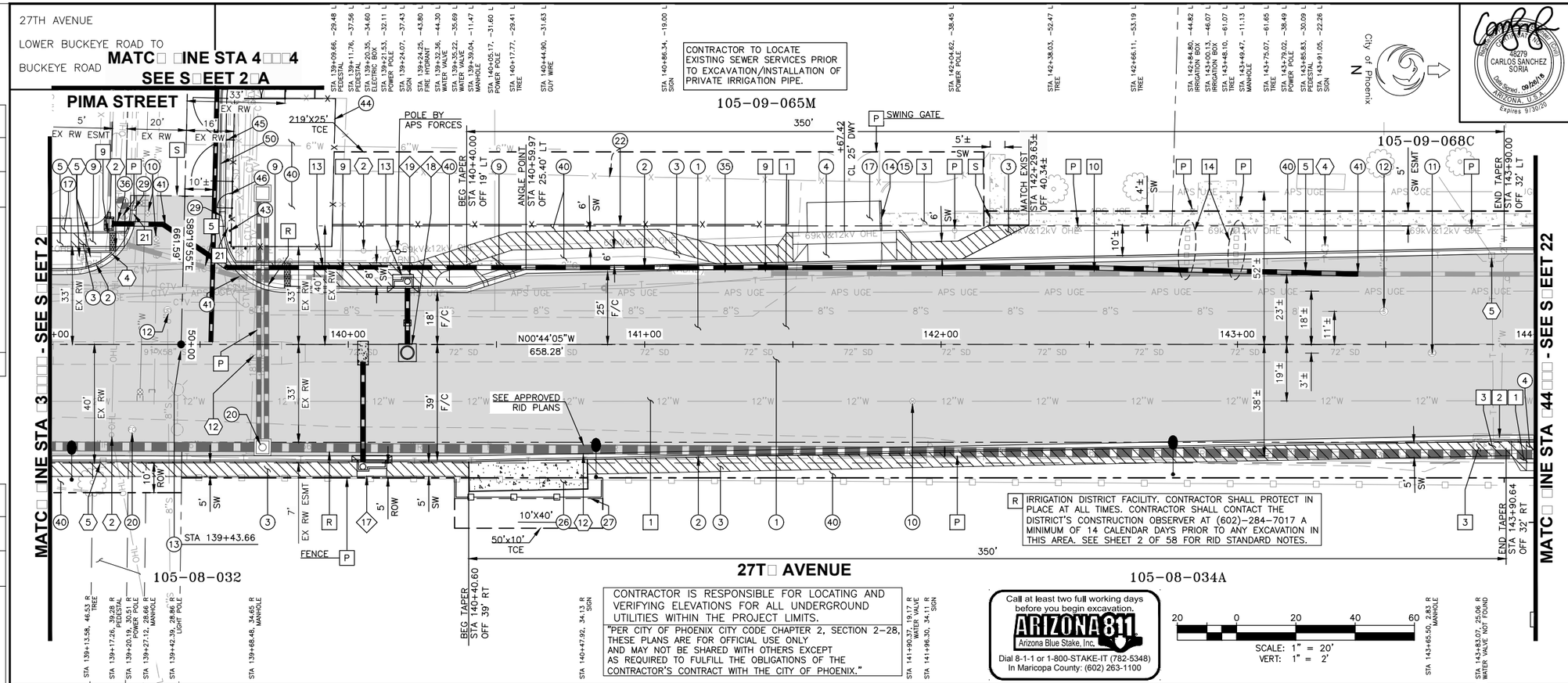

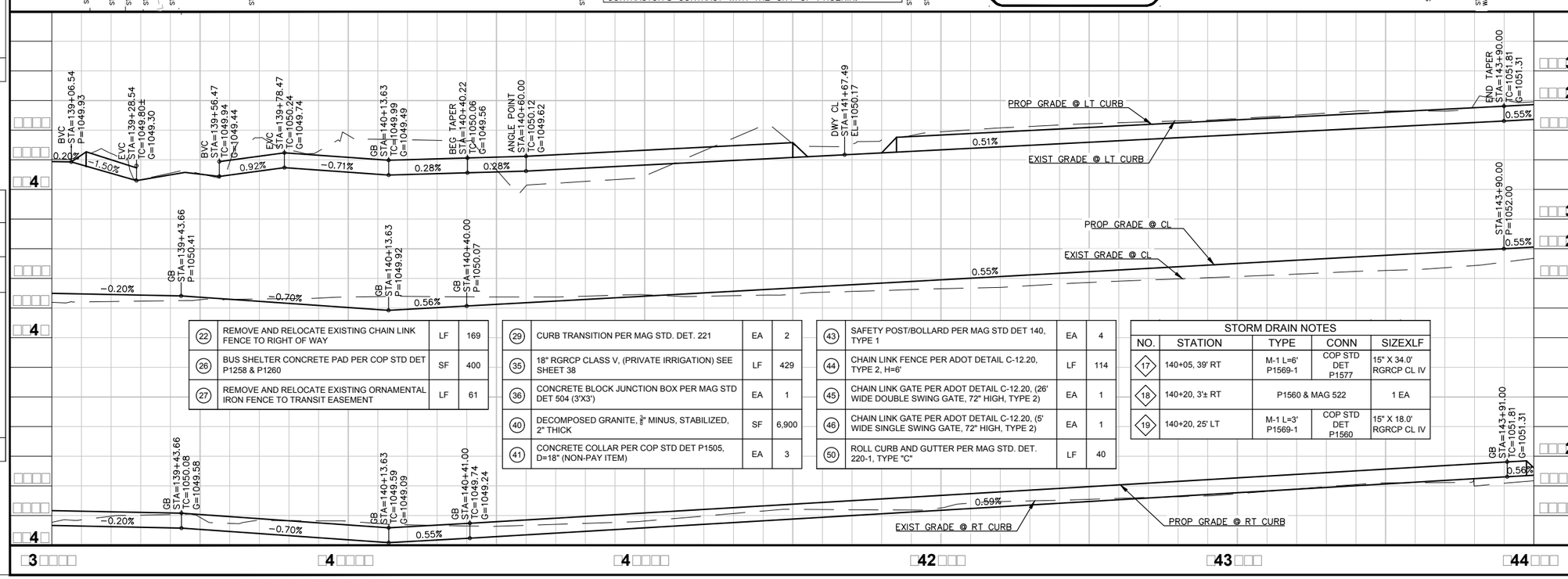

NO.	DESCRIPTION	UNIT	QTY.
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	169
26	BUS SHELTER CONCRETE PAD PER COP STD DET P1258 & P1260	SF	400
27	REMOVE AND RELOCATE EXISTING ORNAMENTAL IRON FENCE TO TRANSIT EASEMENT	LF	61

NO.	DESCRIPTION	UNIT	QTY.
29	CURB TRANSITION PER MAG STD. DET. 221	EA	2
35	18" RGRCP CLASS V, (PRIVATE IRRIGATION) SEE SHEET 38	LF	429
36	CONCRETE BLOCK JUNCTION BOX PER MAG STD DET 504 (3'X3')	EA	1
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	6,900
41	CONCRETE COLLAR PER COP STD DET P1505, D=18" (NON-PAY ITEM)	EA	3

NO.	DESCRIPTION	UNIT	QTY.
43	SAFETY POST/BOLLARD PER MAG STD DET 140, TYPE 1	EA	4
44	CHAIN LINK FENCE PER ADOT DETAIL C-12.20, TYPE 2, H=6'	LF	114
45	CHAIN LINK GATE PER ADOT DETAIL C-12.20, (26' WIDE DOUBLE SWING GATE, 72" HIGH, TYPE 2)	EA	1
46	CHAIN LINK GATE PER ADOT DETAIL C-12.20, (5' WIDE SINGLE SWING GATE, 72" HIGH, TYPE 2)	EA	1
50	ROLL CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "C"	LF	40

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
17	140+05, 39' RT	M-1 L=6' P1569-1	COP STD DET P1577	15" X 34.0' RGRCP CL IV
18	140+20, 3'± RT	P1560 & MAG 522		1 EA
19	140+20, 25' LT	M-1 L=3' P1569-1	COP STD DET P1560	15" X 18.0' RGRCP CL IV

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
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DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M MATCH EXISTING
P PROTECT IN PLACE
S SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
2	69KV POWER POLE BY APS FORCES	EA	3
4	CABLE TV/FO BOX, UTILITY MARKER TO BE RELOCATED BY COX FORCES	EA	2
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	5
12	PIPE TO BE REMOVED BY RID FORCES	LF	583

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 139+00 TO 144+00)	SY	2,975
2	EXISTING CONCRETE CURB & GUTTER (STA 143+80 TO 144+00)	LF	20
3	EXISTING CONCRETE SIDEWALK (STA 141+80 TO142+20 & 143+80 TO 143+96)	SF	225
4	EXISTING CONCRETE DRIVEWAY (STA 143+96 TO 144+00)	SF	19
5	EXISTING PIPE, BACKFILL & COMPACT (STA 139+25 TO 143+41)	LF	272
9	EXISTING IRRIGATION HEADWALL, BACKFILL & COMPACT (STA 139+98 & 141+38)	EA	3
10	EXISTING CONCRETE SAFETY CURB (STA 141+80 TO 144+12)	LF	227
13	REMOVE EXISTING TREE, BACKFILL & COMPACT (STA 139+10, 140+20)	EA	2
14	REMOVE EXISTING CONCRETE PAVERS (STA 142+85 TO 143+00)	EA	12
21	EXISTING CONCRETE ROLLED CURB & GUTTER (STA 49+14 TO 49+60)	LF	72

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,449
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	970
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	3,603
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	375
5	CONCRETE DRIVEWAY PER COP STD DET P1255-2 (9" THICK)	SF	107
9	CONCRETE SIDEWALK RAMP PER DETAIL ON SHEETS 10-11	SF	333
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	3
11	ADJUST STORM DRAIN MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	2
13	SURVEY MARKER PER MAG STD DET 120-1, TYPE A	EA	1
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	10
15	CURB TERMINATION PER MAG STD DET 222	EA	1
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	6
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	2

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
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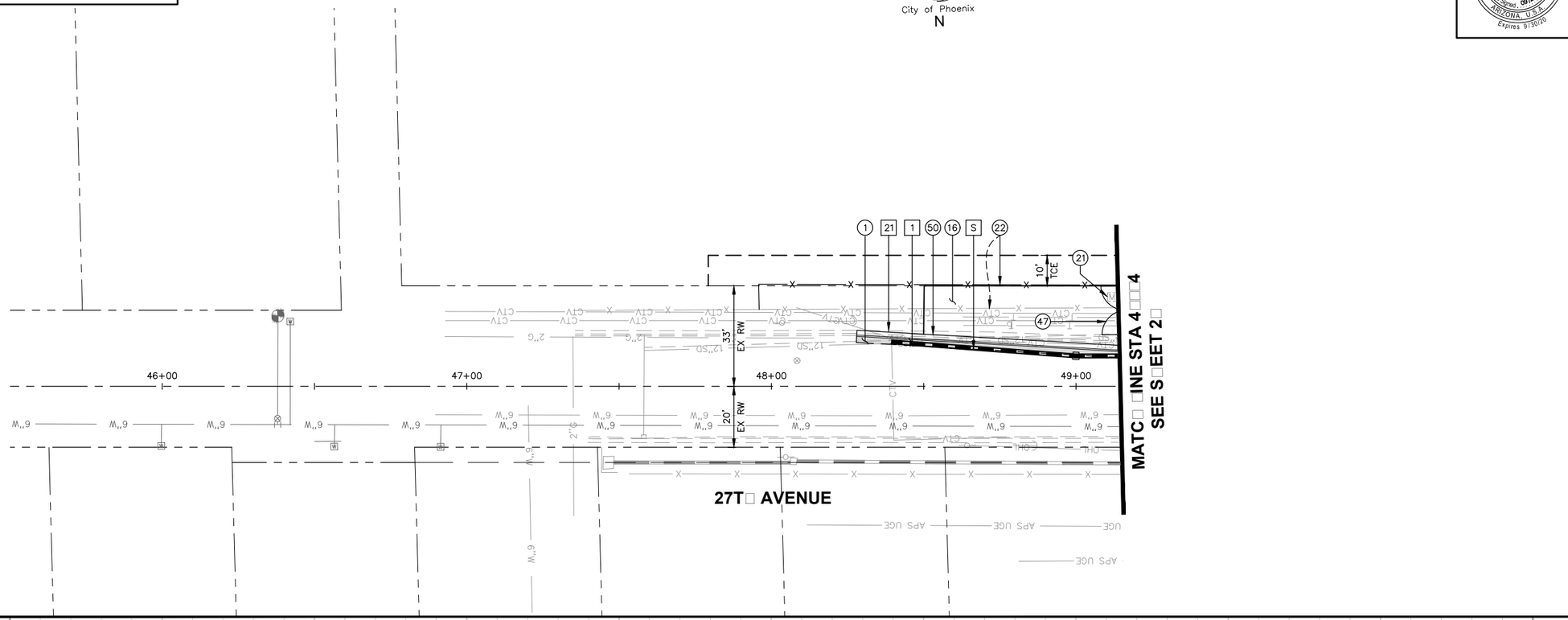
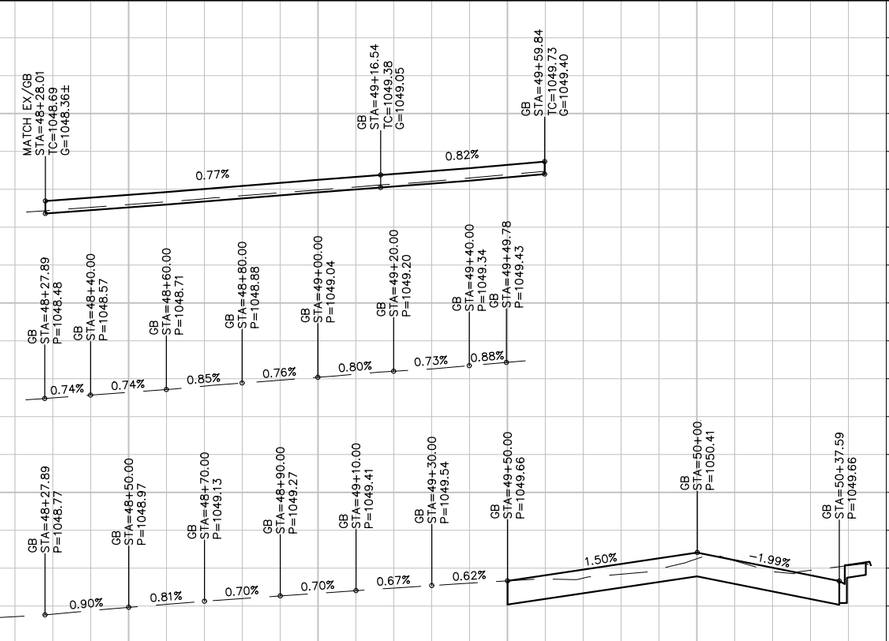
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD





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DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
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S	SAWCUT AND MATCH EXISTING

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 48+28 TO 49+14)	SY	36
21	EXISTING CONCRETE ROLL CURB & GUTTER (STA 48+28 TO 49+14)	LF	87

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	19
16	CONCRETE DRIVEWAY CONNECTION (CLASS "A"), 9" THICK	SY	131
21	RELOCATE WATER METER BOX PER COP STD DET P1342 & P1363	EA	1
22	REMOVE AND RELOCATE EXISTING CHAIN LINK FENCE TO RIGHT OF WAY	LF	127
47	CHAIN LINK GATE PER ADOT DETAIL C-12.20, (16' WIDE DOUBLE SWING GATE, 72" HIGH, TYPE 2)	EA	1
50	ROLL CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "C"	LF	87
51	12" RGRCP, CLASS IV	LF	160

Call at least two full working days before you begin excavation.
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20 0 20 40 60

SCALE: 1" = 20'
VERT: 1" = 2'

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PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
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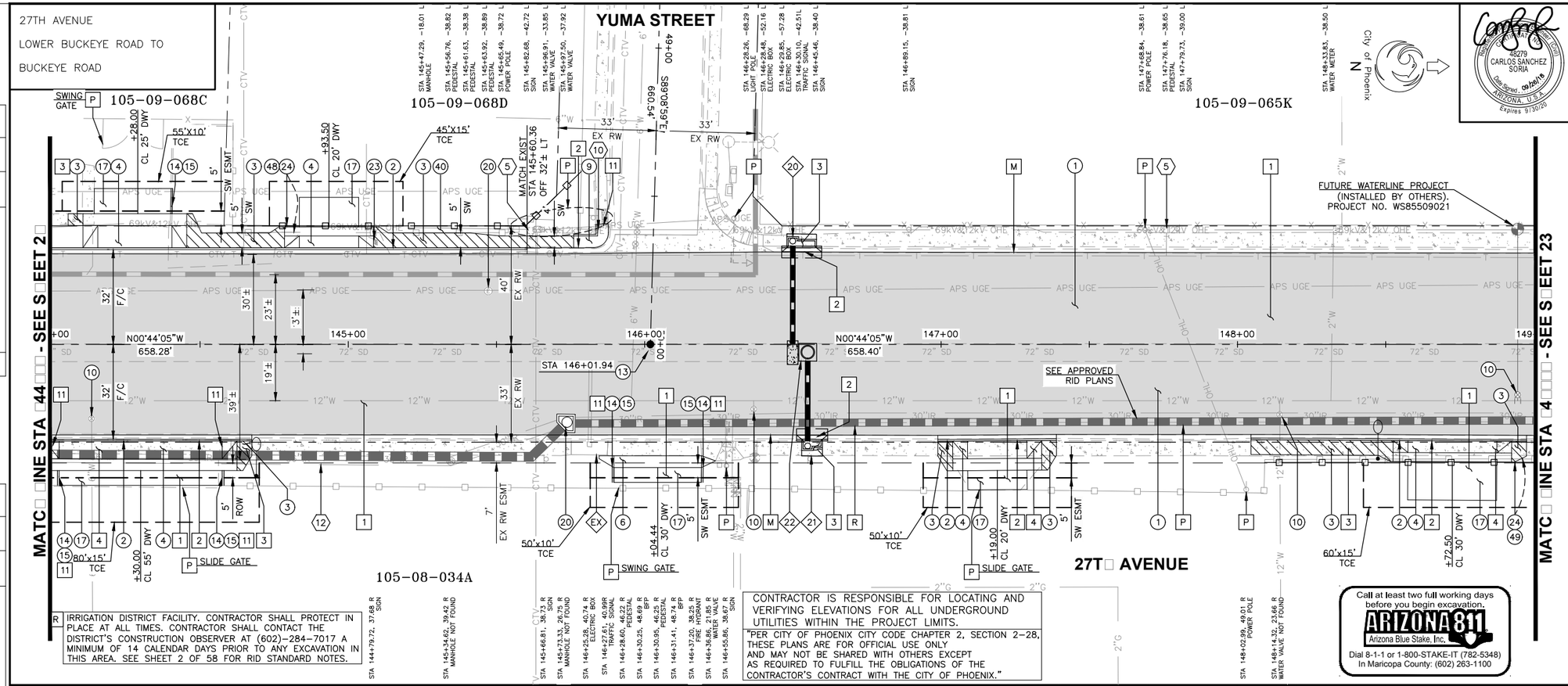
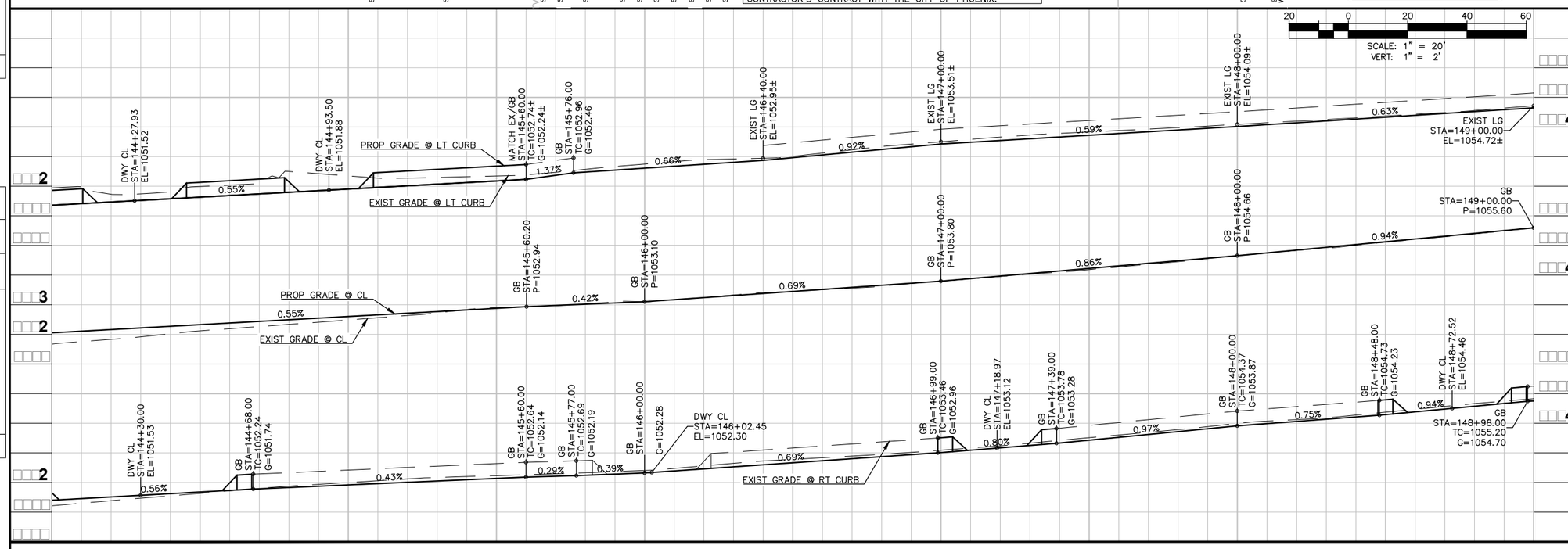
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD





F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: OG | CK: CSS | DATE: 9/18

M	MATCH EXISTING
P	PROTECT IN PLACE
S	SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
10	DOWN GUY BY APS FORCES	EA	1
12	PIPE TO BE REMOVED BY RID FORCES	LF	500

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 144+00 TO 149+00)	SY	3,679
2	EXISTING CONCRETE CURB & GUTTER (STA 144+00 TO 144+67, 146+46 TO 146+61, 146+98 TO 147+39 & 148+47 TO 148+98)	LF	258
3	EXISTING CONCRETE SIDEWALK (STA 144+06 TO 144+14, 144+62 TO 144+68 & 146+48 TO 146+60)	SF	423
4	EXISTING CONCRETE DRIVEWAY (STA 144+00 TO 144+62, 146+99 TO 147+39 & 148+48 TO 148+98)	SF	752
11	EXISTING CONCRETE SINGLE CURB (STA 145+75 TO 145+80)	LF	43

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	3,411
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	361
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	935
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	1,817
6	CONCRETE DRIVEWAY PER COP STD DET P1255-3	SF	141
9	CONCRETE SIDEWALK RAMP PER DETAIL ON SHEETS 10-11	SF	62
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	3
13	SURVEY MARKER PER MAG STD DET 120-1, TYPE A	EA	1
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	29
15	CURB TERMINATION PER MAG STD DET 222	EA	5
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	27
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	2
23	REMOVE AND RELOCATE EXISTING MAIL BOX	EA	2
24	REMOVE AND RELOCATE EXISTING ORNAMENTAL IRON FENCE AND TO RIGHT OF WAY	LF	156
40	DECOMPOSED GRANITE, ¾" MINUS, STABILIZED, 2" THICK	SF	681
48	REMOVE AND RELOCATE EXISTING MOTORIZED SLIDE WROUGHT IRON GATE	EA	1
49	REMOVE AND RELOCATE EXISTING MANUAL ROLL/SLIDE WROUGHT IRON GATE	EA	1

STORM DRAIN NOTES

NO.	STATION	TYPE	CONN	SIZEXLF
20	146+50, 32' LT	M-1 L=6' P1569-1	COP STD DET P1577	15" X 34.0' RGRCP CL IV
21	146+55, 33' RT	M-1 L=3' P1569-1	-	15" X 26.0' RGRCP CL IV
22	146+55, 3'± RT	P1560 & MAG 423 & 522		1 EA

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			22	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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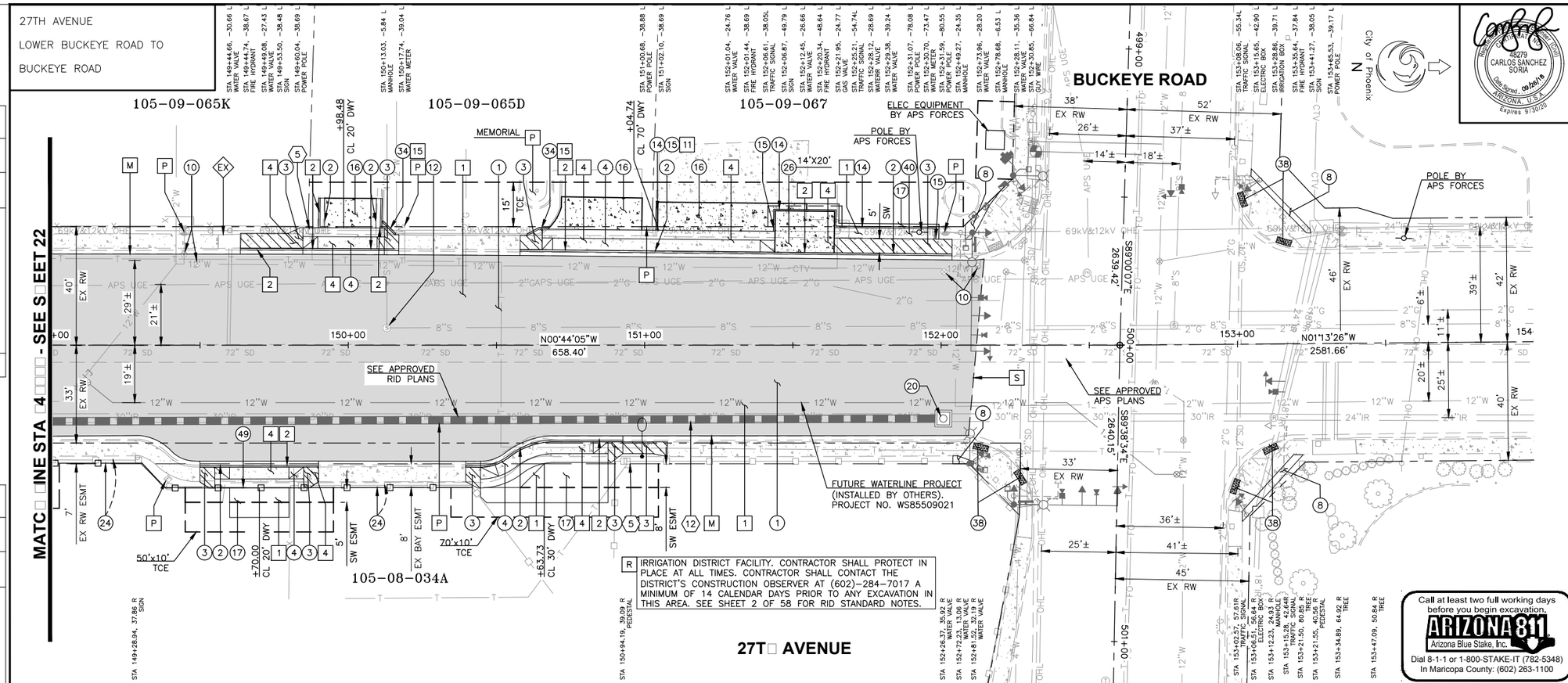
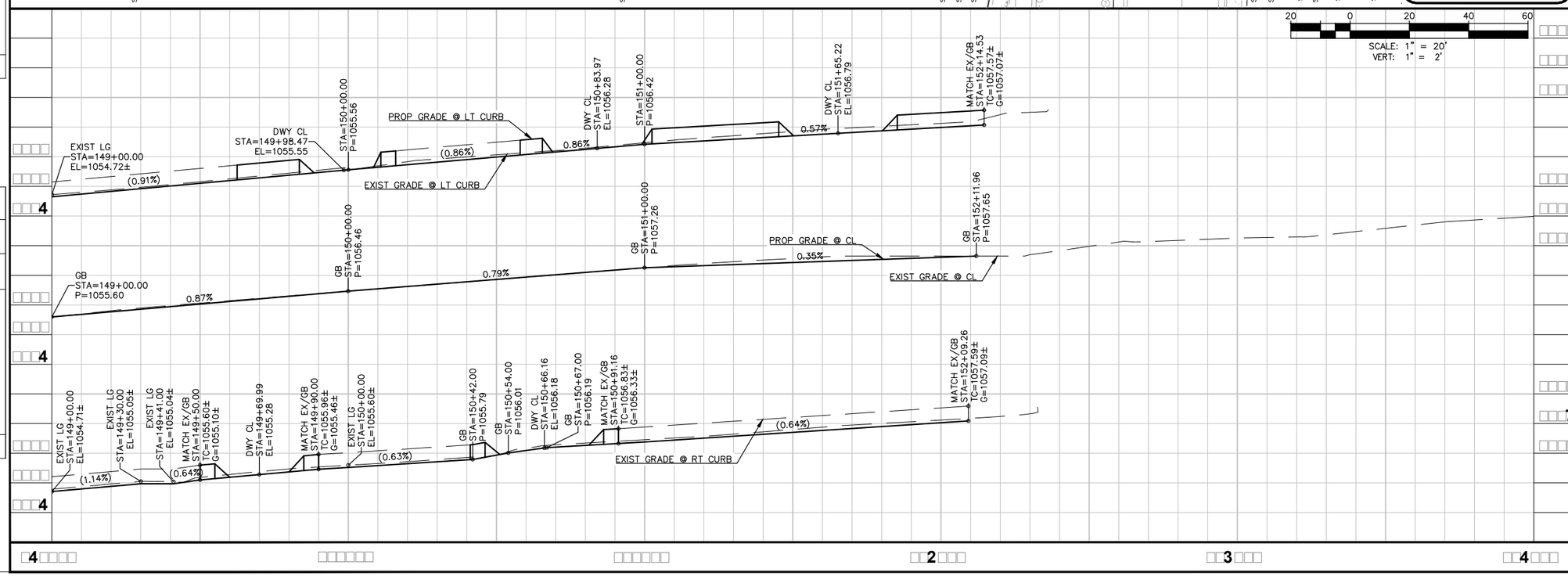
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD





F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

M MATCH EXISTING
P PROTECT IN PLACE
S SAWCUT AND MATCH EXISTING

REMOVALS BY OTHERS

NO.	DESCRIPTION	UNIT	QTY.
5	TELEPHONE PEDESTAL, UTILITY MARKER TO BE RELOCATED BY CENTURY LINK FORCES	EA	1
12	PIPE TO BE REMOVED BY RID FORCES	LF	300

REMOVALS

NO.	DESCRIPTION	UNIT	QTY.
1	REMOVE EXISTING PAVEMENT (STA 149+00 TO 152+15)	SY	2,294
2	EXISTING CONCRETE CURB & GUTTER (STA 149+50 TO 150+20, 150+41 TO 152+00)	LF	348
3	EXISTING CONCRETE SIDEWALK (STA 144+06 TO 144+14, 144+62 TO 144+68 & 146+48 TO 146+60)	SF	74
4	EXISTING CONCRETE DRIVEWAY (STA 149+50 TO 150+93 RT, 149+64 TO 152+04 LT)	SF	2,737
11	EXISTING CONCRETE SINGLE CURB (STA 151+05)	LF	11
15	REMOVE EXISTING BRICK & MORTAR RETAINING WALL AND FOOTING (STA150+12 TO 150+16, 150+60 TO 150+68)	LF	19

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY.
1	NEW PAVEMENT PER TYPICAL SECTIONS ON SHEETS 5-9. SEE SHEET 3 FOR QUANTITIES	SY	2,211
2	CURB AND GUTTER PER MAG STD. DET. 220-1, TYPE "A"	LF	314
3	CONCRETE SIDEWALK PER COP STD DET P1230, WIDTH PER PLAN	SF	564
4	CONCRETE DRIVEWAY PER COP STD DET P1255-1 (9" THICK)	SF	1,266
8	ADDITIONAL SIDEWALK PER COP STD DET P1233, NOTES 2 & 5 AND DETAIL ON SHEET 11A	SF	173
10	ADJUST EXISTING WATER VALVE FRAME & COVER PER COP STD DET P1391 & P1391-1	EA	4
12	ADJUST STORM SEWER MANHOLE FRAME & COVER PER MAG STD DET 422	EA	1
14	SINGLE CURB PER MAG STD. DET. 222, TYPE "A"	LF	81
15	CURB TERMINATION PER MAG STD DET 222	EA	3
16	CONCRETE DRIVEWAY CONNECTION (CLASS "A"), 9" THICK	SY	98
17	ASPHALT CONCRETE DRIVEWAY CONNECTION (D 1/2), 3" THICK	TON	15
20	ADJUST UTILITY MANHOLE FRAME & COVER PER UTILITY COMPANY DETAILS & SPECIFICATIONS	EA	1
24	REMOVE AND RELOCATE EXISTING ORNAMENTAL IRON FENCE TO RIGHT OF WAY	LF	126
26	BUS SHELTER CONCRETE PAD PER COP STD DET P1258 & P1260	SF	280
34	BRICK & MORTAR RETAINING WALL (MATCH EXISTING)	LF	15
38	TRUNCATED DOMES PER COP STD DET P1232	SF	60
40	DECOMPOSED GRANITE, 3/8" MINUS, STABILIZED, 2" THICK	SF	118

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN AND PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			23	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

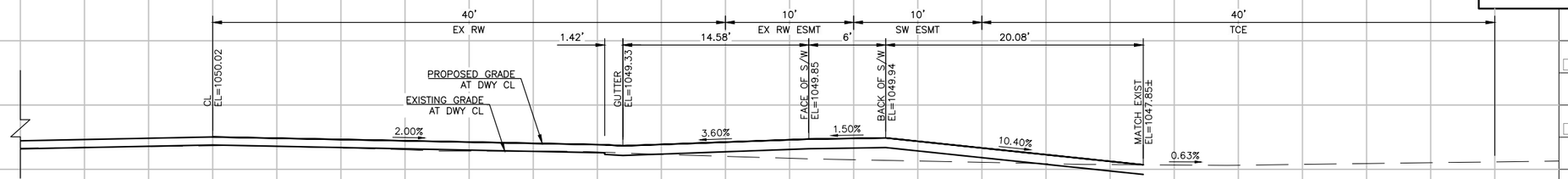
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

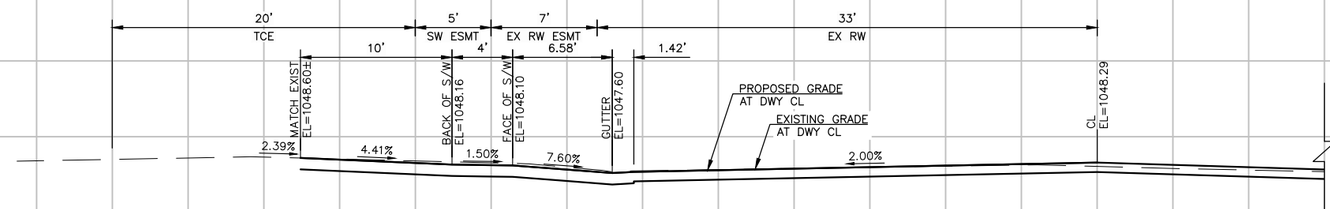
REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □□□□73 - RT

SEE PAVING SHEET 15
CURB RETURN DRIVEWAY



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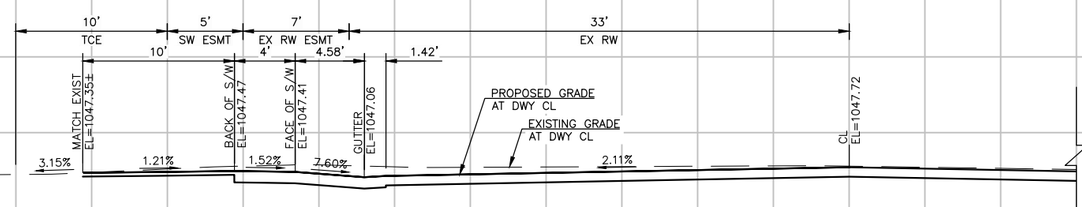
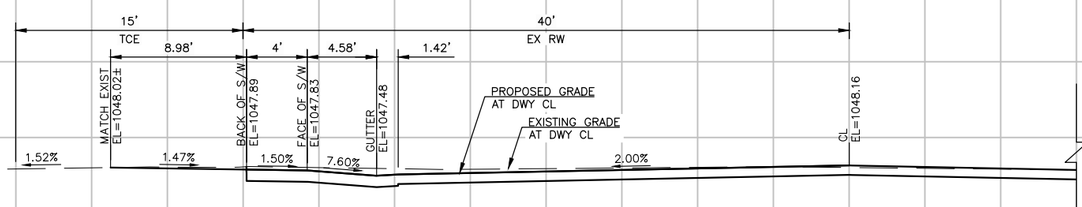
SEE PAVING SHEET 17
ATTACHED SIDEWALK DRIVEWAY



DWY □ STA □27□3□ - □T

SEE PAVING SHEET 18
ATTACHED SIDEWALK DRIVEWAY



DWY □ STA □2□□4□.□7 - □T

SEE PAVING SHEET 18
ATTACHED SIDEWALK DRIVEWAY

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

5 0 5 10 15
SCALE: 1" = 5'
VERT: 1" = 5'

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE:	1" = 5' HORIZONTAL 1" = 5' VERTICAL		24	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

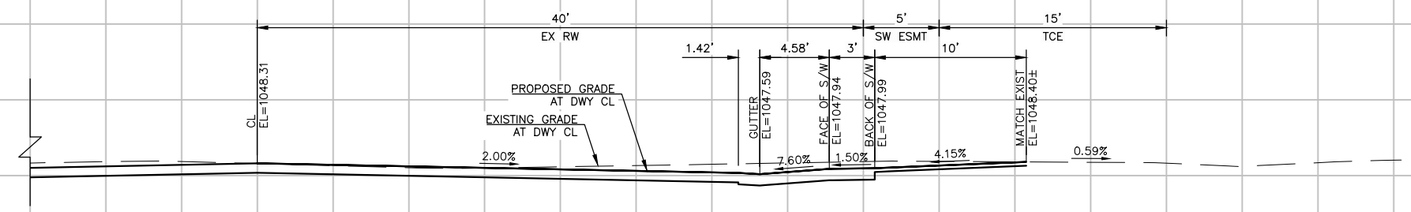
T·Y· LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

48279 CARLOS SANCHEZ SORIA — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20

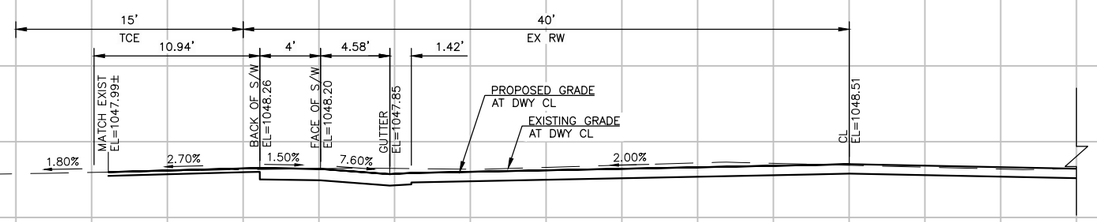
REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □2□□□□.□□ - RT

SEE PAVING SHEET 18&19
ATTACHED SIDEWALK DRIVEWAY



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SEE PAVING SHEET 19
DETACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

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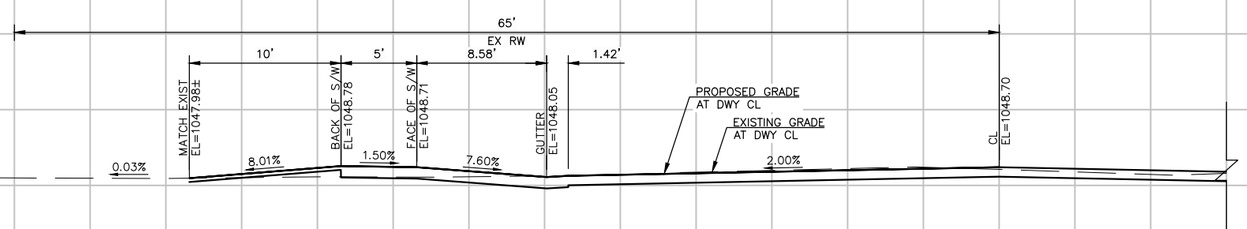
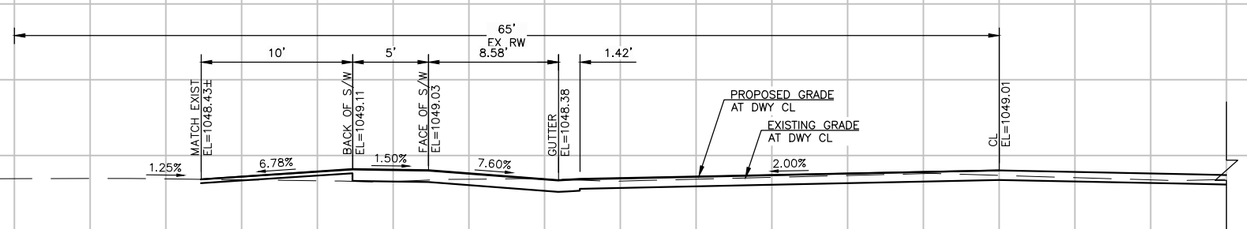


DWY □ STA □3□□□□.□□ - □T

SEE PAVING SHEET 19
DETACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □3□□□□.□3 - □T

SEE PAVING SHEET 19
DETACHED SIDEWALK DRIVEWAY

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ARIZONA 811 Arizona Blue Stake, Inc.
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In Maricopa County: (602) 263-1100

5 0 5 10 15
SCALE: 1" = 5'
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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 5' HORIZONTAL, 1" = 5' VERTICAL			25	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/23

REVISION BY CITY OF PHOENIX				
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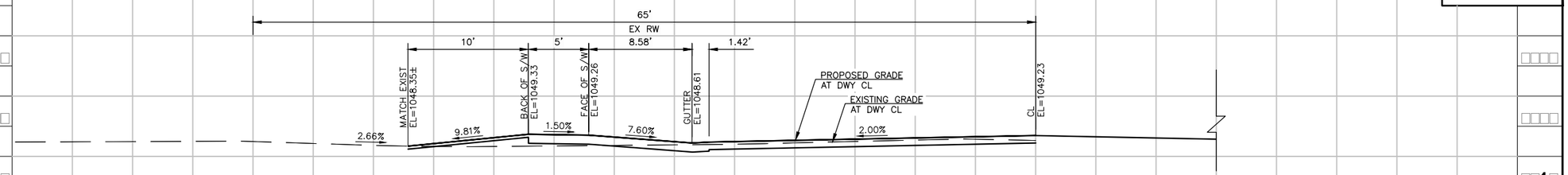

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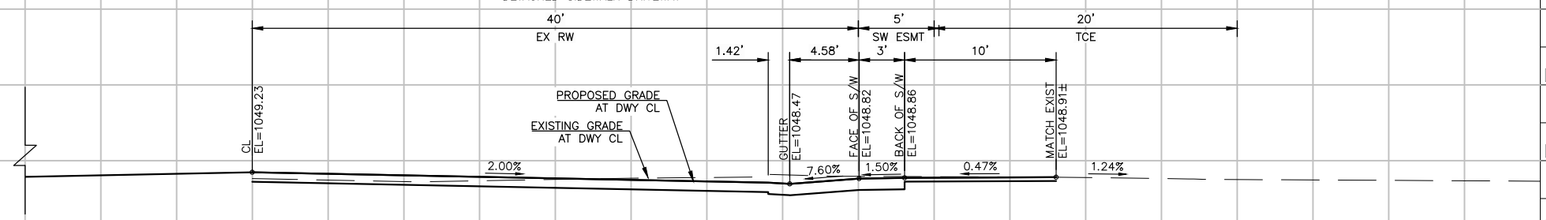
SEE PAVING SHEET 19
DETACHED SIDEWALK DRIVEWAY

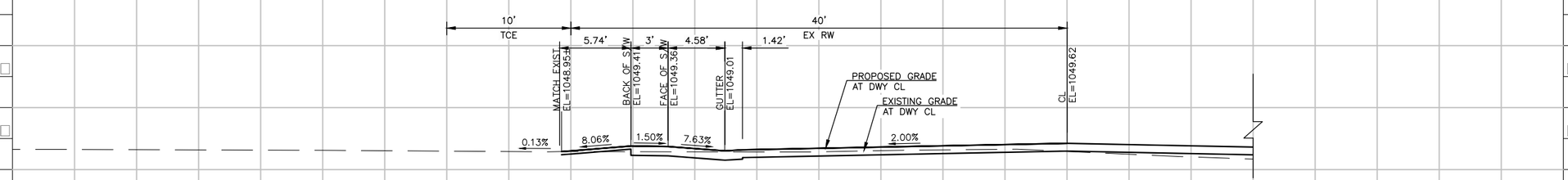


DWY □ STA □3□□□.□2 - RT

SEE PAVING SHEET 19
DETACHED SIDEWALK DRIVEWAY

DWY □ STA □32□□□.44 - RT

SEE PAVING SHEET 19
ATTACHED SIDEWALK DRIVEWAY



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ATTACHED SIDEWALK DRIVEWAY

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE:	1" = 5' HORIZONTAL 1" = 5' VERTICAL		26	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

48279 CARLOS SANCHEZ SORIA
Date Signed 09/26/18
ARIZONA, U.S.A.
Expires 9/30/20

REVISION BY CITY OF PHOENIX				
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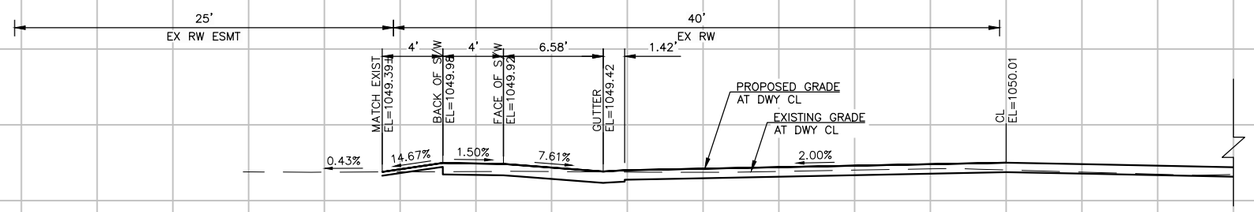
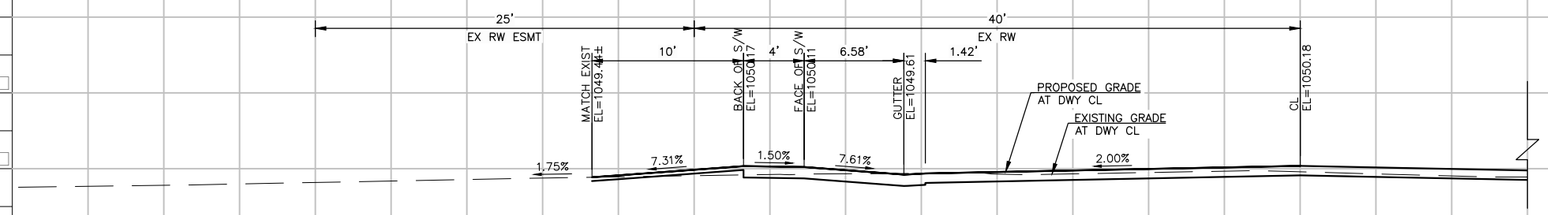


DWY □ STA □33□□.2□ - □T

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

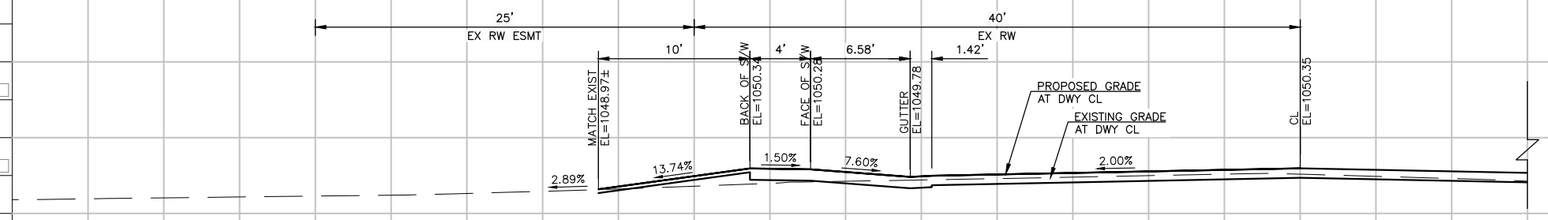
REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □34□□.□□ - □T

SEE PAVING SHEET 20
DETACHED SIDEWALK DRIVEWAY

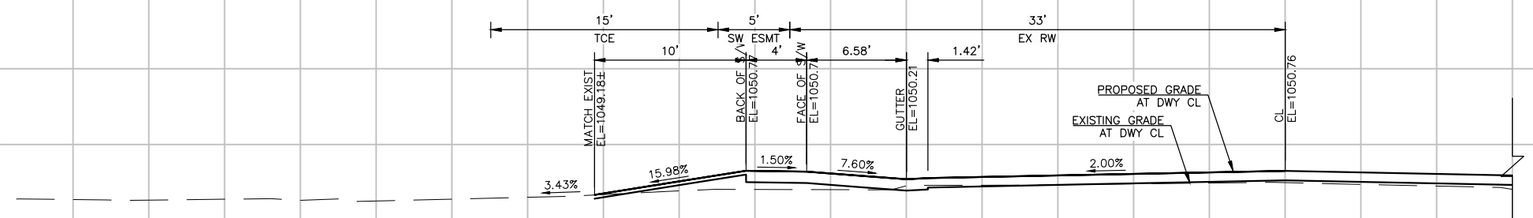
REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □34□□7.□□ - □T

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □3□□3.□□ - □T

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

5 0 5 10 15
SCALE: 1" = 5'
VERT: 1" = 5'

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE:	1" = 5' HORIZONTAL 1" = 5' VERTICAL		27	63	.

9/26/2018 5:47:18 PM Carlos Sanchez-Soria TY Lin Half-Scale.ctb

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

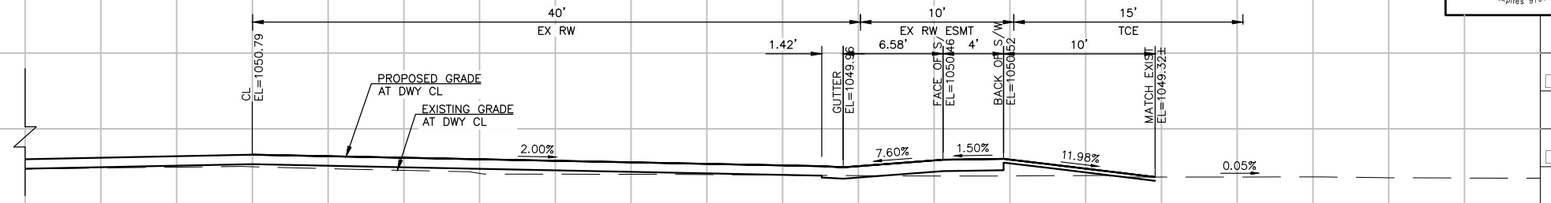
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

48279 CARLOS SANCHEZ SORIA — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



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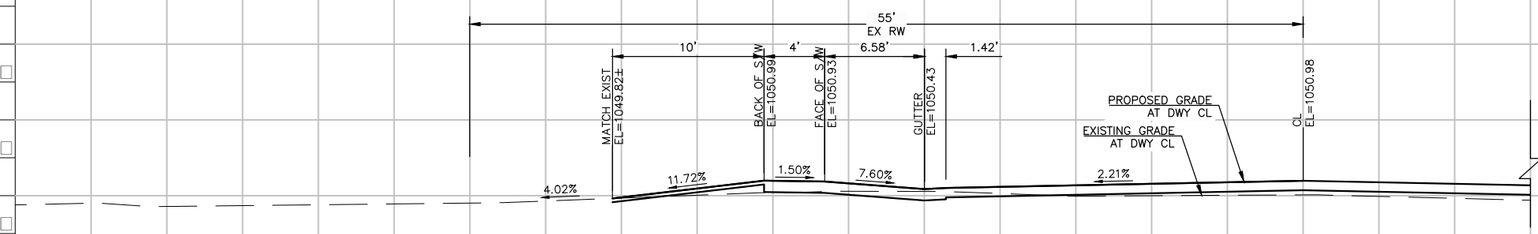
SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

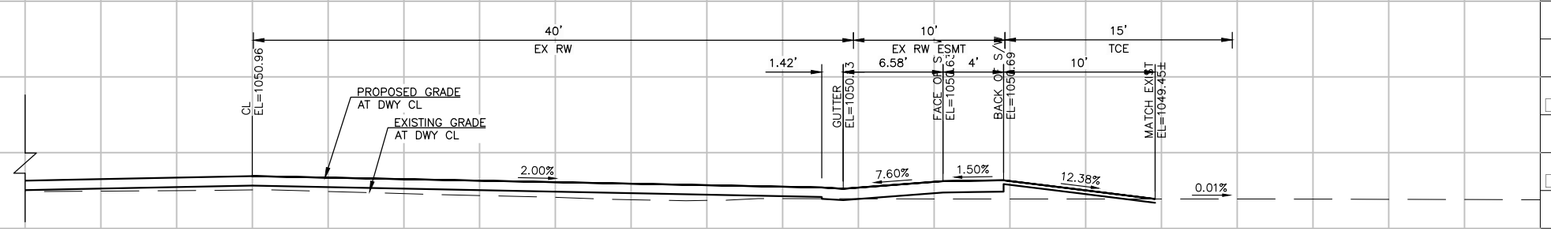


DWY □ STA □3□□□□ - □T

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



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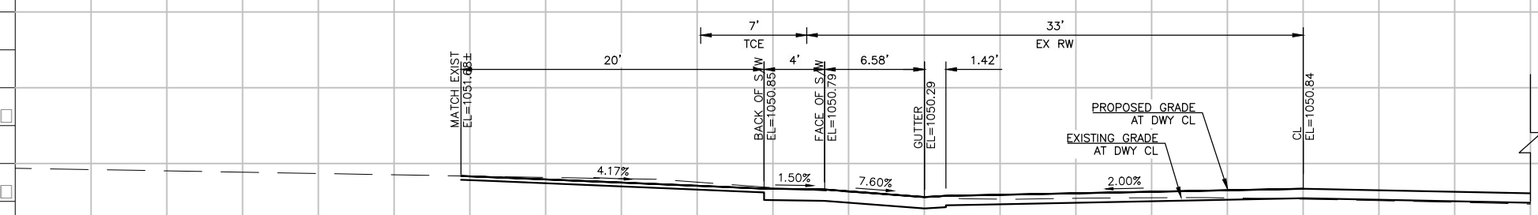
SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



DWY □ STA □37□2□.□□ - □T

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 5' HORIZONTAL, 1" = 5' VERTICAL			28	63	.

Carlos Sanchez-Soria TY Lin Half-Scale.ctb 9/26/2018 5:47:52 PM
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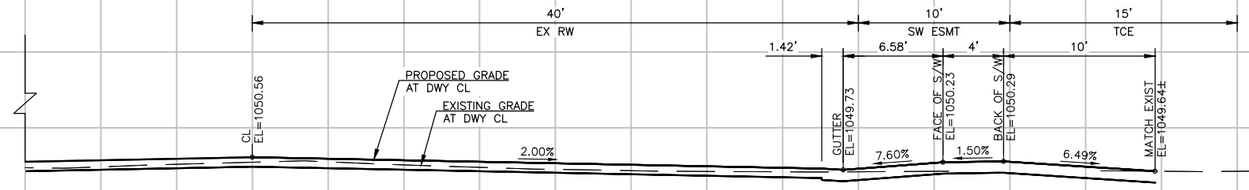
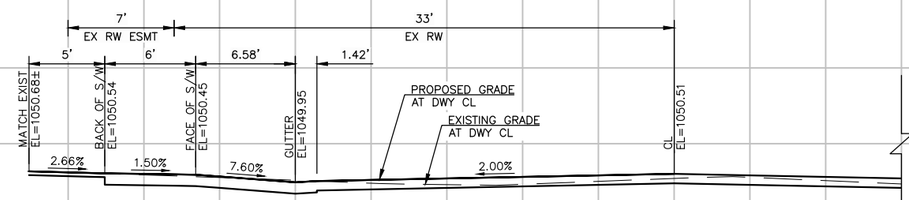
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD



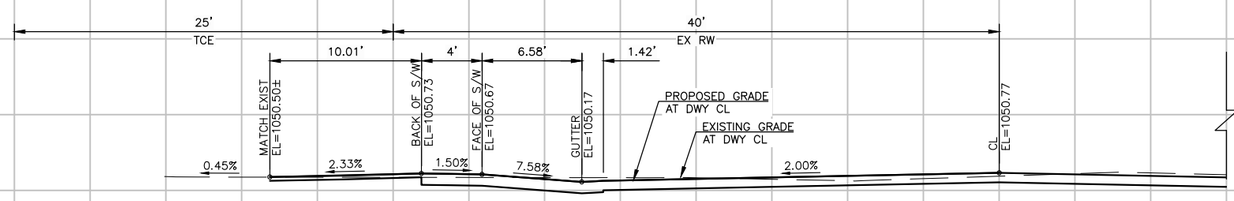
DWY □ STA □3□□□.□□ - RT

SEE PAVING SHEET 21
ATTACHED SIDEWALK DRIVEWAY



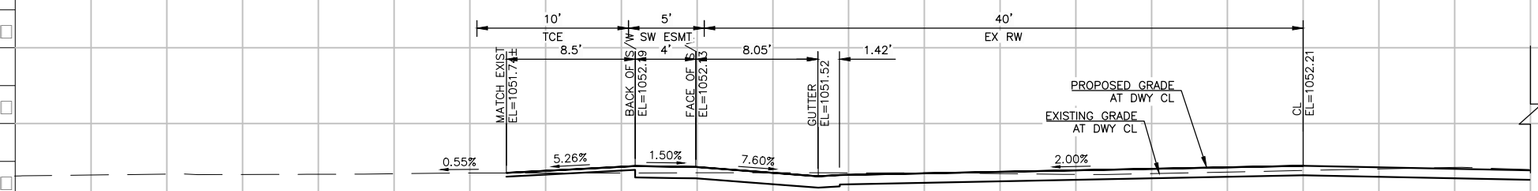
DWY □ STA □3□□□.□4 - □T

SEE PAVING SHEET 22
DETACHED SIDEWALK DRIVEWAY



DWY □ STA □4□□7.42 - □T

SEE PAVING SHEET 22
ATTACHED SIDEWALK DRIVEWAY



DWY □ STA □44□2□ - □T

SEE PAVING SHEET 22
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE:	1" = 5' HORIZONTAL 1" = 5' VERTICAL		29	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

REVISION BY CITY OF PHOENIX

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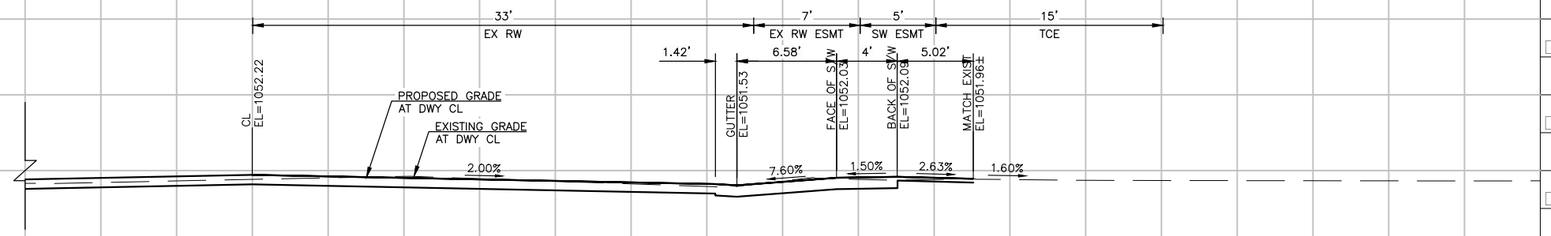

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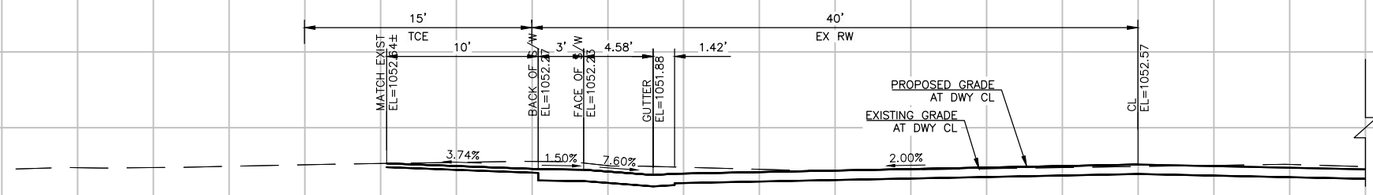
SEE PAVING SHEET 22
ATTACHED SIDEWALK DRIVEWAY



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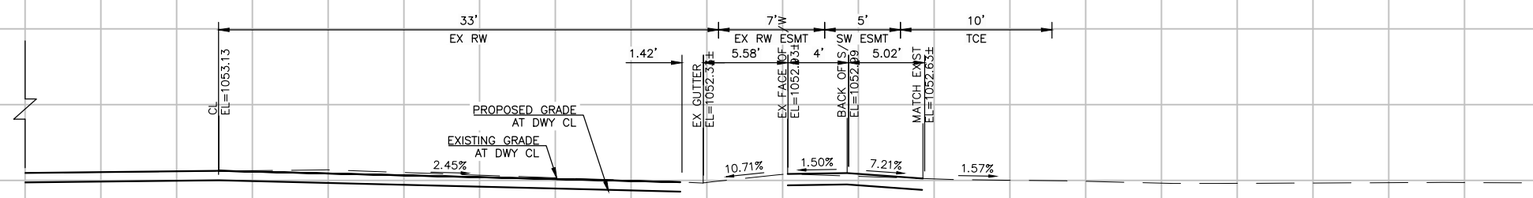
SEE PAVING SHEET 22
ATTACHED SIDEWALK DRIVEWAY



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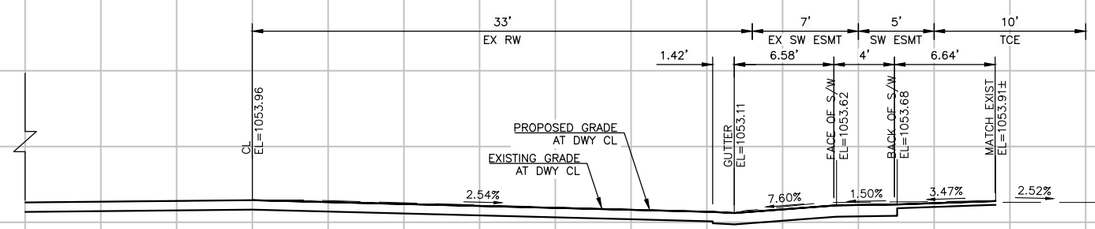
SEE PAVING SHEET 23
ADA RETROFIT DRIVEWAY



DWY □ STA □47□□□ - RT

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ATTACHED SIDEWALK DRIVEWAY

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE:	1" = 5' HORIZONTAL 1" = 5' VERTICAL		30	63	.

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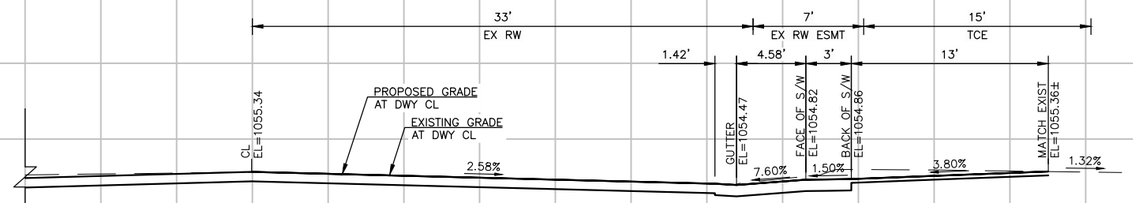
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD



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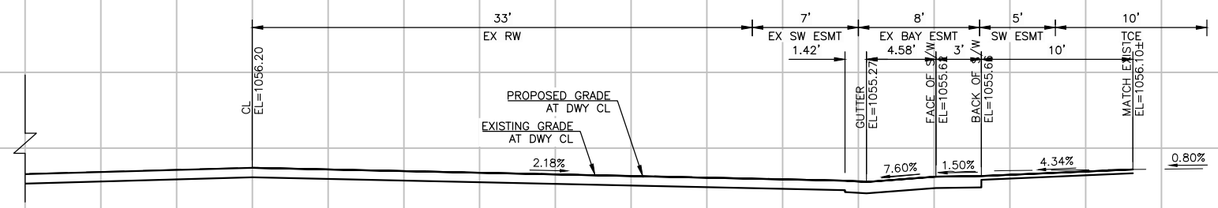
SEE PAVING SHEET 23
ATTACHED SIDEWALK DRIVEWAY



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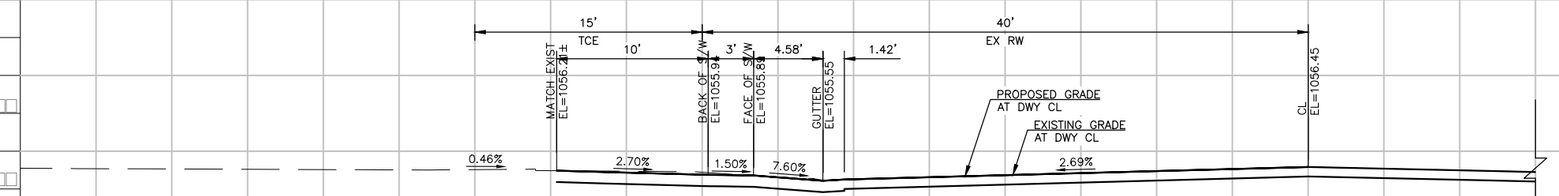
SEE PAVING SHEET 23
ATTACHED SIDEWALK DRIVEWAY



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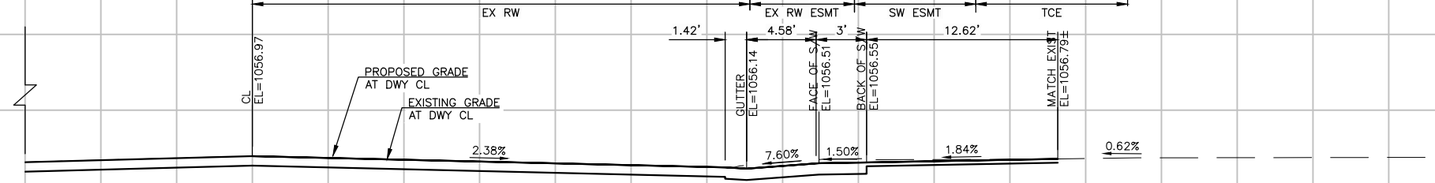
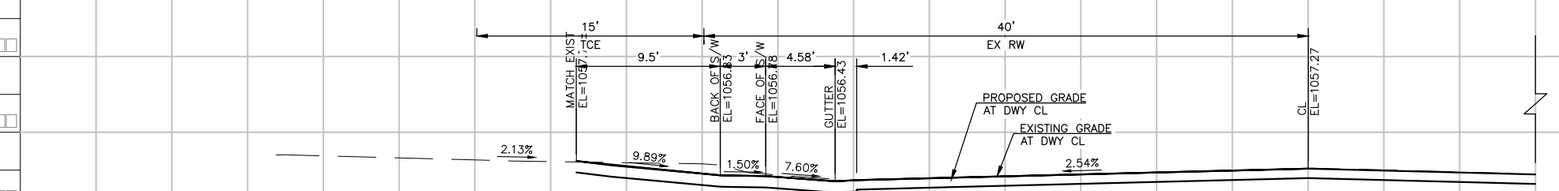
SEE PAVING SHEET 23
ATTACHED SIDEWALK DRIVEWAY



DWY □ STA □□□□3.73 - RT

SEE PAVING SHEET 20
ATTACHED SIDEWALK DRIVEWAY



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SEE PAVING SHEET 23
ATTACHED SIDEWALK DRIVEWAY

REVISION BY CITY OF PHOENIX

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NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

Registered Professional Engineer (Civil)
CERTIFICATE NO. 48279
CARLOS SANCHEZ SORIA
Date Signed 09/26/18
ARIZONA, U.S.A.
Expires 9/30/20

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DRIVEWAY PROFILE SHEETS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 5' HORIZONTAL 1" = 5' VERTICAL			31	63	.

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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DES: CSS | DR: OG | CK: CSS | DATE: 9/18

48279 CARLOS SANCHEZ SORIA — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20

City of Phoenix
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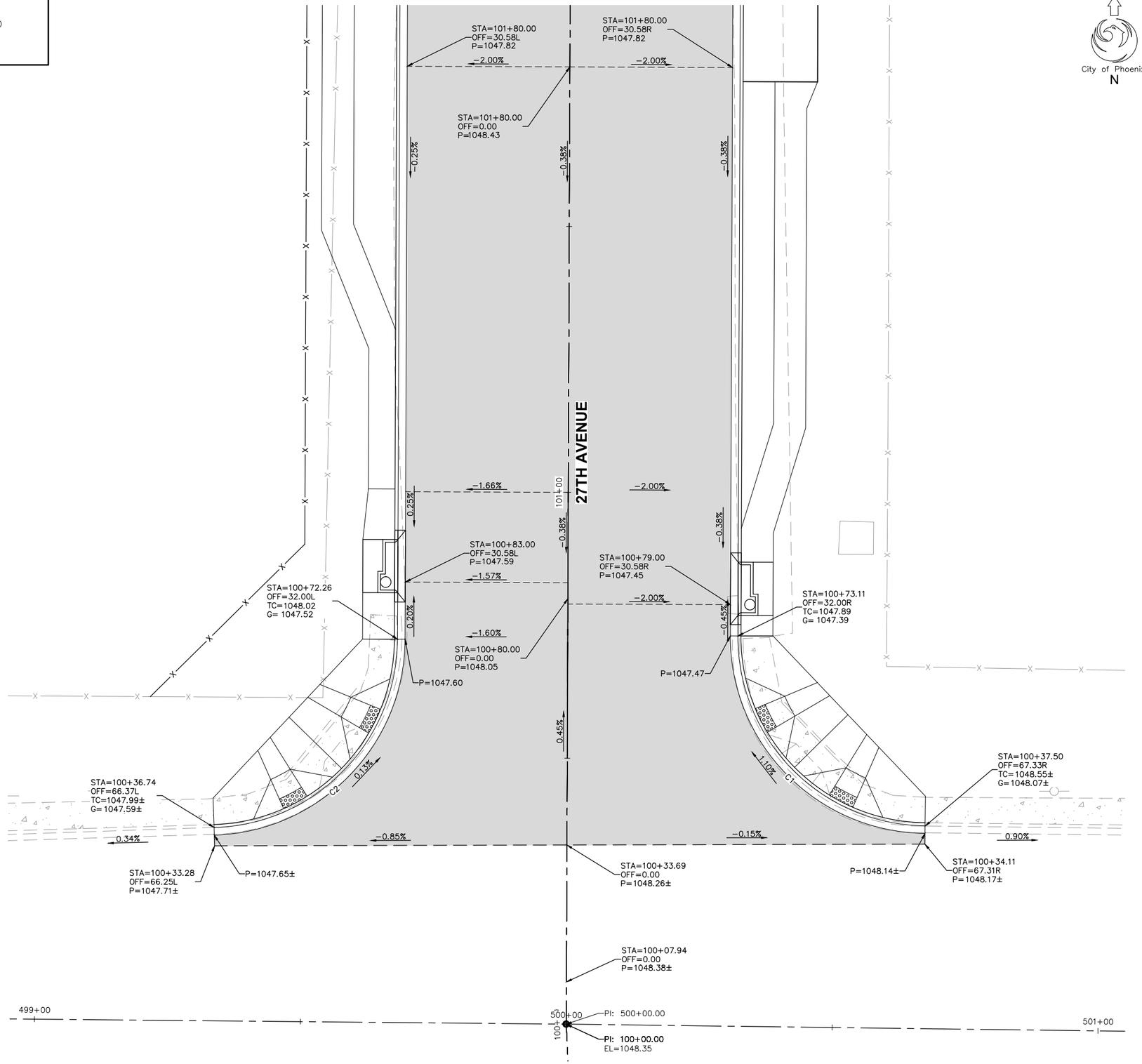

LOWER BUCKEYE ROAD

SEE PAVING SHEET 13

CURVE TABLE				
NO.	DELTA	RADIUS	LENGTH	TANGENT
C1	S44°35'10"E	35.58'	55.64'	35.33'
C2	N44°14'30"E	35.58'	54.67'	34.38'

*DIMENSIONS ALONG FACE OF CURB

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10 0 10 20 30
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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			32	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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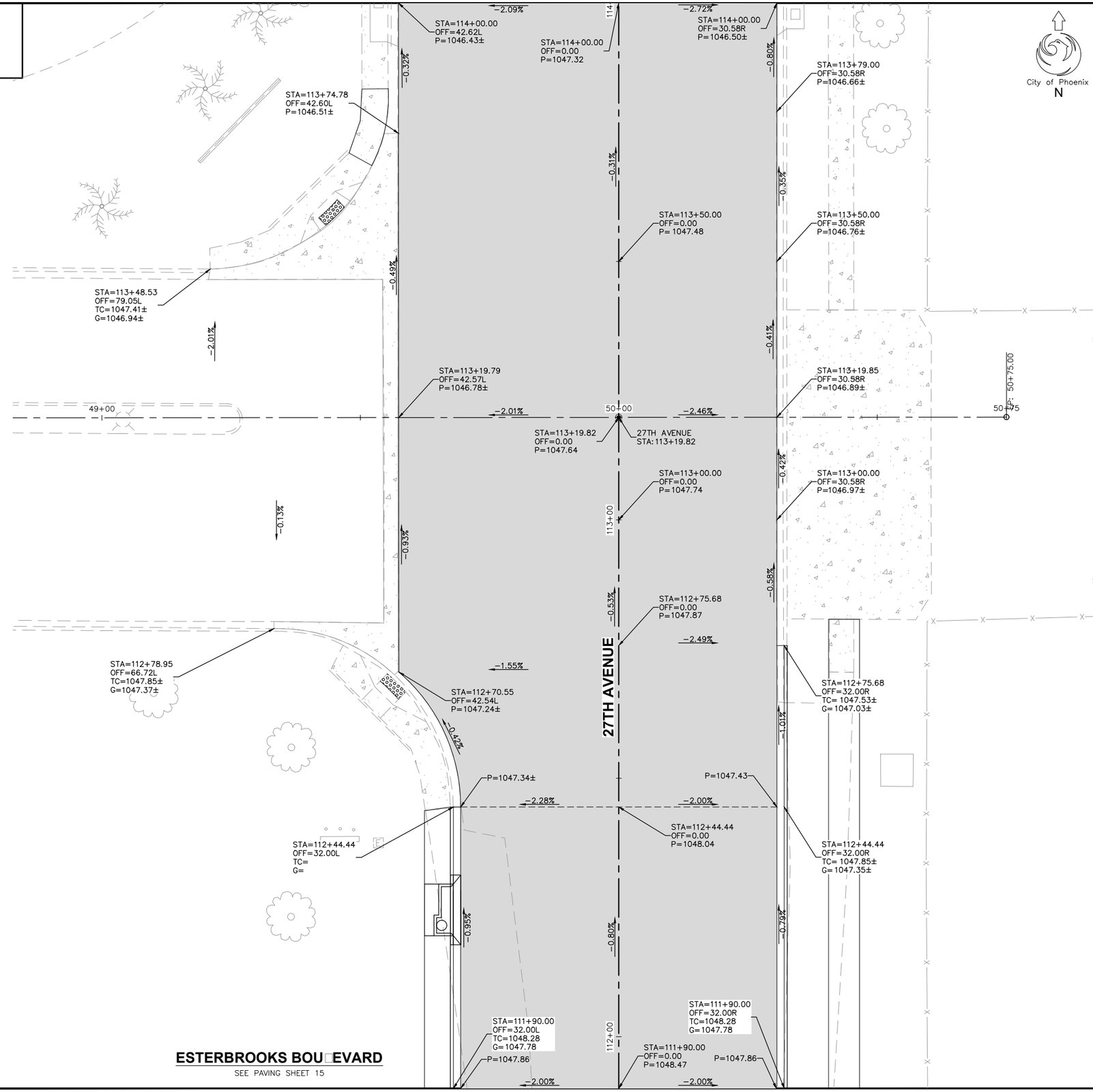
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



ESTERBROOKS BOU□EVARD

SEE PAVING SHEET 15

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

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PAVING DETAILS

CITY OF PHOENIX, ARIZONA

STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

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DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			33	63	.

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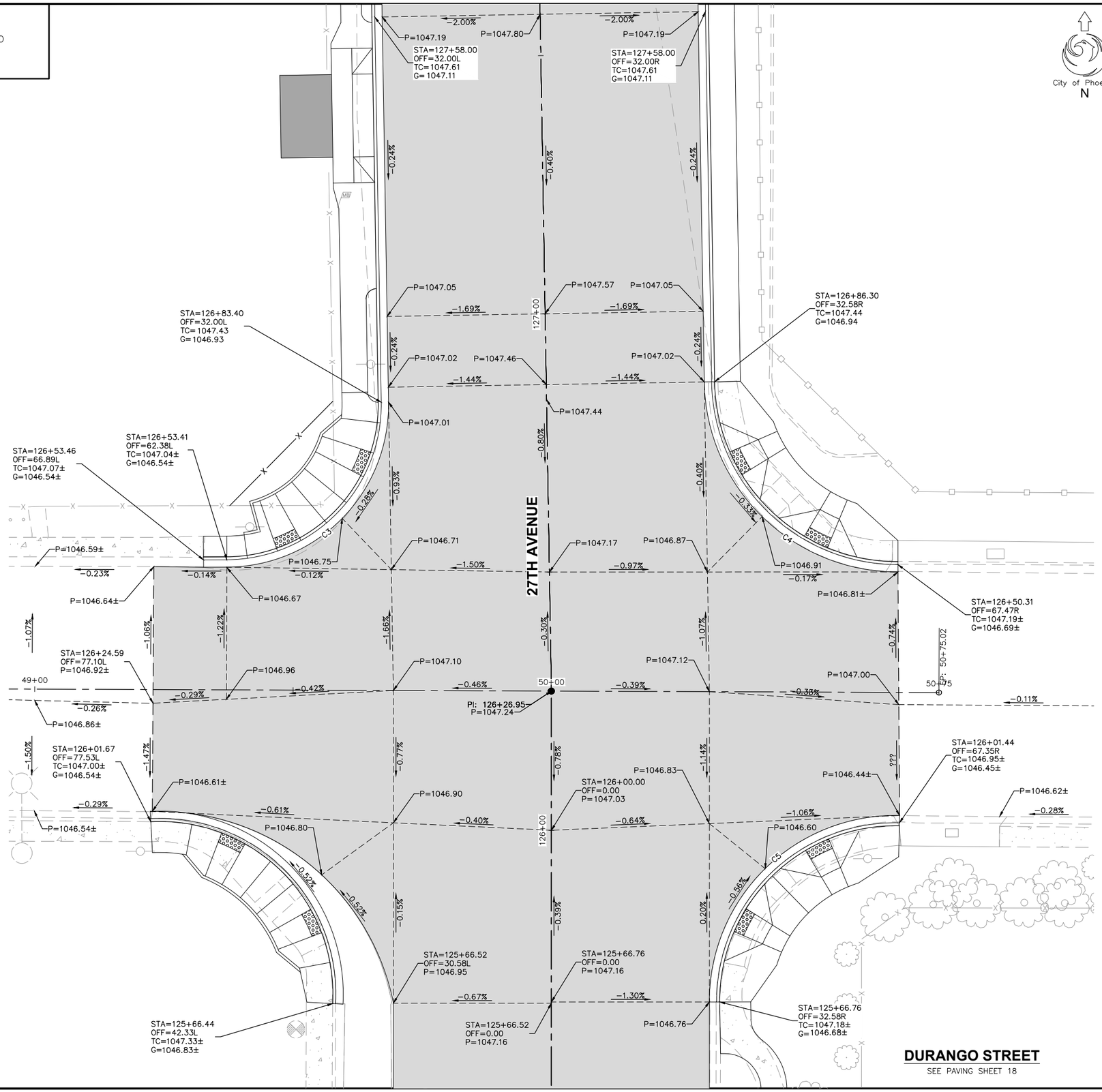
9/26/2018 5:50:19 PM Carlos Sanchez-Soria TY Lin Half-Scale.ctb

27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



City of Phoenix
N

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T·Y· LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

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NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	TANGENT
C3	N44°37'57"E	30.00'	47.51'	30.39'
C4	S45°18'33"E	36.00'	56.01'	35.47'
C5	S45°46'17"W	34.58'	55.19'	35.46'

*DIMENSIONS ALONG FACE OF CURB

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

10 0 10 20 30
SCALE: 1" = 10'

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			34	63	.

Carlos Sanchez-Soria TY Lin Half Scale.ctb

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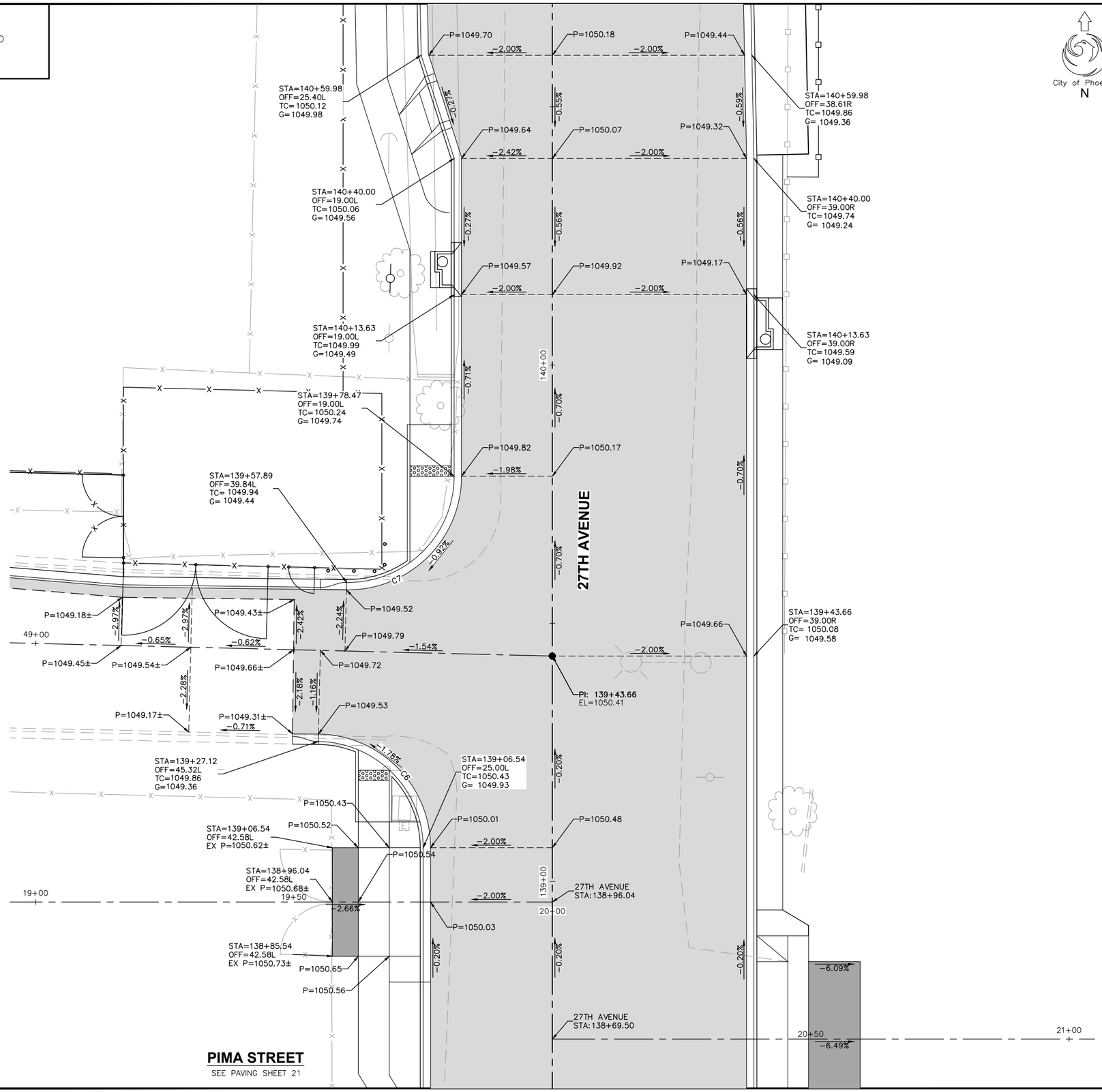
27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD



City of Phoenix
N

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists

T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

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REVISION BY CITY OF PHOENIX					
NO.	DESCRIPTION	REV BY	CKD BY	DATE	

REVISION BY CITY OF PHOENIX					
NO.	DESCRIPTION	REV BY	CKD BY	DATE	

CURVE TABLE

NO.	DELTA	RADIUS	LENGTH	TANGENT
C6	N45°22'03"W	20.58'	32.06'	20.32'
C7	N44°37'57"E	20.58'	32.59'	20.85'

*DIMENSIONS ALONG FACE OF CURB

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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			35	63	.

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

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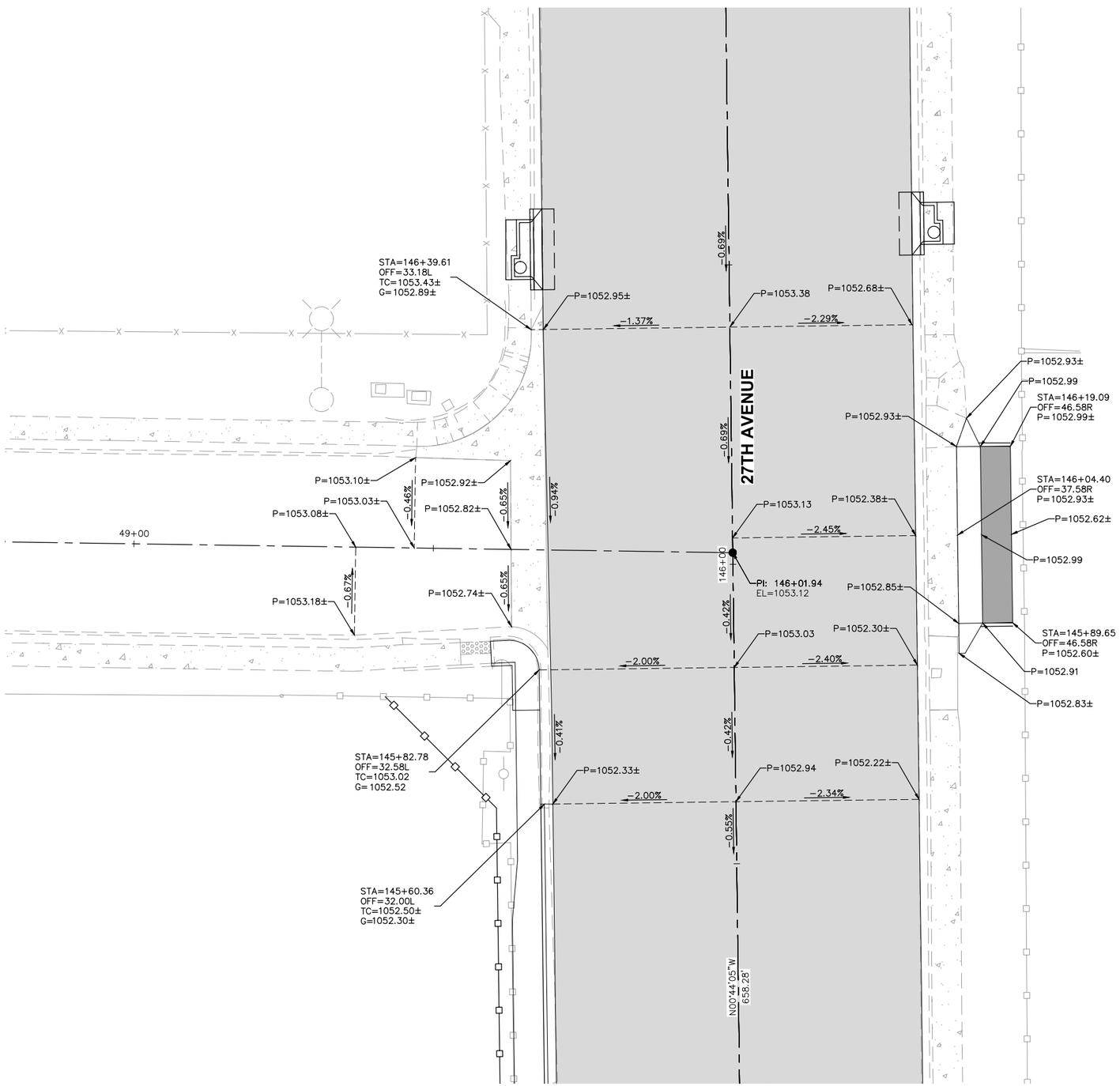
City of Phoenix

N



YUMA STREET

SEE PAVING SHEET 22

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

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PAVING DETAILS

CITY OF PHOENIX, ARIZONA

STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			36	63	.

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REVISION BY CITY OF PHOENIX

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
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City of Phoenix
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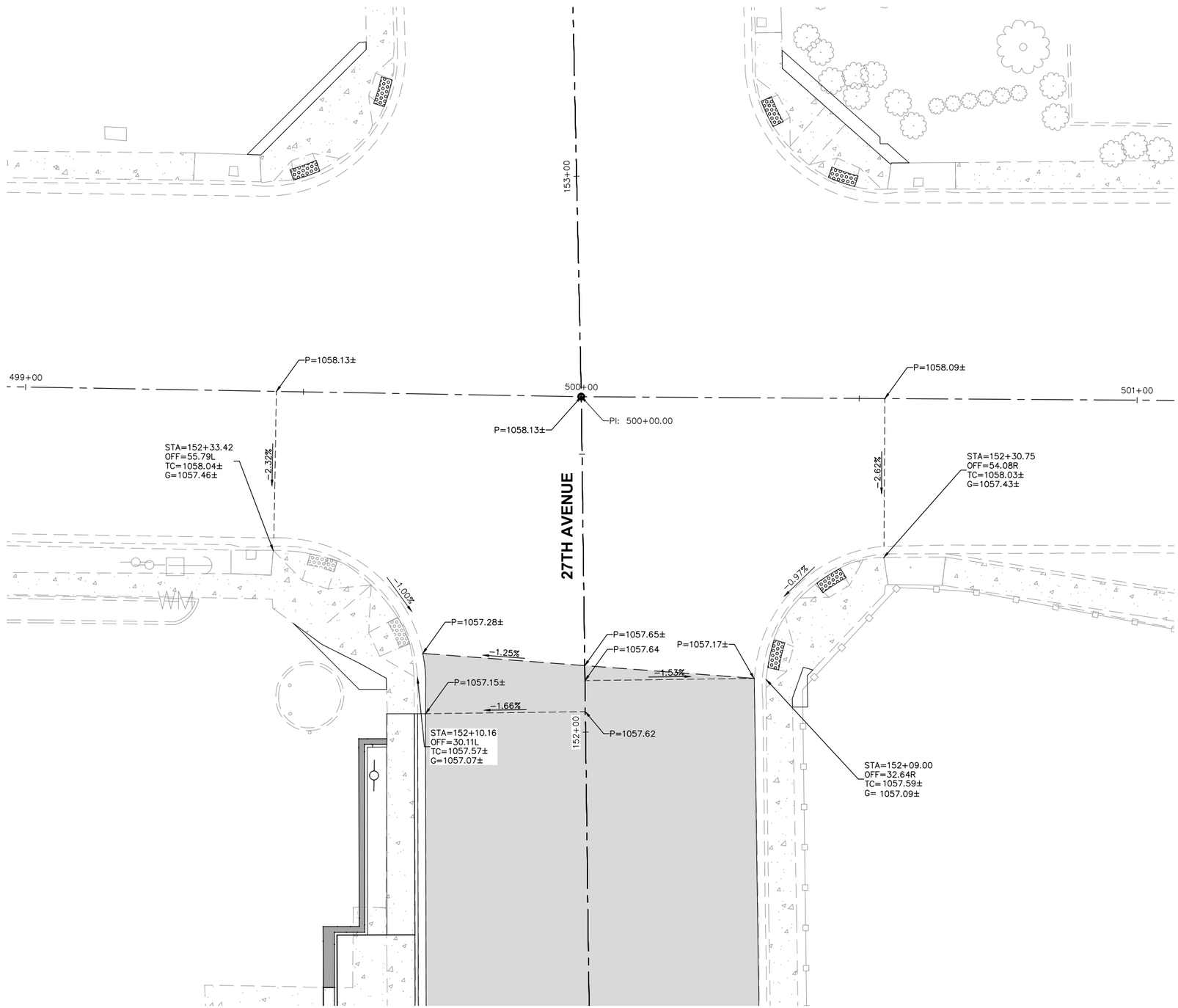

BUCKEYE ROAD

SEE PAVING SHEET 23

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Arizona Blue Stake, Inc.
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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
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DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			37	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
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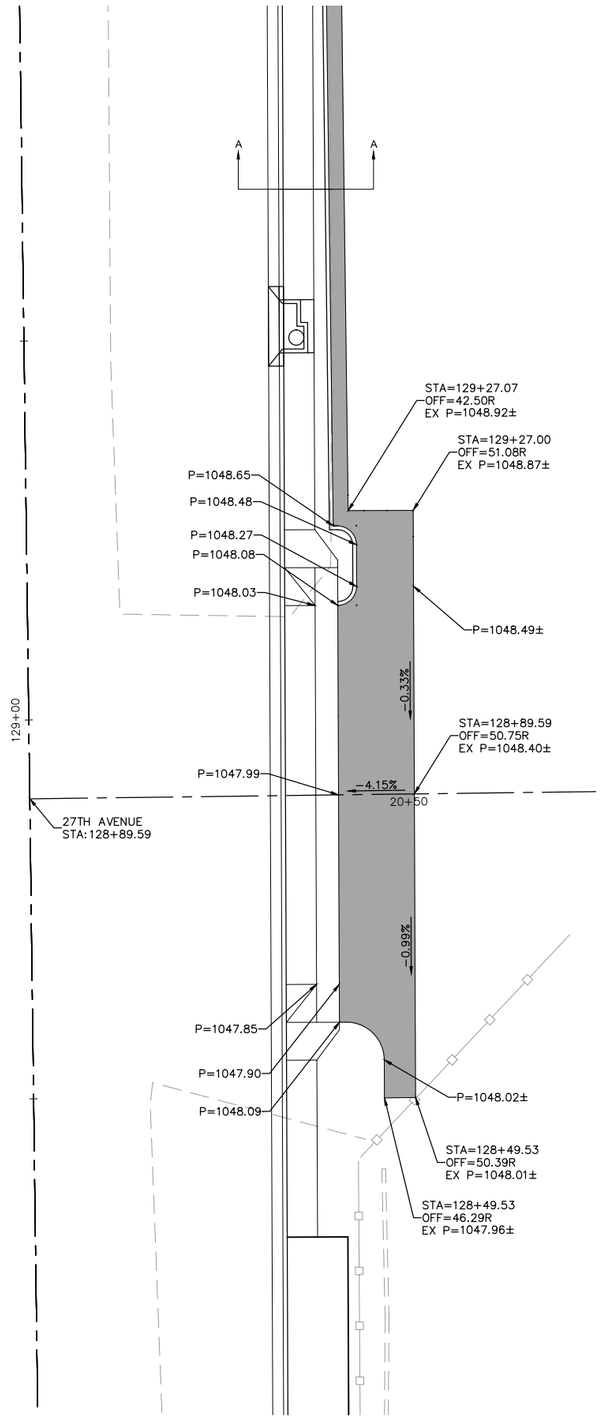
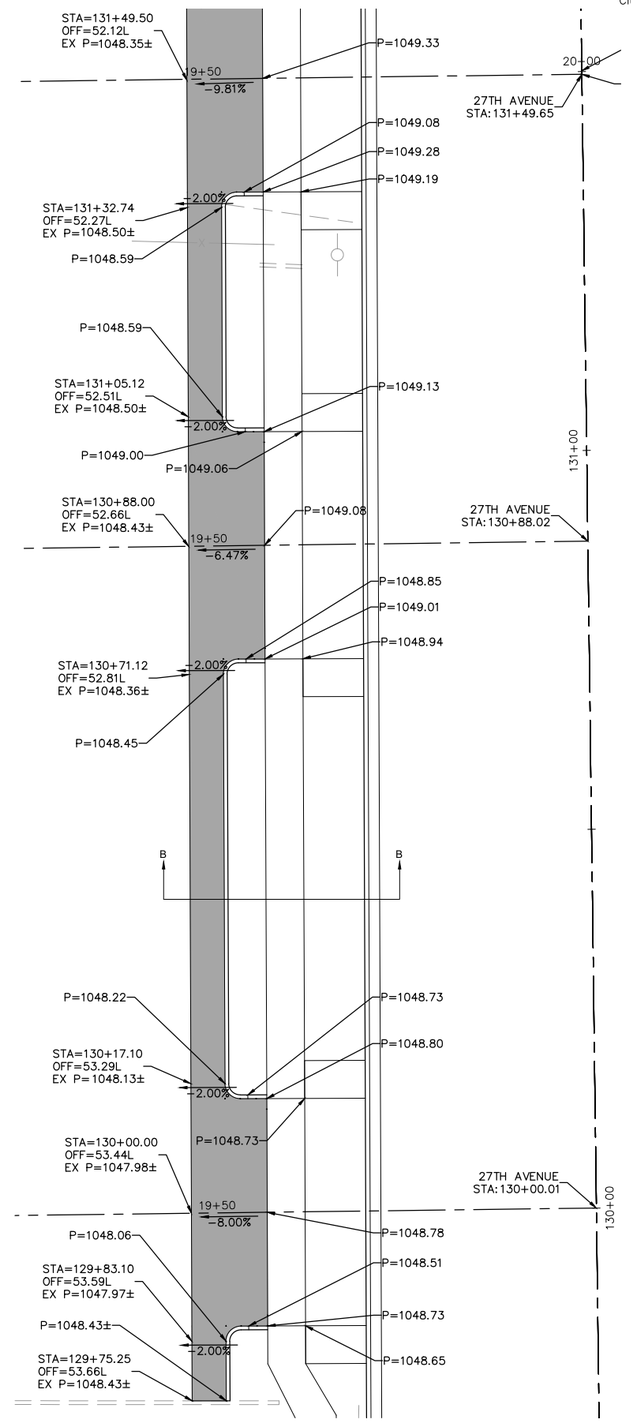
City of Phoenix
N



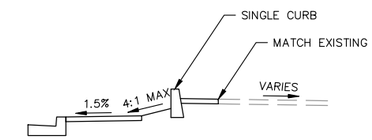
27T□ AVENUE

SEE PAVING SHEET 18-19

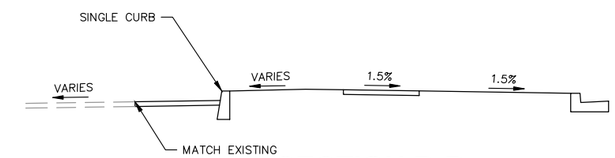


27T□ AVENUE

SEE PAVING SHEET 19



SECTION A-A



SECTION B-B

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			38	63	.

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NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

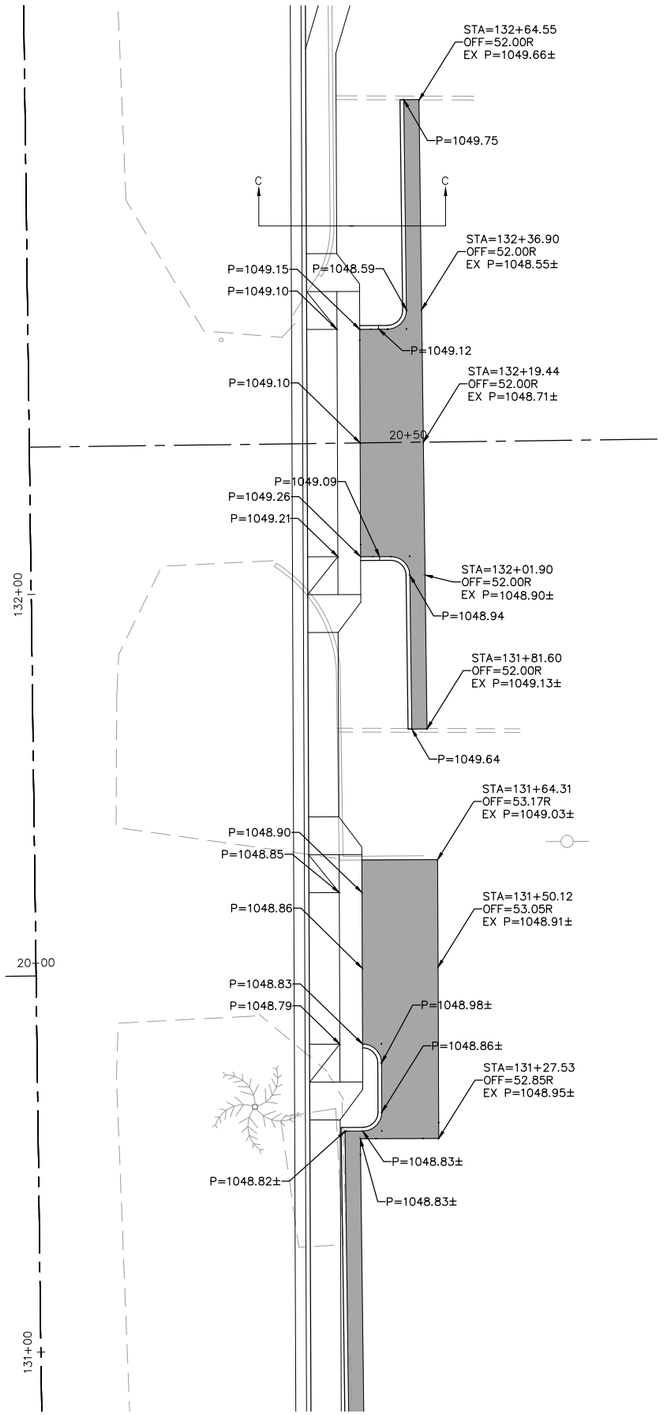
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

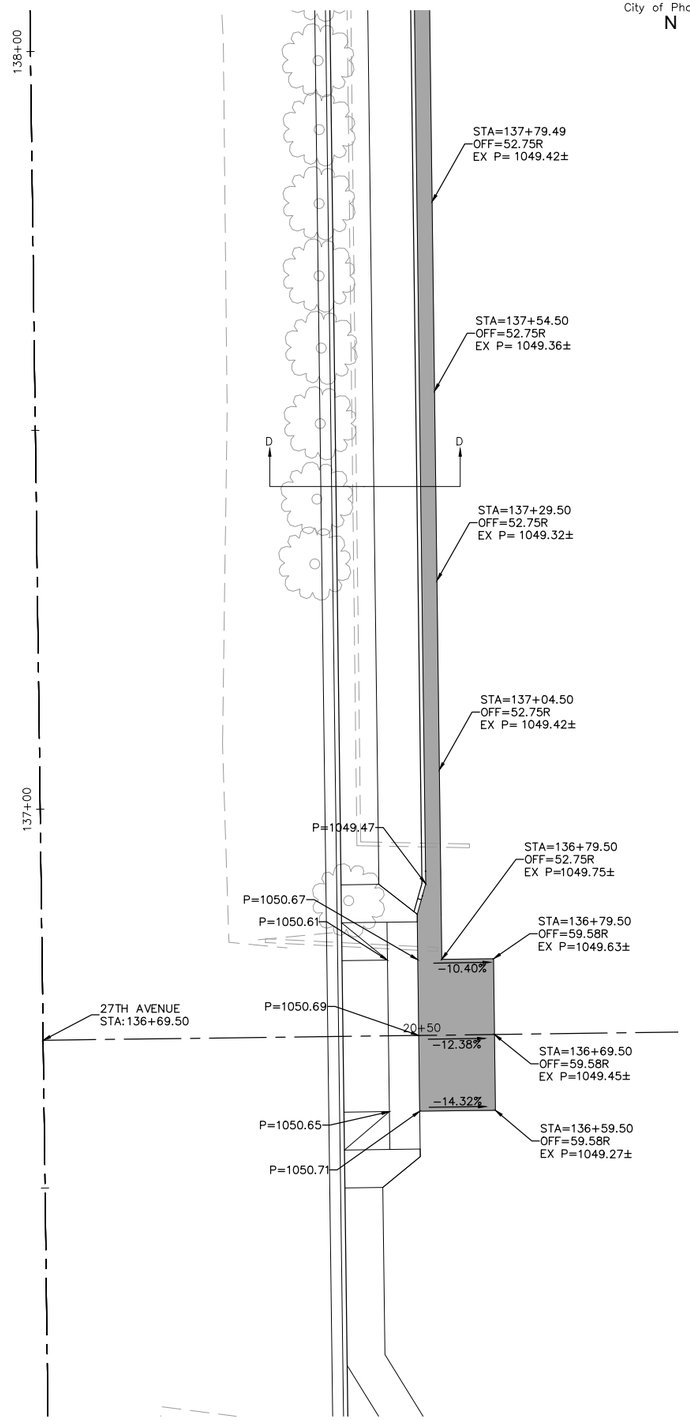
REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

City of Phoenix
N



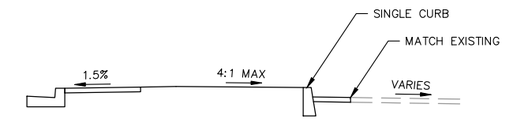
27T□ AVENUE

SEE PAVING SHEET 19

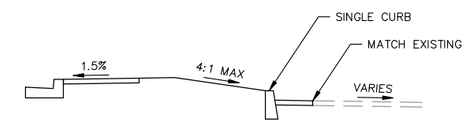


27T□ AVENUE

SEE PAVING SHEET 20



SECTION C-C



SECTION D-D

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ARIZONA 811
Arizona Blue Stake, Inc.
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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			39	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

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REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

City of Phoenix
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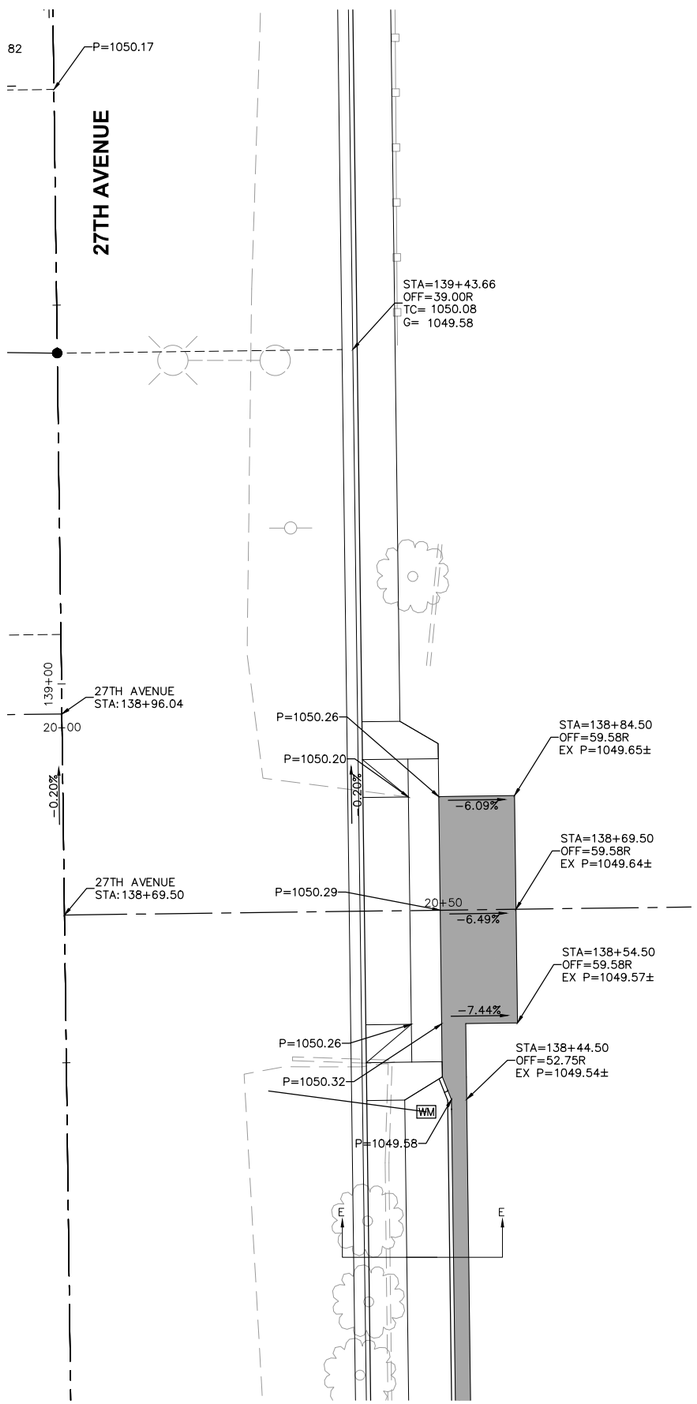
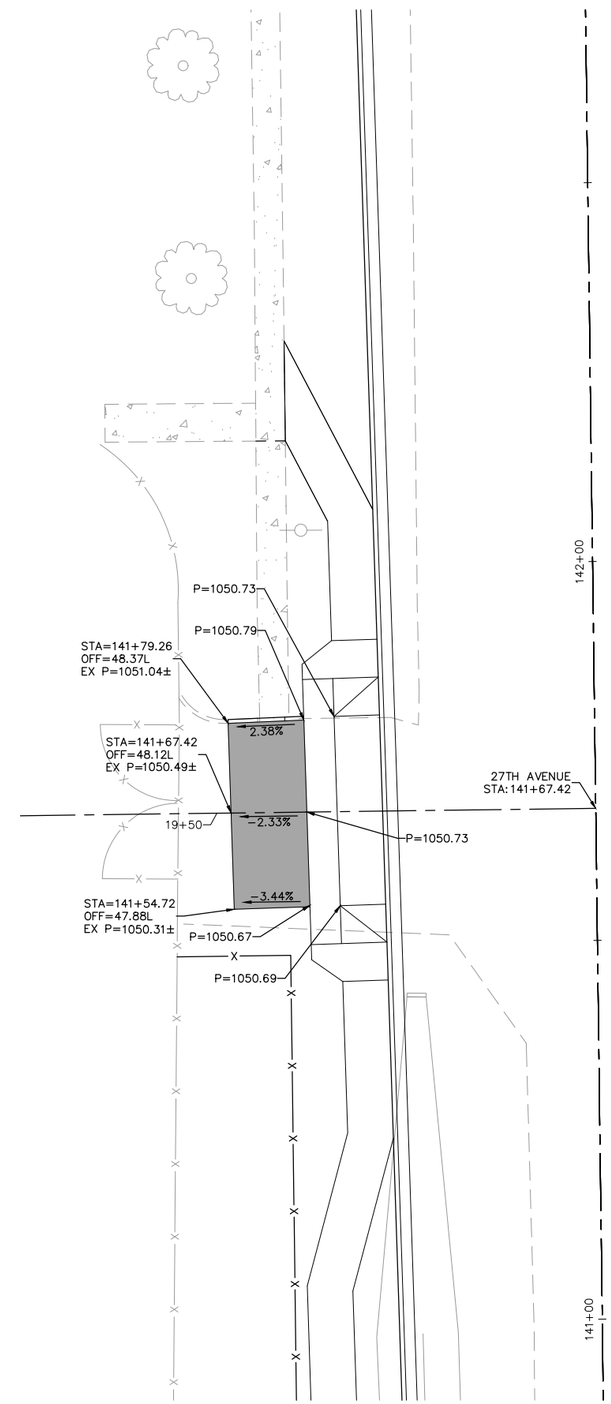


27T□ AVENUE

SEE PAVING SHEET 20-21



27T□ AVENUE

SEE PAVING SHEET 21

SECTION E-E

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Arizona Blue Stake, Inc.
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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			40	63	.

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

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27TH AVENUE

LOWER BUCKEYE ROAD TO

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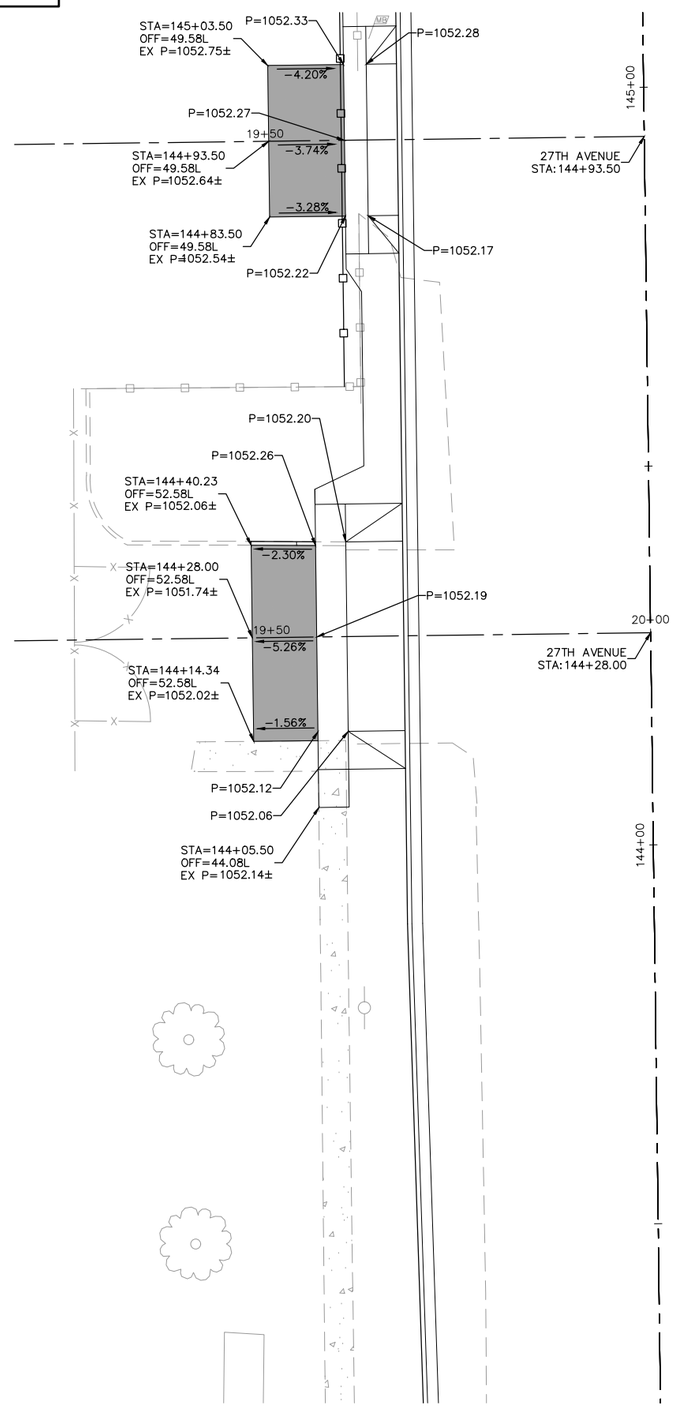
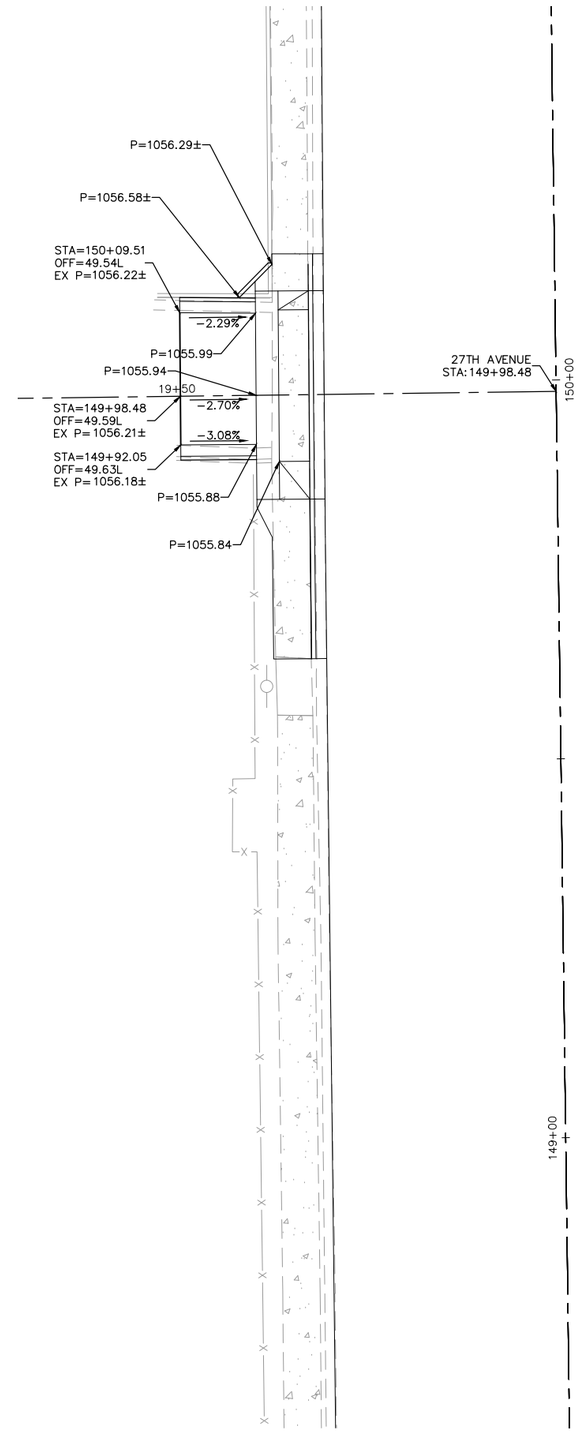


27T□ AVENUE

SEE PAVING SHEET 21-22



27T□ AVENUE

SEE PAVING SHEET 22-23

City of Phoenix
N

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

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PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			41	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

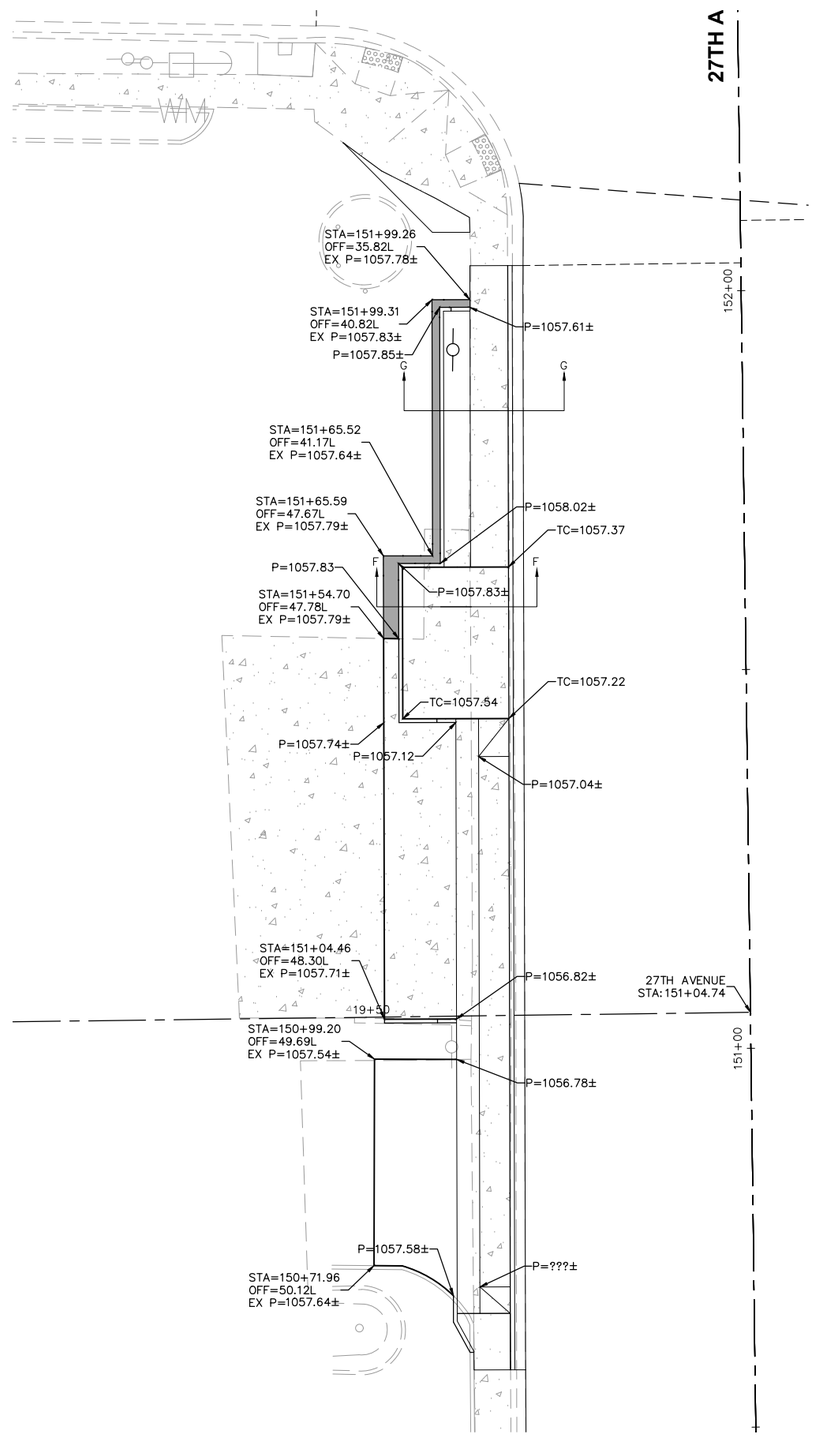
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

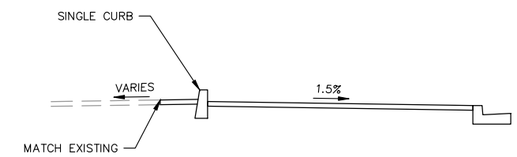
REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

City of Phoenix
N

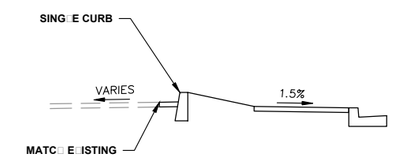


27T□ AVENUE

SEE PAVING SHEET 23



SECTION □-□



SECTION G-G

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

10 0 10 20 30
SCALE: 1" = 10'

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 10' HORIZONTAL			42	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE

LOWER BUCKEYE ROAD TO

BUCKEYE ROAD

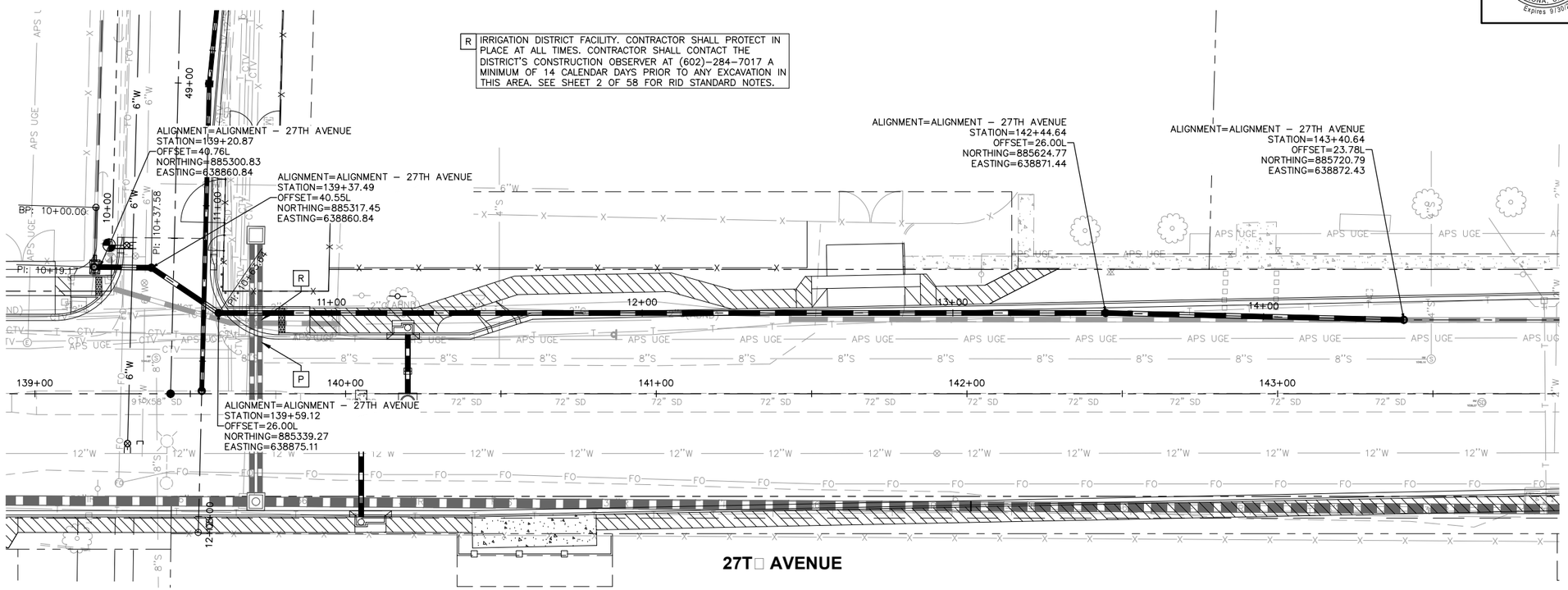
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

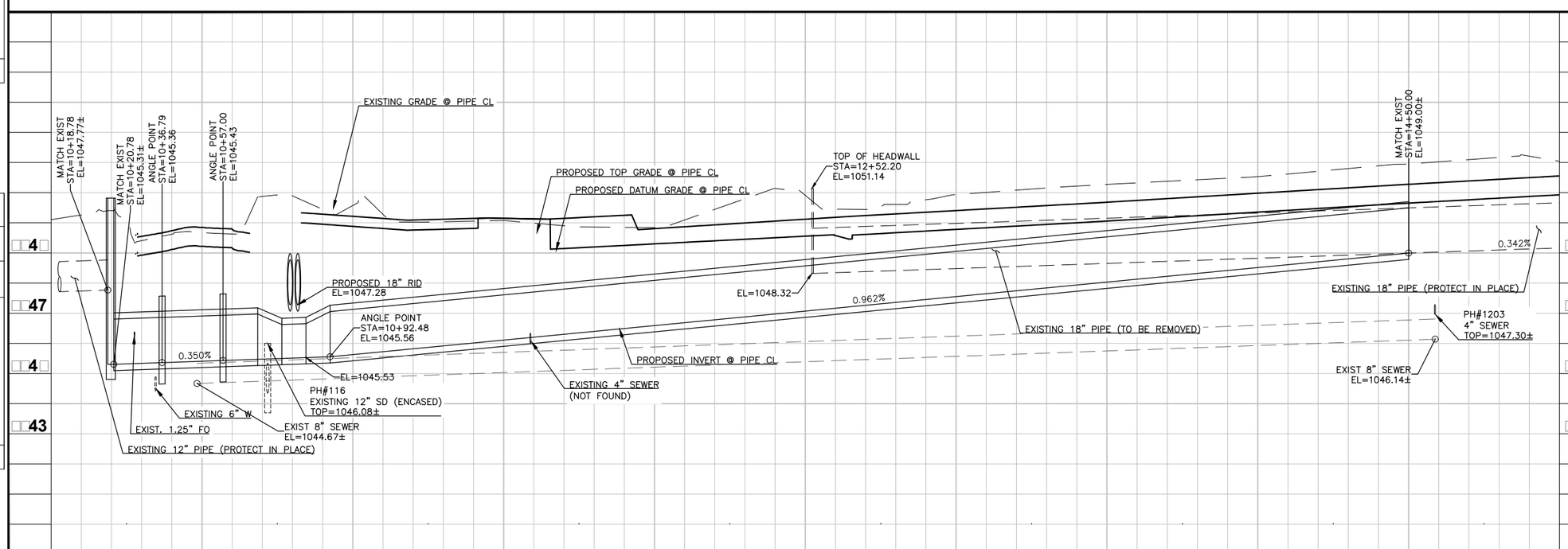
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

R IRRIGATION DISTRICT FACILITY. CONTRACTOR SHALL PROTECT IN PLACE AT ALL TIMES. CONTRACTOR SHALL CONTACT THE DISTRICT'S CONSTRUCTION OBSERVER AT (602)-284-7017 A MINIMUM OF 14 CALENDAR DAYS PRIOR TO ANY EXCAVATION IN THIS AREA. SEE SHEET 2 OF 58 FOR RID STANDARD NOTES.





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In Maricopa County: (602) 263-1100

20 0 20 40 60

SCALE: 1" = 20'
VERT: 1" = 2'

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PRIVATE IRRIGATION

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			43	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE

LOWER BUCKEYE ROAD TO

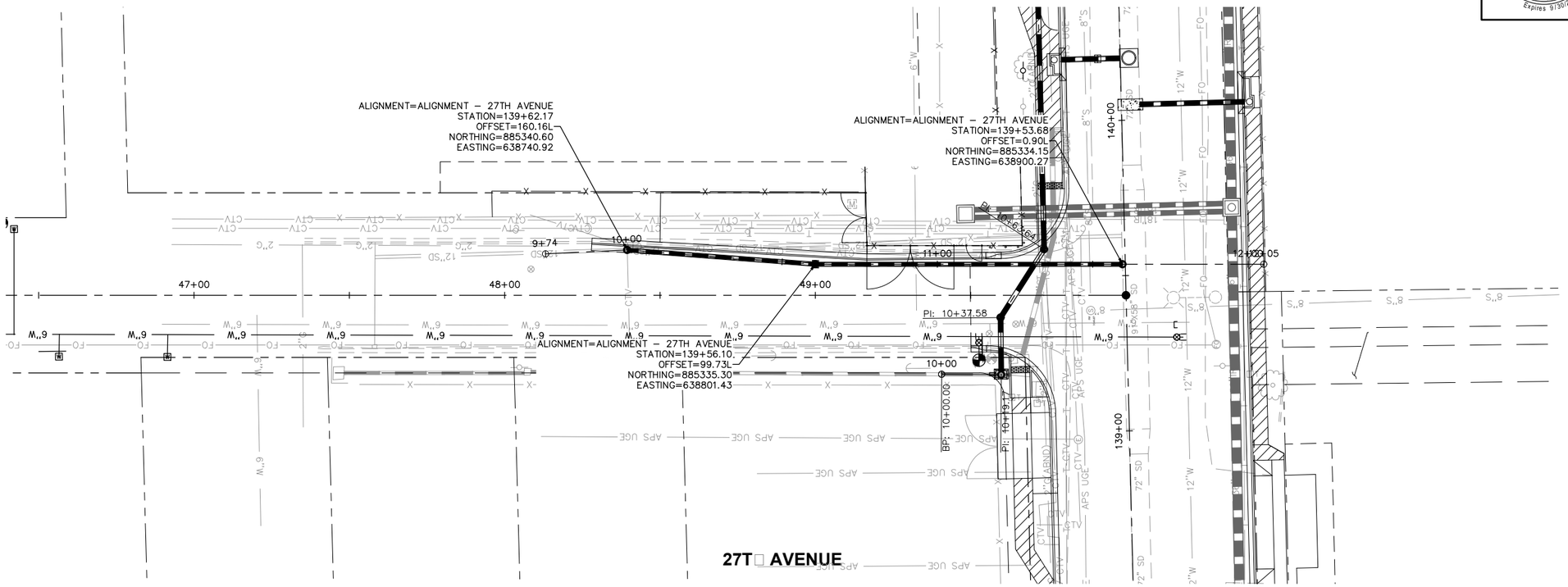
BUCKEYE ROAD

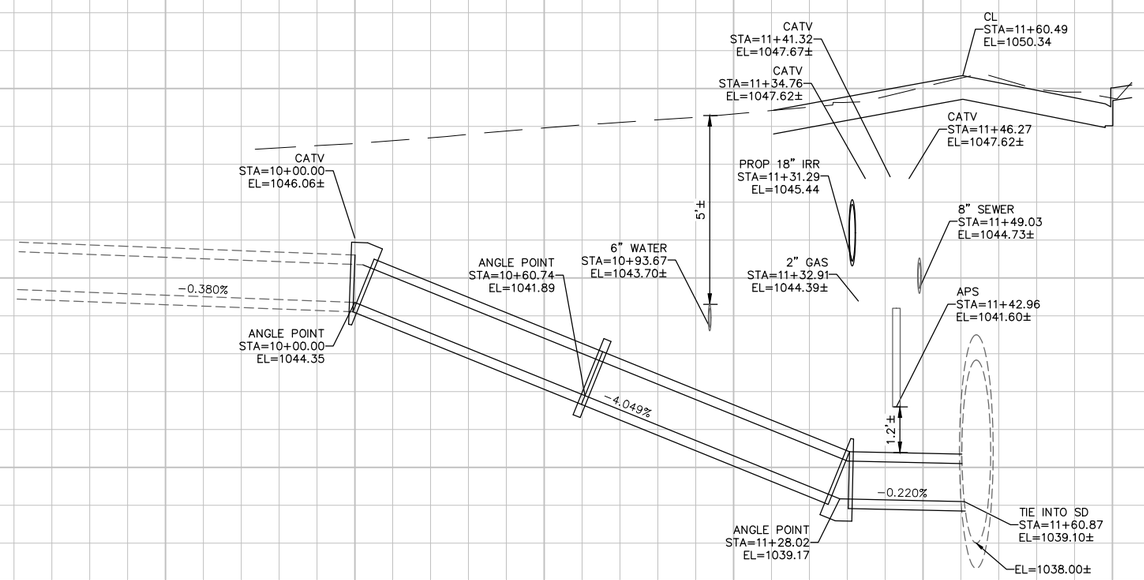
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: OG	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20





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20 0 20 40 60

SCALE: 1" = 20'
VERT: 1" = 2'

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PRIVATE IRRIGATION

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: OG	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			43A	63	.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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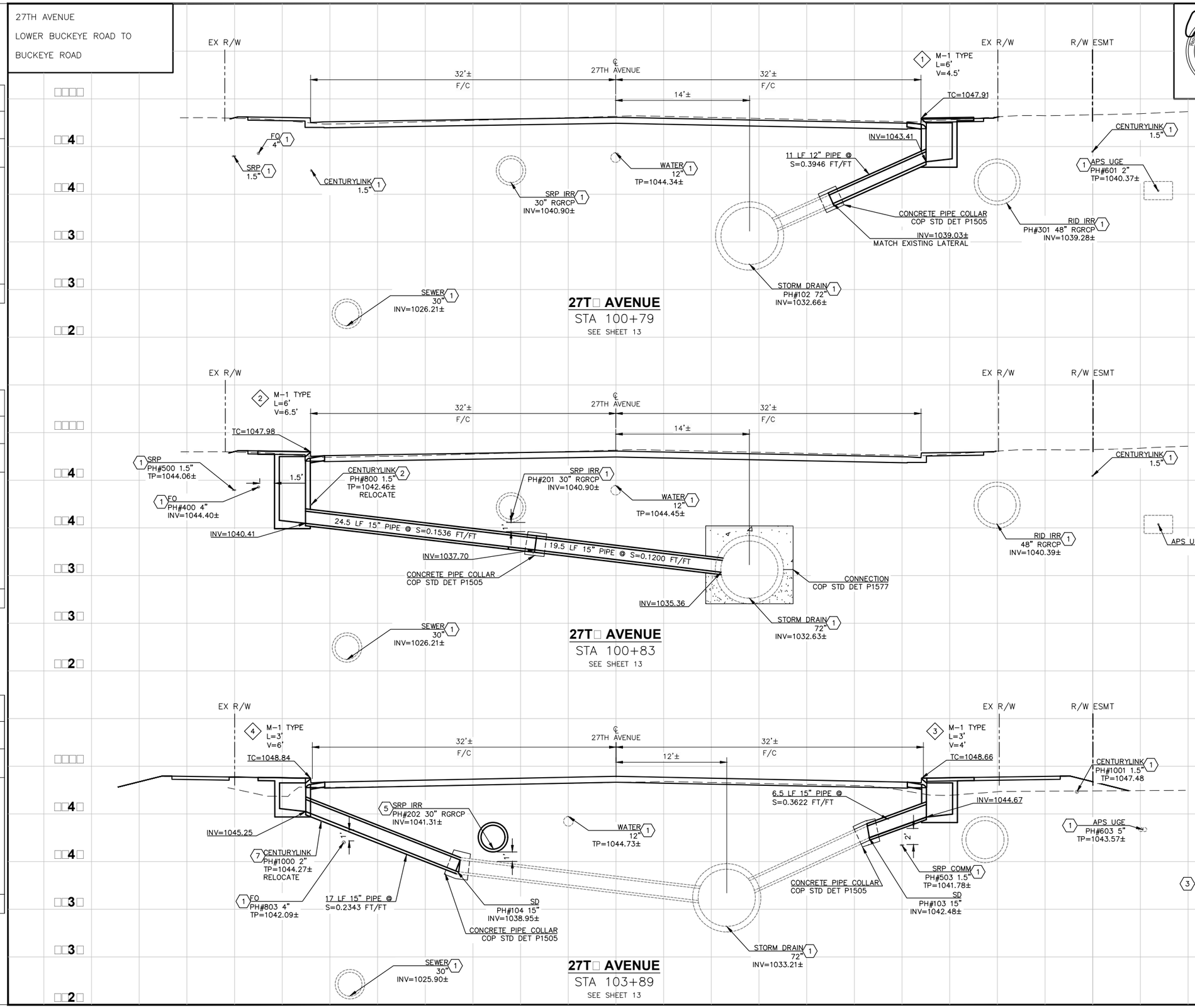
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: TS | CK: CSS | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20



1. PROTECT IN PLACE
2. COX FACILITIES TO BE RELOCATED BY COX CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR TO REMOVE EXISTING IRRIGATION PIPE.
4. NEW RID IRRIGATION PIPE BY RID FORCES. NEW PIPE TO BE INSTALLED PRIOR TO CONSTRUCTION OF THIS PROJECT.
5. REPLACE IRRIGATION PIPE PER SRP PLANS.
6. GAS LINE TO BE RELOCATED BY SOUTHWEST GAS CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
7. CENTURYLINK FACILITIES TO BE RELOCATED BY CENTURYLINK CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
8. SPRINT FACILITIES TO BE RELOCATED BY SPRINT CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
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NOTE

1. WATER LINE ELEVATIONS ARE BASED ON SURVEYED TOP OF NUT AT WATER VALVES.
2. SEWER LINE ELEVATIONS ARE BASED ON CITY'S QUARTER SECTION MAPS.

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CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18	44	63	.

SCALE: 1"=5'

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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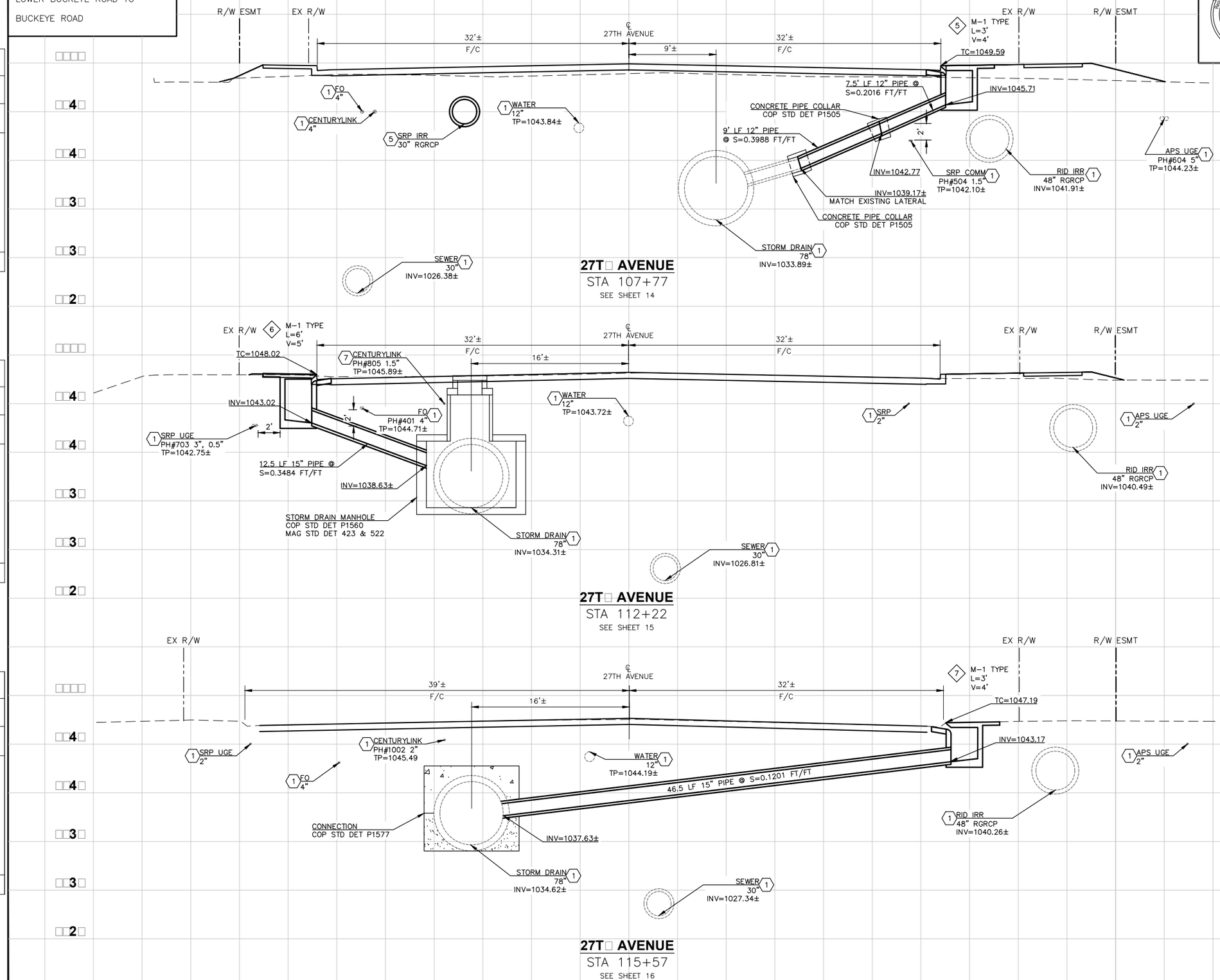
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: TS | CK: CSS | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20



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CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1"=5'			45	63	.

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

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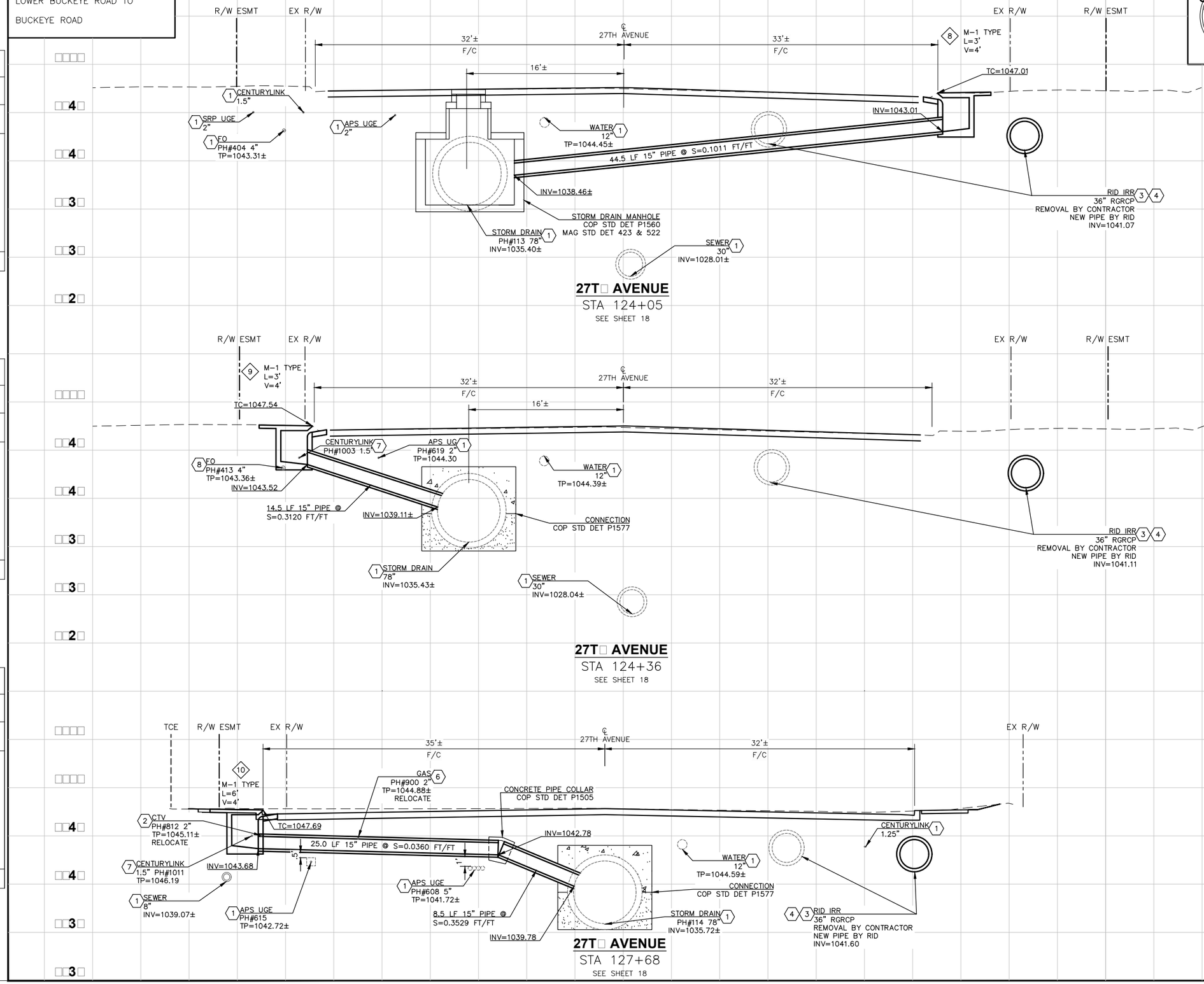
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: TS | CK: CSS | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER — CARLOS SANCHEZ SORIA — 48279 — Date Signed 09/26/18 — ARIZONA, U.S.A. — Expires 9/30/20



1. PROTECT IN PLACE
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CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	46	63	.
SCALE: 1"=5'					

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: TS	CK: CSS	DATE: 9/18

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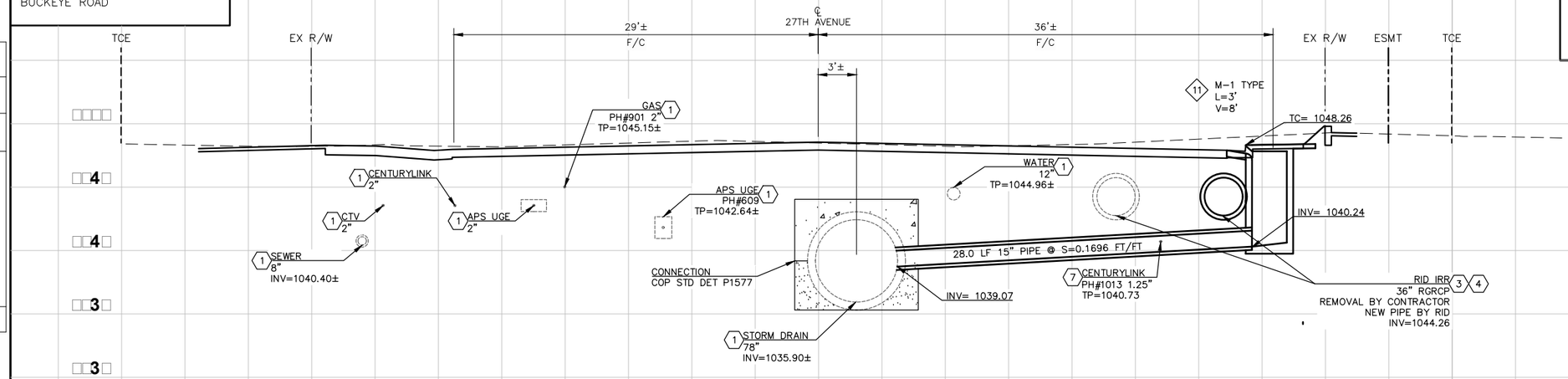

27T□ AVENUE
STA 129+50
SEE SHEET 19

REVISION BY CITY OF PHOENIX

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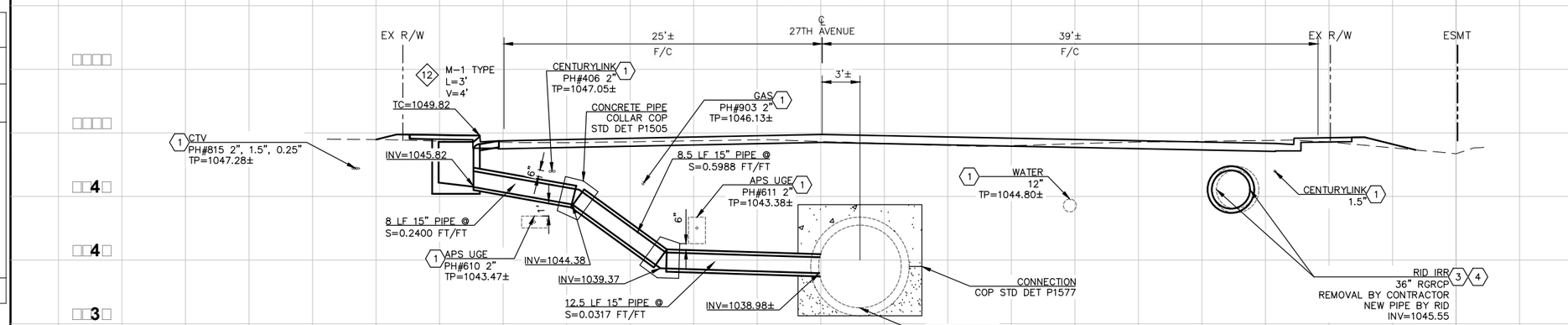
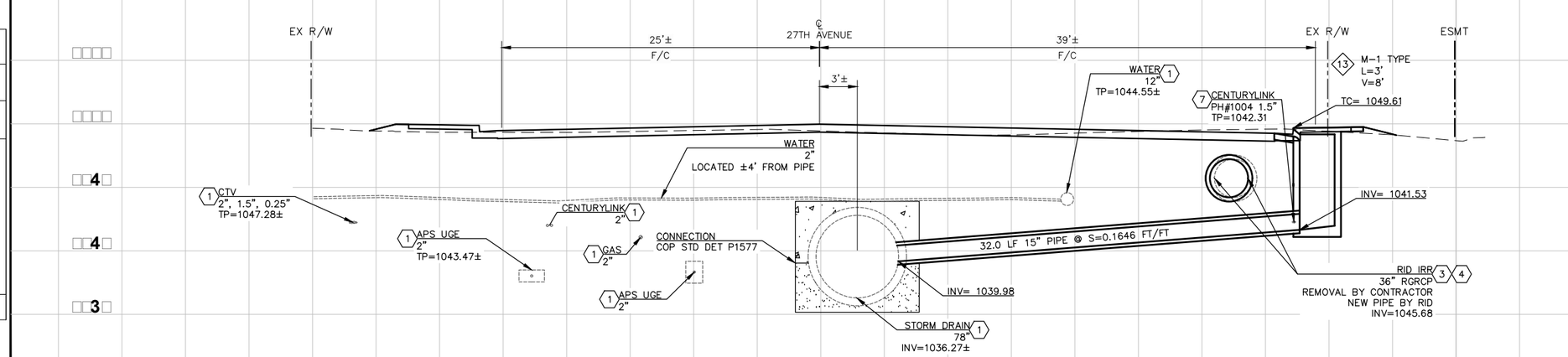


27T□ AVENUE
STA 133+35
SEE SHEET 19

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



27T□ AVENUE
STA 133+52
SEE SHEET 19

1. PROTECT IN PLACE
2. COX FACILITIES TO BE RELOCATED BY COX CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR TO REMOVE EXISTING IRRIGATION PIPE.
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CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1"=5'			47	63	.

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

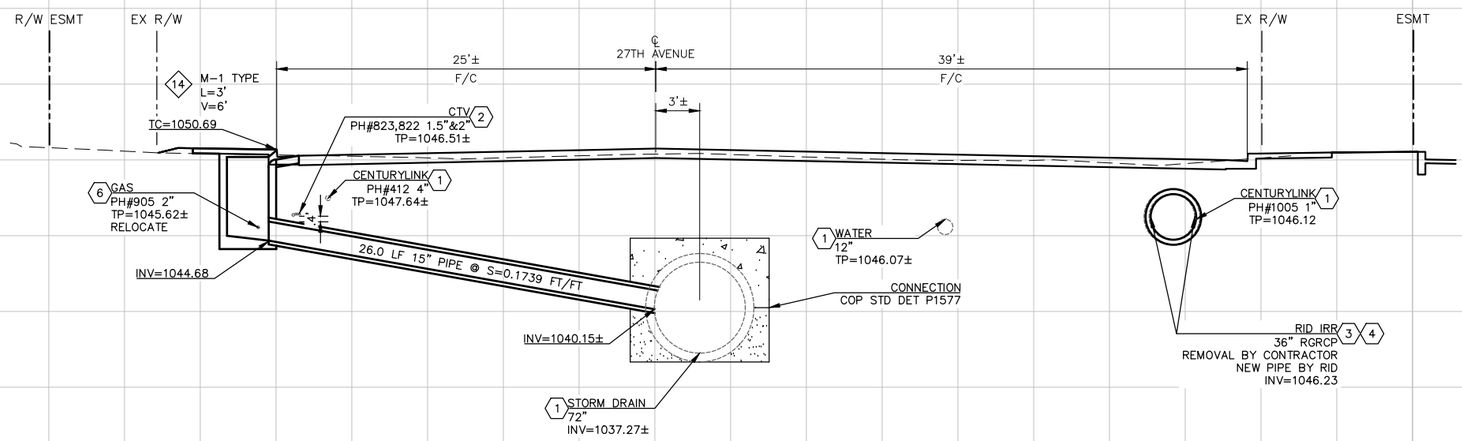
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS | DR: TS | CK: CSS | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



27T□ AVENUE
STA 138+36
SEE SHEET 20

REVISION BY CITY OF PHOENIX

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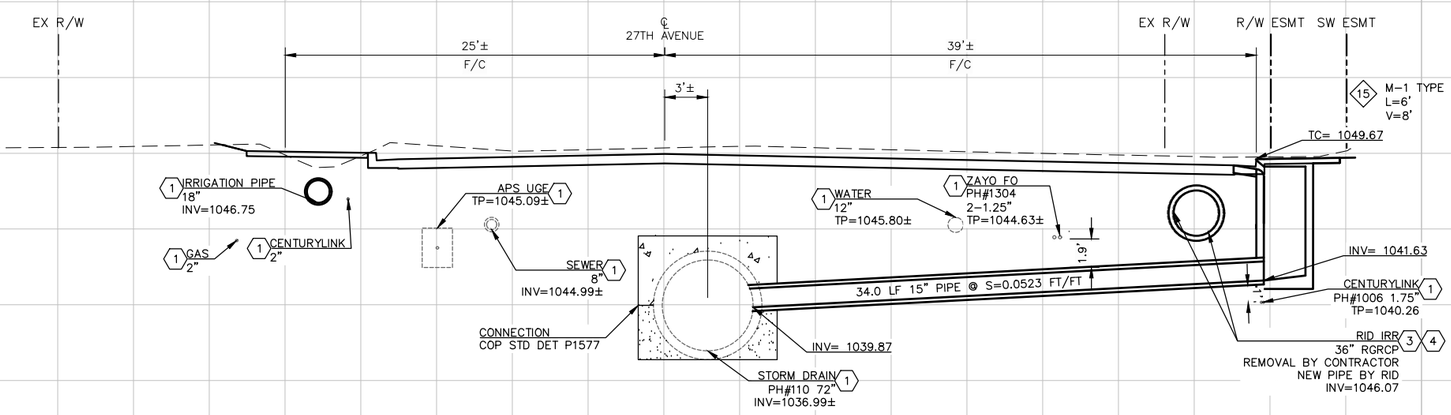

27T□ AVENUE
STA 140+05
SEE SHEET 21

REVISION BY CITY OF PHOENIX

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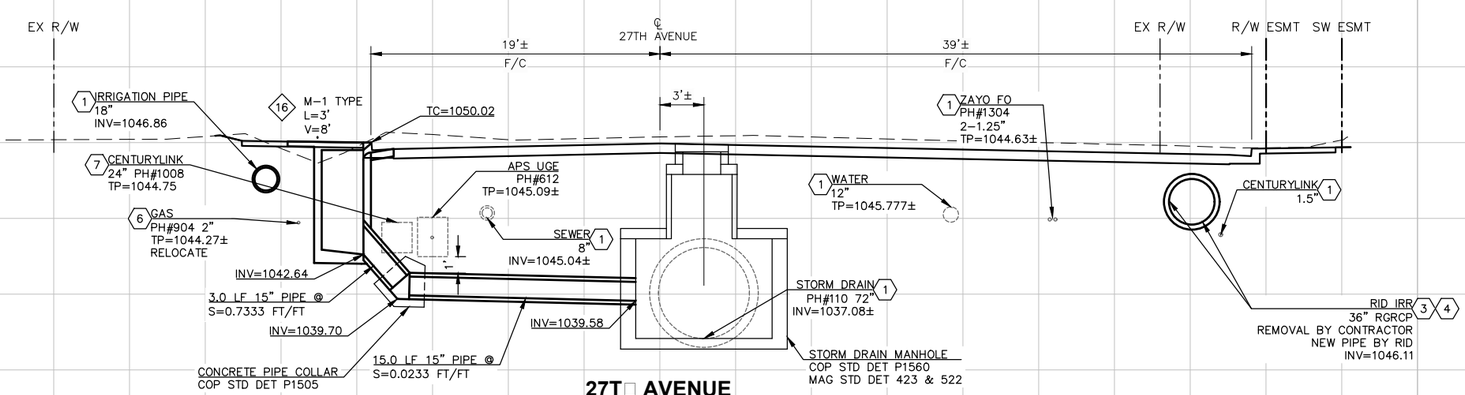

27T□ AVENUE
STA 140+20
SEE SHEET 21

1. PROTECT IN PLACE
2. COX FACILITIES TO BE RELOCATED BY COX CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR TO REMOVE EXISTING IRRIGATION PIPE.
4. NEW RID IRRIGATION PIPE BY RID FORCES. NEW PIPE TO BE INSTALLED PRIOR TO CONSTRUCTION OF THIS PROJECT.
5. REPLACE IRRIGATION PIPE PER SRP PLANS.
6. GAS LINE TO BE RELOCATED BY SOUTHWEST GAS CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
7. CENTURYLINK FACILITIES TO BE RELOCATED BY CENTURYLINK CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
8. SPRINT FACILITIES TO BE RELOCATED BY SPRINT CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
9. ZAYO FACILITIES TO BE RELOCATED BY ZAYO CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.

NOTE□

1. WATER LINE ELEVATIONS ARE BASED ON SURVEYED TOP OF NUT AT WATER VALVES.
2. SEWER LINE ELEVATIONS ARE BASED ON CITY'S QUARTER SECTION MAPS.

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE: 9/18	DATE: 9/18	DATE: 9/18	48	63	.
SCALE: 1"=5'					

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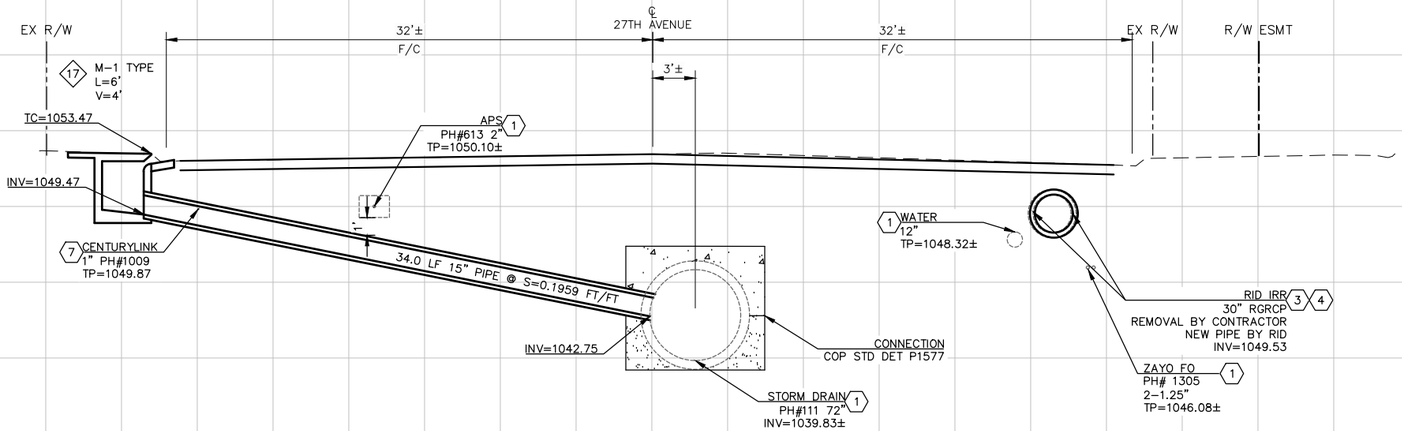
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

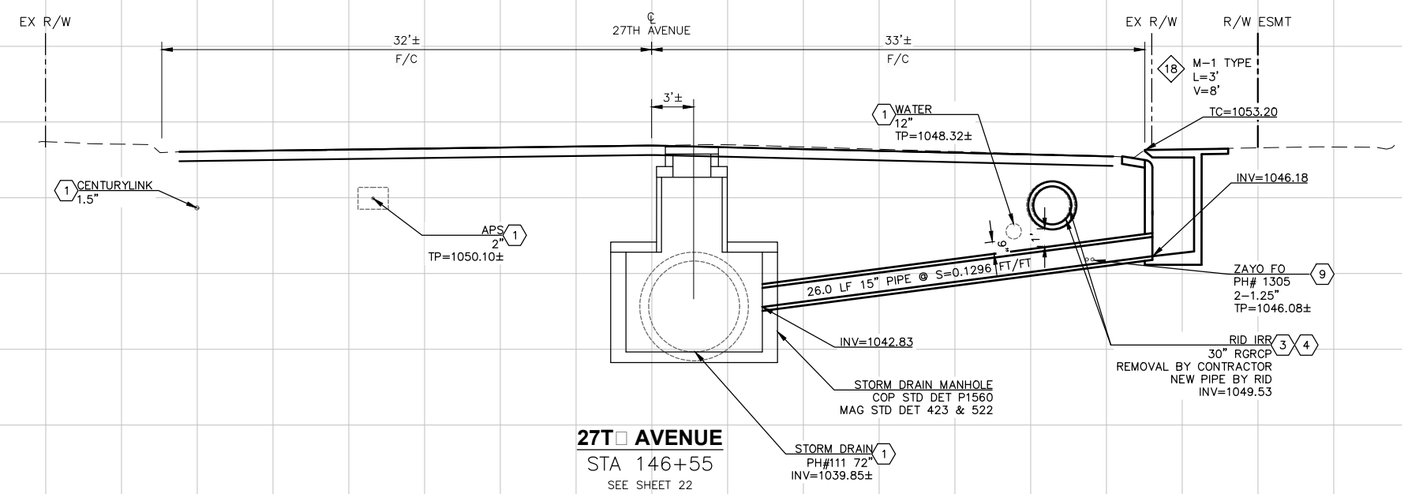
T.Y. LIN INTERNATIONAL engineers | planners | scientists — T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: CSS	DR: TS	CK: CSS	DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER (CIVIL) 48279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20



27T□ AVENUE
STA 146+50
SEE SHEET 22



27T□ AVENUE
STA 146+55
SEE SHEET 22

1. PROTECT IN PLACE
2. COX FACILITIES TO BE RELOCATED BY COX CREWS PER THE APPROVED PLANS AND PRIOR TO CONSTRUCTION OF THIS PROJECT.
3. CONTRACTOR TO REMOVE EXISTING IRRIGATION PIPE.
4. NEW RID IRRIGATION PIPE BY RID FORCES. NEW PIPE TO BE INSTALLED PRIOR TO CONSTRUCTION OF THIS PROJECT.
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CONNECTOR PIPE PROFILES

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: CSS	CK: CSS	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18			
SCALE: 1"=5'			49	63	.

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

STORM DRAIN
ALTERNATE PIPE MATERIAL

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100341		.	.

T.Y. LIN INTERNATIONAL
engineers | planners | scientists
T.Y.LIN INTERNATIONAL CONSULTING ENGINEER

DES: TS | DR: TS | CK: LAV | DATE: 9/18

REGISTERED PROFESSIONAL ENGINEER 43279 CARLOS SANCHEZ SORIA Date Signed 09/26/18 ARIZONA, U.S.A. Expires 9/30/20

MAIN LINE PIPE

STATION FROM	STATION TO	QUANTITY L.F.	PIPE DIAMETER R.C.P. (I.D.) IN.	PIPE DIAMETER HDPE *** (I.D.) IN.	PIPE DIAMETER CIPP & C.S.P. (I.D.) IN.	DEPTH TO TOP OF PIPE MIN. (FT.)	DEPTH TO TOP OF PIPE MAX. (FT.)	MAX TRENCH WIDTH AT TOP OF PIPE R.C.P.,C.S.P., & HDPE *** FT.	REINFORCED CONCRETE PIPE ** MIN. D-LOAD (TO PRODUCE 0.01" CRACK)	CAST-IN-PLACE CONCRETE PIPE **** MINIMUM WALL THICKNESS IN.	CORRUGATED STEEL PIPES $2\frac{2}{3}$" x $\frac{1}{2}$" CORR. TYPE "F"* MIN. GAGE	CORRUGATED STEEL PIPES 3" x 1" CORR. TYPE "F"* MIN. GAGE
NOTE: MAIN LINE IS EXISTING												

CONNECTOR PIPE

LOCATION STATION (LT. or RT.)	QUANTITY L.F.	DEPTH TO TOP OF PIPE MIN. (FT.)	DEPTH TO TOP OF PIPE MAX (FT.)	PIPE DIA. R.C.P.,C.S.P., & HDPE *** (I.D.) IN.	R.C.P. ** MIN. D-LOAD (TO PRODUCE 0.01" CRACK)	C.S.P. $2\frac{2}{3}$" x $\frac{1}{2}$" CORR. ALUMINIZED TYPE "2" MIN. GAGE
100+79, 32' RT	11.0	3.0	7.1	12	2000 (Class IV)	–
100+83, 32' LT	44.0	4.5	10.6	15	2000 (Class IV)	–
103+89, 32' RT	6.5	2.0	4.4	15	1000 (Class IV)	–
103+89, 32' LT	17.0	4.1	7.9	15	2000 (Class IV)	–
107+77, 32' RT	9.0	2.3	9.2	12	2000 (Class IV)	–
112+22, 32' LT	12.5	3.1	7.5	15	2000 (Class IV)	–
115+57, 32' RT	46.5	2.5	8.0	15	2000 (Class IV)	–
124+05, 33' RT	44.5	2.0	7.4	15	2000 (Class IV)	–
124+36, 32' LT	14.5	2.1	6.7	15	1350 (Class IV)	–
127+68, 32' LT	33.5	2.0	6.7	15	1350 (Class IV)	–
129+50, 36' RT	28.0	2.0	7.8	15	2000 (Class IV)	–
133+35, 25' LT	29.0	2.0	8.8	15	2000 (Class IV)	–
133+52, 39' RT	32.0	2.0	8.9	15	2000 (Class IV)	–
138+36, 25' LT	26.0	4.0	9.2	15	2000 (Class IV)	–
140+05, 39' RT	34.0	2.0	8.5	15	2000 (Class IV)	–
140+20, 25' LT	18.0	4.2	8.9	15	2000 (Class IV)	–
146+50, 32' LT	34.0	2.0	9.2	15	2000 (Class IV)	–
146+55, 33' RT	26.0	5.0	9.0	15	2000 (Class IV)	–

GENERAL NOTES:

1. ONLY PIPE MATERIALS SPECIFIED ON THIS SHEET ARE ACCEPTABLE FOR THIS PROJECT.
2. WHERE MAXIMUM TRENCH WIDTH IS NOTED AS "UNRESTRICTED", PIPE STRENGTHS ARE SPECIFIED FOR A POSITIVE PROJECTING OR EMBANKMENT LOADING CONDITION. TRENCH WIDTH RESTRICTIONS FOR THE CAST-IN-PLACE CONCRETE PIPE OPERATION, SHALL COMPLY WITH SECTION 620.
3. CITY POLICY REQUIRES THAT CAST-IN-PLACE PIPE AND CORRUGATED STEEL PIPE MAINLINES BE UPSIZED A MINIMUM OF 6-INCHES GREATER DIAMETER THAN THE SPECIFIED REINFORCED CONCRETE PIPE DIAMETER. IF EITHER OF THESE OPTIONS ARE USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESOLVING ANY UTILITY CONFLICTS ASSOCIATED WITH THE INCREASED PIPE DIAMETER. MINIMUM WALL THICKNESS FOR CAST-IN-PLACE PIPE SHALL BE 1/12 OF INSIDE DIAMETER PLUS ONE INCH, BASED ON THE UPSIZED DIAMETER.
4. A MINIMUM OF 14 GAUGE IS REQUIRED FOR ALL CSP BY CITY OF PHOENIX TO OBTAIN DESIGN LIFE REQUIREMENTS OF 75 YEARS TO FIRST PERFORATION.
5. WHERE NEW MAINLINE STORM DRAIN CONNECTION TO EXISTING MAINLINE SYSTEM IS REQUIRED, AND THE NEW MAINLINE IS LARGER THAN THE EXISTING, (SUCH AS NEW 6" OVERSIZED CIPP OR CSP CONNECTING TO EXISTING RGRCP), PIPE INVERTS SHALL BE MATCHED. IN ALL OTHER CASES, INSIDE TOP OF PIPE (CROWN) ELEVATIONS SHALL BE MATCHED.
6. MAX TRENCH WIDTH AT TOP OF PIPE SHALL BE BASED ON MAG PAY WIDTH ON PROJECTS WITH MINIMUM PAVEMENT REPLACEMENT ("PATCH"). ON PROJECTS WITH NEW FULL PAVEMENT (SUCH AS MAJOR ARTERIAL STREET CONSTRUCTION PROJECTS), THE MAX TRENCH WIDTH SHALL BE LABELED, "UNRESTRICTED".

* TYPE "F" – COATED AND CONCRETE LINED CSP
CITY OF PHOENIX SUPPLEMENT TO MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD SPECIFICATIONS.

** RUBBER GASKETED PIPE REQUIRED FOR ALL REINFORCED CONCRETE PIPE

*** HIGH DENSITY POLYETHYLENE (HDPE), TYPE "S" WITH WATERTIGHT JOINTS PER AASHTO 252, AASHTO M294, MAG AND CITY SUPPLEMENTS TO MAG. JOINTS SHALL MEET ASTM D-3212 WATERTIGHT REQUIREMENT (10.8 psi). MAXIMUM DIAMETER ALLOWED = 48-INCH.

**** THE MINIMUM DIAMETER FOR CIPP IS 30 INCHES

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ALTERNATE PIPE CHART

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: TS	DES: TS	CK: LAV	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:9/18	DATE: 9/18	DATE: 9/18	50	63	.
SCALE:					

REVISION BY CITY OF PHOENIX

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

CITY OF PHOENIX STREET LIGHTING
27TH AVENUE IMPROVEMENTS
FROM LOWER BUCKEYE TO BUCKEYE
ST85100341

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS. Date Signed 9-27-18 Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100341		

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

DR: JKS	DES: JKS	CK: AMB	DATE: 9/2018

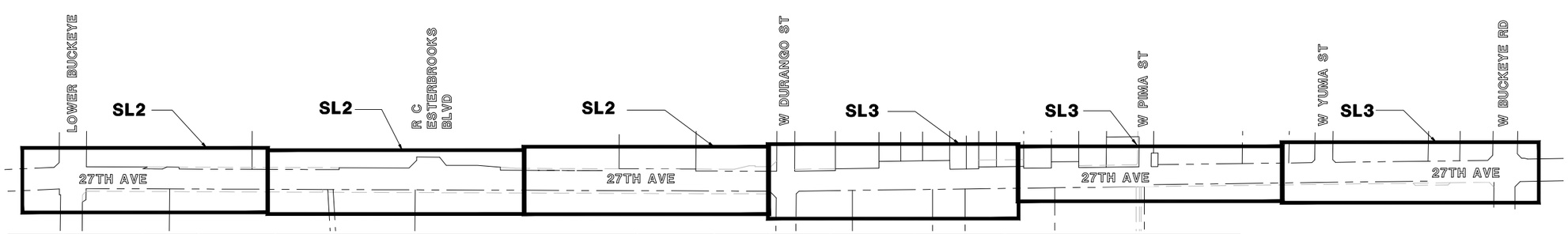
STREET LIGHTING GENERAL NOTES

THE FOLLOWING INFORMATION IS PROVIDED TO EMPHASIZE CRITICAL WORK AND IS INTENDED TO SUPPLEMENT THE SPECIFICATIONS.

1. THE CONTRACTOR SHALL COMPLY WITH STATE AND CITY STATUTES AND ORDINANCES.
2. PRIOR TO SUBMITTAL, THE STREET LIGHT DESIGNER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT THE CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THE CONTRACT.
3. THE STREET LIGHT DESIGNER SHOULD VERIFY DIMENSIONS AT THE SITE AND IMMEDIATELY REPORT DIFFERENCES TO THE DEVELOPER'S CONSTRUCTION MANAGER AND NOT PROCEED WITH WORK UNTIL THE CONSTRUCTION MANAGER RENDERS A DECISION.
4. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ALL LICENSING REQUIREMENTS SET FORTH BY THE STATE REGISTRAR OF CONTRACTORS OFFICE TO PERFORM WORK RELATING TO STREET LIGHT INSTALLATION IN CITY OF PHOENIX RIGHT-OF-WAY.
5. ONE DRY UTILITY PERMIT FOR EACH CITY OF PHOENIX STREET LIGHT PROJECT SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. LIGHT POLES SHALL BE INSTALLED PLUMB, BE ADJUSTED TO PROVIDE PROPER ALIGNMENT TO THE ROADWAY BEING LIGHTED AND BE PROPERLY GROUNDED WHEN THE INSTALLATION IS COMPLETED.
7. STREET LIGHTS ARE INSPECTED BY THE CITY OF PHOENIX STREETLIGHTING INSPECTOR. WHEN ACCEPTED AND ENERGIZED THE UTILITY COMPANY WILL INSTALL A STREETLIGHT NUMBER ON EACH POLE.
8. LUMINAIRES SHALL BE INSTALLED LEVEL AND INCLUDE A LAMP AND PHOTOCELL. THE LUMINAIRES SHALL BE FREE OF DUST, DIRT OR ANYTHING THAT WOULD IMPAIR THE OUTPUT OF THE LIGHT.
9. LUMINAIRES FURNISHED WITH MULTI-TAP DRIVERS SHALL BE THE VOLTAGE SUPPLIED BY THE ELECTRIC UTILITY COMPANY.
10. POLE SHALL BE SET PLUMB IN TWO DIRECTIONS, NINETY (90) DEGREES APART.
11. SURPLUS EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR.
12. WIRING SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. CONDUIT SHALL BE INSTALLED AT THE DEPTH SPECIFIED ON THEIR PLANS.
13. CONDUIT MUST BE LISTED AND LABELED AND SUITABLE FOR UNDERGROUND USE.
14. CONNECTIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS. EACH POLE SHALL HAVE A 8' X 5/8" COPPER CLAD GROUND ROD DRIVEN BENEATH PULL BOX. A #6 BARE COPPER LEAD FROM THE GROUND ROD IN PULL BOX TO LANDING LUG IN STREET LIGHT POLE HAND HOLE IS REQUIRED.
15. EXCAVATION FOR PULL BOXES AND MATERIAL SPECIFICATIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS.
16. TRENCH SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. THE USE OF A COMMON ELECTRIC UTILITY COMPANY TRENCH IS PERMITTED.
17. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANY FOR COORDINATION OF THE TRENCHING AND THE INSTALLATION OF CONDUIT.
18. IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESTORE ALL PROPERTY, LANDSCAPING, PAVING AND DRIVEWAYS THAT ARE DISTURBED DURING STREET LIGHT CONSTRUCTION TO THEIR ORIGINAL CONDITION IN CONFORMANCE WITH MAG SPECIFICATION SECTION 107.9.
19. IF A FIXTURE SHOULD FAIL, IT SHALL BE IMMEDIATELY REPLACED. THE DEVELOPER SHALL BE RESPONSIBLE FOR FURNISHING ALL PERSONNEL AND EQUIPMENT NECESSARY TO SUCCESSFULLY REPAIR THE FIXTURE.
20. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEERING MANAGER, AGAINST IMPERFECT WORKMANSHIP, FAILURE, MALFUNCTION OF MATERIALS AND/OR EQUIPMENT DUE TO FAULTY OR IMPERFECT WORKMANSHIP.
21. THIS GUARANTEE IS TO BE IN WRITING TO THE CITY AT THE TIME OF ISSUING FINAL ACCEPTANCE. MATERIALS AND WORKMANSHIP FOUND TO BE DEFECTIVE WITHIN THE WARRANTY PERIOD SHALL BE REPLACED WITHOUT COST TO THE CITY.

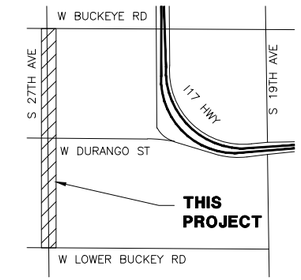
ARIZONA PUBLIC SERVICE (APS) NOTES

1. CONTRACTOR SHALL CONTACT APS INSPECTOR IDENTIFIED ON THE APS CONSTRUCTION DRAWING FOR PRE-CONSTRUCTION MEETING PRIOR TO ANY EXCAVATION.
2. CONTRACTOR TO SUPPLY ALL TRENCH AND CONDUIT, PER APS REQUIREMENTS, UNLESS OTHERWISE NOTED.
3. GRADE STAKE WILL BE SET WITHIN 2' OF J-BOX LOCATION.
4. CONTRACTOR WILL COORDINATE WITH APS AND CITY OF PHOENIX FOR DE-ENERGIZING OF STREETLIGHT CONDUCTOR.
5. GROUND ROD TO BE PROVIDED AND INSTALLED BY CONTRACTOR IN APS J-BOX AT EACH STREETLIGHT LOCATION.
6. IF THE CONTRACTOR INSTALLS THE POLE, THE BARE #6 COPPER GROUND WIRE SHALL BE CONNECTED FROM THE GROUND ROD IN THE APS J-BOX TO THE GROUND CONNECTION IN THE HAND-HOLE..
7. ALL TRENCH AND CONDUIT TO BE INSPECTED BY APS. DO NOT BACKFILL UNTIL INSPECTED.
8. APS CONSTRUCTION PRINT MUST BE USED AS A TRENCHING REFERENCE. TRENCHING VARIATIONS MUST HAVE WRITTEN APS CSR APPROVAL. FOLLOW DETAILS FOR CONSTRUCTION. VARIATIONS IN TRENCH ROUTE MAY RESULT IN A REDESIGN FEE.
9. CONTACT APS FOR ALL TRENCH AND CONDUIT SPECIFICATIONS AND REQUIREMENTS.
10. CONTRACTOR IS RESPONSIBLE FOR INTEGRITY OF ALL CONDUITS UNTIL APS HAS INSTALLED CONDUCTORS.
11. CONTRACTOR IS RESPONSIBLE FOR OBTAINING REQUIRED VARIANCES PRIOR TO SUBMITTING CIP DRAWINGS TO THE UTILITIES.
12. CONTRACTOR IS RESPONSIBLE FOR VERIFYING VERTICAL AND HORIZONTAL CLEARANCES TO EXISTING OVERHEAD LINES AND POLES WHEN PLACING NEW STREETLIGHTS.



ITEM NUMBER	TYPE OF STREET	QUANTITY	MOUNTING HEIGHT	POLE LENGTH	MAST ARM	APPROVED POLE & ARM MANUFACTURERS	LUMEN	TYPE	WATTAGE	VOLTAGE	LUMINAIRE STYLE	APPROVED LUMINAIRE MANUFACTURERS
1	ARTERIAL	27	32'-11"	38'-6"	20"x6'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	9,250	LED	97 W	120/240 AS POWER CO. REQUIRES	COBRAHEAD	ERL1-0-10-C3-27-A-GRAY-R
2	ARTERIAL	9	32'-11"	38'-6"	20"x6'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	18,200	LED	149 W	120/240 AS POWER CO. REQUIRES	COBRAHEAD	ERL2-0-19-C3-30-A-GRAY-R
3	ARTERIAL	1	EXISTING POWER POLE				18,200	LED	149 W	120/240 AS POWER CO. REQUIRES	COBRAHEAD	ERL2-0-19-C3-30-A-GRAY-R
5	ARTERIAL	3	EXISTING POWER POLE				9,250	LED	97 W	120/240 AS POWER CO. REQUIRES	COBRAHEAD	ERL1-0-10-C3-27-A-GRAY-R

KEY MAP
N.T.S.



VICINITY MAP
N.T.S.
NORTH

SHEET INDEX

COVER SHEET	SL1
STREET LIGHT PLAN	SL2
STREET LIGHT PLAN	SL3
DETAIL SHEET	SL4

ELECTRICAL ENGINEER

WRIGHT ENGINEERING CORPORATION
165 EAST CHILTON DRIVE
CHANDLER, AZ 85225
PHONE: (480) 497-5829
FAX: (480) 497-5807
CONTACT: ADAM BOWERS, P.E.

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CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: JKS	DES: JKS	CK: AMB	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:5/18	DATE: 5/18	DATE: 9/18	51	63	#
SCALE:					

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

Brent Stockwell 9/21/2018 9:36:54 AM
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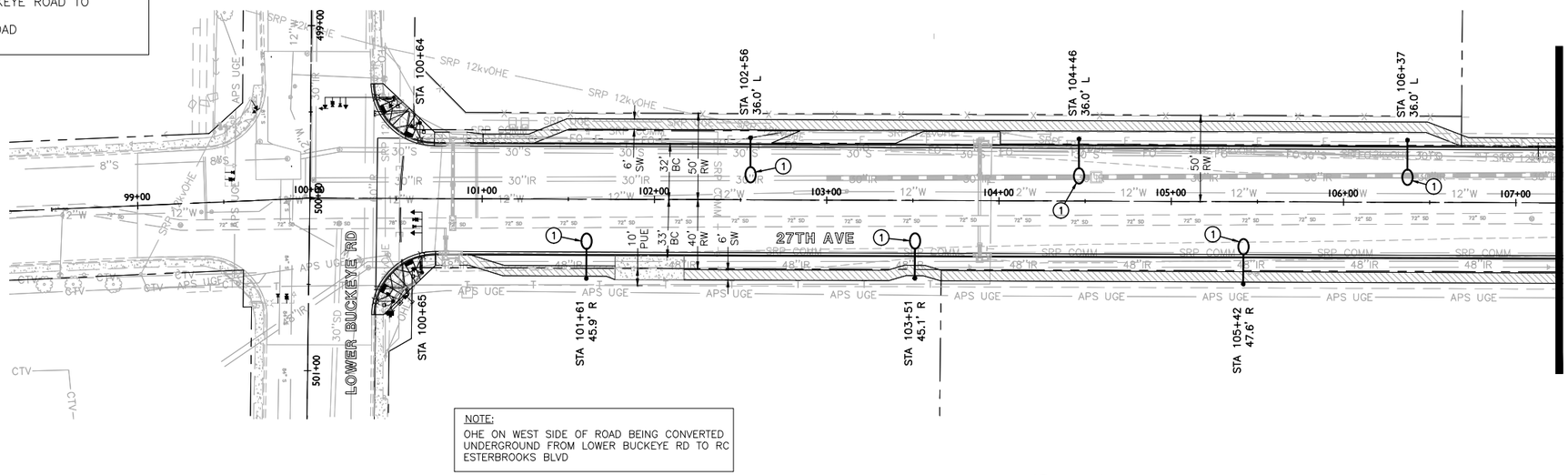
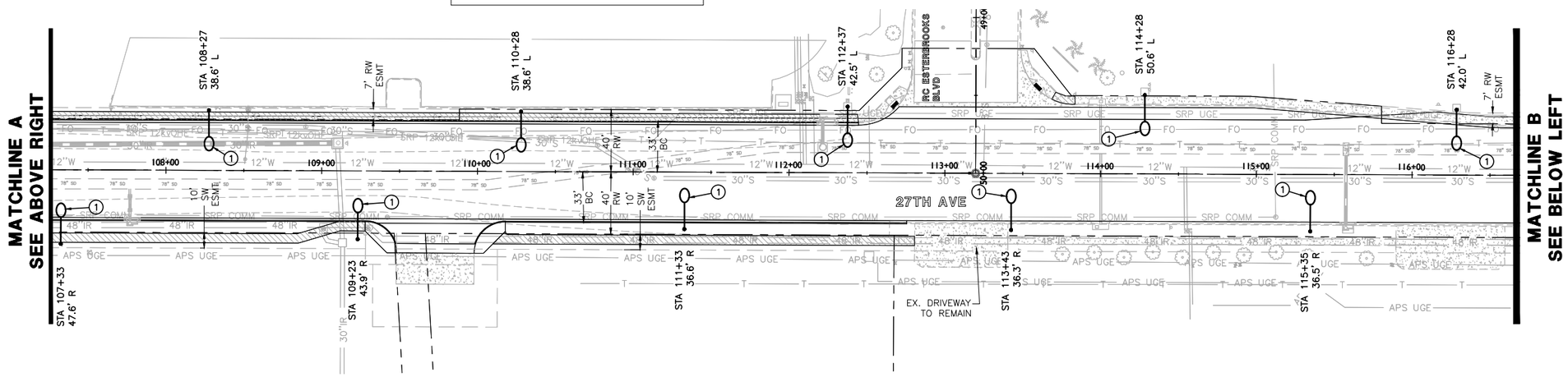
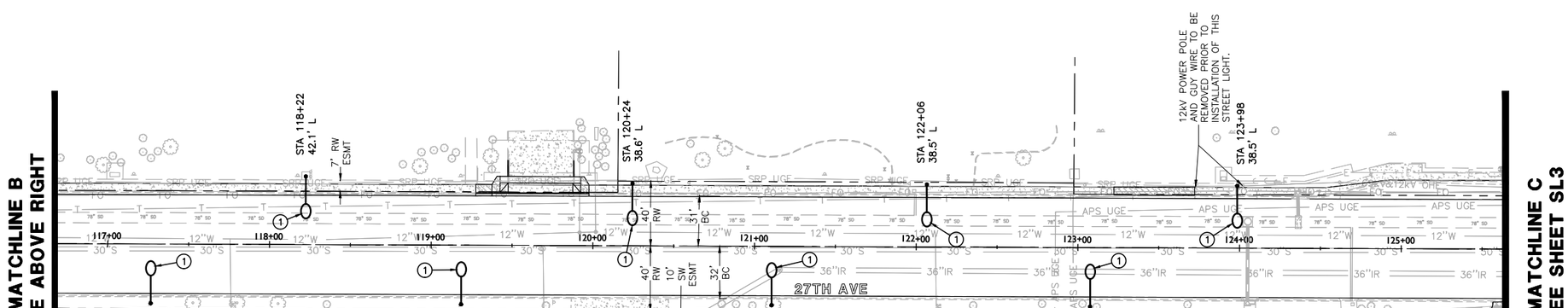
27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD



NOTE:
OHE ON WEST SIDE OF ROAD BEING CONVERTED UNDERGROUND FROM LOWER BUCKEYE RD TO RC ESTERBROOKS BLVD





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Registered Professional Engineer (Electrical)
Certificate No. 46691
ADAM M. BOWERS
Date Signed 9-27-18
Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100341		

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

DR: JKS	DES: JKS	CK: AMB	DATE: 9/2018

STREETLIGHT NOTES

1. INSTALL ONE 97W LED (9,250 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 38'–6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. INSTALL (2) #12 THHN/THWN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL APS PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.
2. INSTALL ONE 149W LED (18,200 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 38'–6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. INSTALL (2) #12 THHN/THWN FROM LUMINAIRE TO FUSE HOLDER IN POLE. INSTALL APS PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.
3. CONTRACTOR SHALL HAVE APPROPRIATE CERTIFICATIONS, TRAINING, AND AUTHORIZATION FROM APS TO CONDUCT WORK ON APS FACILITIES. CONTRACTOR TO REMOVE EXISTING HPS FIXTURE AND INSTALL (1) 149W LED (18,200 LUMEN) LUMINAIRE CAT# (ERL2019C330AGRAYR) WITH 20 YEAR PHOTOELECTRIC CONTROL ON EXISTING POWER POLE. CONTRACTOR SHALL BE RESPONSIBLE TO DISPOSE OF EXISTING HPS LIGHT FIXTURE AND LAMP REMOVED FROM EXISTING STREET LIGHT LUMINAIRE.
4. REMOVE EXISTING STREET LIGHT POLE, ARM, AND LUMINAIRE. CONTRACTOR TO DISPOSE OF PROPERLY
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6. POWER POLE MOUNTED STREET LIGHT TO BE REMOVED BY POWER COMPANY AND DISPOSED OF PROPERLY.

LEGEND

- 97W LED (9,250 LUMEN) COBRAHEAD LUMINAIRE ON A SINGLE ARM POLE WITH A 32'–11" MOUNTING HEIGHT
- 149W LED (18,200 LUMEN) COBRAHEAD LUMINAIRE ON A SINGLE ARM POLE WITH A 32'–11" MOUNTING HEIGHT
- EXISTING STREET LIGHT
- EXISTING STREET LIGHT ON A POWER POLE
- FIRE HYDRANT
- FUTURE STREET LIGHT
- EXISTING TRAFFIC SIGNAL WITH LUMINAIRE
- EXISTING TRAFFIC SIGNAL WITH NO LUMINAIRE

Call at least two full working days before you begin excavation
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

GRAPHIC SCALE
40 20 0 20 40 80
1 INCH = 40 FEET

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

"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 THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: JKS	DES: JKS	CK: AMB	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:5/18	DATE: 5/18	DATE: 9/18			
SCALE:	1"=40'–0"		52	63	#

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27TH AVENUE
LOWER BUCKEYE ROAD TO
BUCKEYE ROAD

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
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WRIGHT PROJECT # 16164

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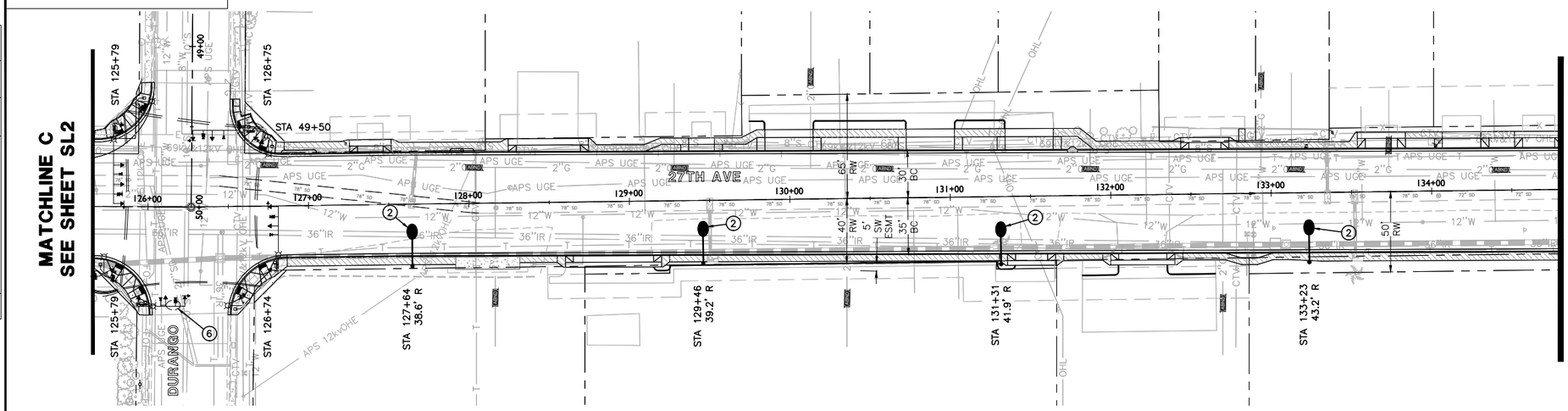

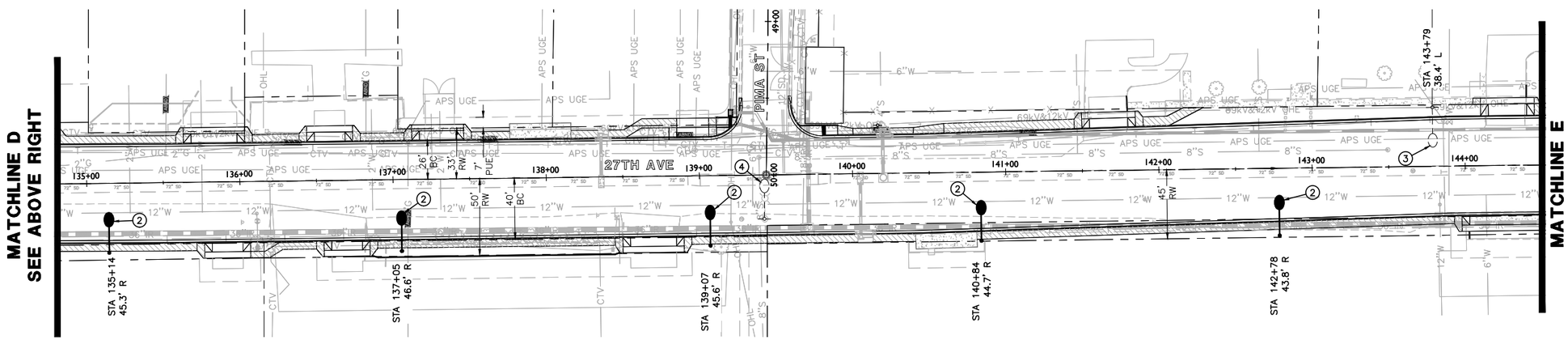

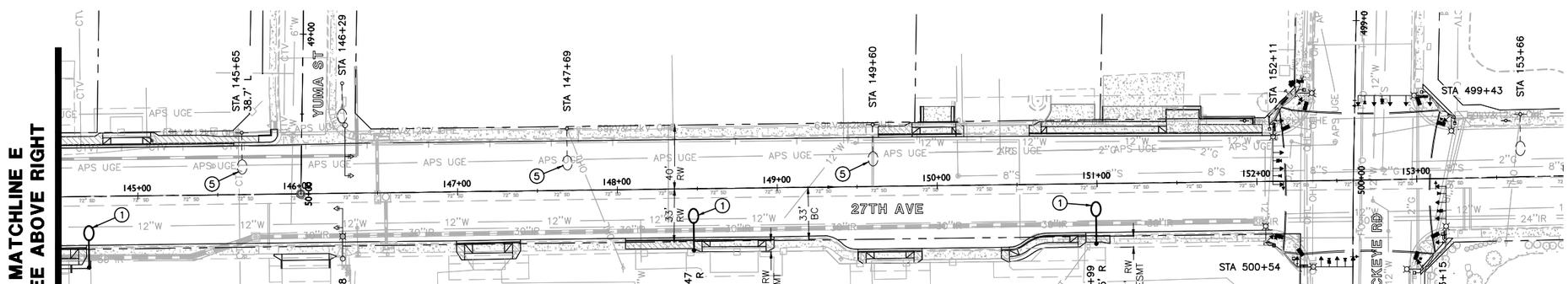

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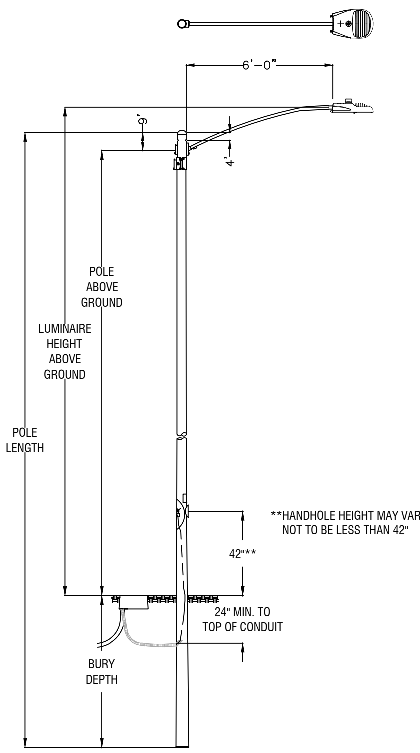


1944._ _
19 = 10' - 0" POLE SNG SIMPLEX
30 = 30' - 6" POLE SNG SIMPLEX
38 = 38' - 6" POLE SNG SIMPLEX
38X = 38' - 6" POLE DBL SIMPLEX
** SEE SPEC. NOTE

CONSTRUCTION NOTES:

1 ADJUST PHOTO EYE TO FACE NORTH

2 A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449 THRU 2460 FOR APPROVED ALTERNATES.

3 THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0", HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITINGS 180 APART FOR DOUBLE ARMS, SEE CHART.

4 APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING POLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.

5 POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.

ENGINEERING NOTES:

A THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.

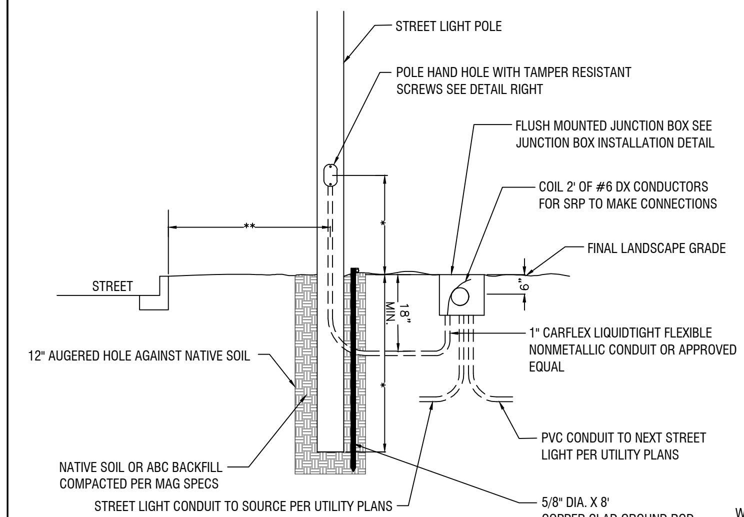
B SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.

C SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

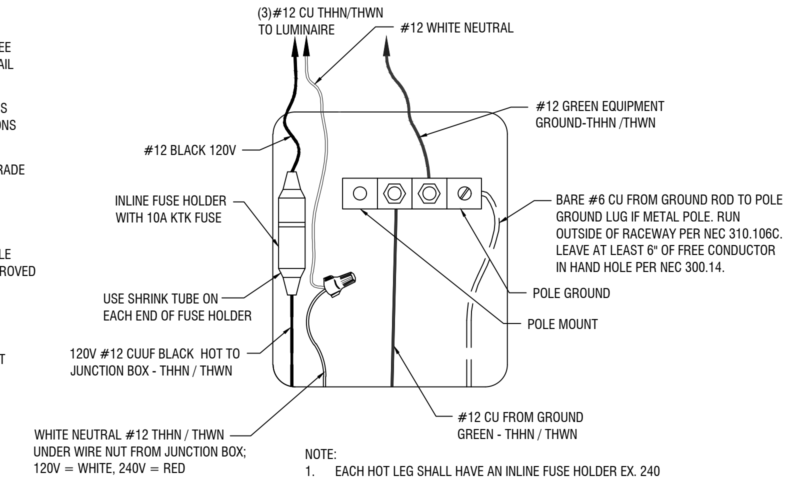
POLE TYPE	POLE CODE	POLE LENGTH	BURY DEPTH	POLE ABOVE GROUND	POLE BUTT DIAMETER STEP	POLE BUTT DIAMETER TAPER	WEIGHT	LUMINAIRE HEIGHT ABOVE GROUND ON ARM 20" X 6'	3' X 8'	8' X 8'
LOCAL	1944.30	30' - 6"	5' - 6"	25' - 0"	5-9/16"	7-5/16"	460	25' - 11"	27' - 3"	-
COLLECTOR	1944.38	38' - 6"	6' - 6"	32' - 0"	6-5/8"	9-3/4"	640	32' - 11"	34' - 3"	39' - 3"
➡ ARTERIAL	1944.38X	38' - 6"	6' - 6"	32' - 0"	6-5/8"	9-3/4"	640	32' - 11"	34' - 3"	39' - 3"

**FOR NON-STANDARD POLES, CONTACT THE STREET TRANSPORTATION STREETLIGHTING SECTION FOR INFORMATION.

LIGHTS
ROADWAY LUMINAIRE ON
20"X6', 3'X8' OR 8'X8' MAST ARMS ON
19'-0", 30'-0", 38'-0" OR 40'-6" STEEL POLES
8040



* SEE POLE DETAILS FOR DIMENSION
** SEE PLANS FOR POLE SETBACK



NOTE:
1. EACH HOT LEG SHALL HAVE AN INLINE FUSE HOLDER EX. 240 VOLTS NO NEUTRAL NEEDED INSIDE 240 VOLT POLE
2. LEAVE AT LEAST 6" OF FREE CONDUCTOR IN HAND HOLE PER NEC 300.14

CITY OF PHOENIX
REVISED 12/2013

STREET LIGHT STANDARD STREET LIGHT WIRING AND GROUNDING DETAIL FOR APS/SRP SERVICE AREA

DETAIL NO. WG1

ELECTRICAL REQUIREMENTS FOR NEW POLE INSTALLATION

1. JUNCTION BOXES SHALL MEET UTILITY COMPANY STANDARDS.
2. CONDUIT, CONDUCTORS, AND FUSE HOLDERS SHALL BE LISTED AND LABELED FOR USE IN A WET LOCATION WHEN USED IN A JUNCTION BOX. NEC300.5(B), 310.8(C)
3. IN-LINE FUSE HOLDER USED IN HAND HOLE OR SERVICE DROP SHALL BE CONSIDERED AS DISCONNECTING MEANS. FUSE HOLDERS TO BE RATED AT 22,000 AIC MINIMUM. NEC 240.40
4. ELECTRICAL CONNECTIONS-CONDUCTORS OF DISSIMILAR METALS SHALL NOT BE INTERMIXED IN A TERMINAL OR SPLICING CONNECTOR WHERE PHYSICAL CONTACT OCCURS BETWEEN DISSIMILAR CONDUCTORS, (COPPER, ALUMINUM) UNLESS THE DEVICE IS IDENTIFIED FOR THE PURPOSE AND CONDITIONS OF USE. NEC 110.14
5. ELECTRICAL CONNECTIONS OR SPLICES IN AN UNDERGROUND INSTALLATION SHALL BE APPROVED FOR WET LOCATIONS. (NEC 300.5)
6. NON-CURRENT CARRYING CONDUCTIVE MATERIALS ENCLOSING ELECTRICAL CONDUCTORS OR EQUIPMENT, OR FORMING PART OF SUCH EQUIPMENT, SHALL BE CONNECTED TO EARTH IN A MANNER THAT WILL LIMIT THE VOLTAGE IMPOSED BY LIGHTNING OR UNINTENTIONAL VOLTAGE DUE TO SHORT CIRCUITS AND LIMIT THE VOLTAGE TO GROUND ON THESE MATERIALS. NEC 250.4(B) (GROUND RODS)
7. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED FROM THE GROUND LUG IN THE HAND-HOLE TO THE LUMINAIRE WITH THE CURRENT CARRYING CONDUCTORS. NEC 410.30(B)(3).
8. CONNECTION TO THE GROUND ROD AND THE GROUNDING ELECTRODE SHALL BE LISTED AND LABELED FOR USE. NEC 250.8
9. CONNECT #6 BARE COPPER WIRE FROM THE GROUND ROD ADJACENT TO THE POLE OR IN JUNCTION BOX TO THE GROUND LUG IN THE POLE.

20 YEAR PHOTOCELL REQUIREMENTS

APN# 00073241
CONTROL PHOTO MULTI BR-20 CONTROL, PHOTO-ELECTRIC, BROWN, 20 YEAR FAIL OFF, 120/208/240/277 MULTI-VOLT, SILICON, SOLID STATE, 2.40 TO 3.60 FC ON 1.2 TO 2.4 FC OFF, 60 HERTZ, 320 JOULE MOV, INVERSE ON/OFF RATIO .6:1 +/- .1, FAIL OFF, THREE PIN NEMA TWISTLOCK, 20 YEAR LIFE, 8483-SIDE SELC, MODEL #8483F2TMABR

CONSTRUCTION NOTES:

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C SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

GE Evolve II Cobra LED Fixtures

WATTS	LUMENS	DESCRIPTION	APN	MODEL#
31W	3,800	**SCALABLE ROADWAY GE LED GRAY Pedestrian** 31W LED RW GR 8153 ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120-277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7-PIN PHOTOCONTROL RECEPTACLE	128329	ERL1004B327A GRAY R
39W	4,700	**SCALABLE ROADWAY GE LED GRAY Local Street** 39W LED RW GR 8153 ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120-277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7-PIN PHOTOCONTROL RECEPTACLE	128330	ERL1005C327A GRAY R
71W	7,600	**SCALABLE ROADWAY GE LED GRAY Collector Street** 71W LED RWGR 8153 ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120-277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7-PIN PHOTOCONTROL RECEPTACLE	128331	ERL1008C327A GRAY R
➡ 97W	9,250	**SCALABLE ROADWAY GE LED GRAY Major Roadway** 97W LED RWGR 8153 ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120-277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7-PIN PHOTOCONTROL RECEPTACLE	128332	ERL1010C327A GRAY R
➡ 149W	18,200	**SCALABLE ROADWAY GE LED GRAY Special Major Roadway** 149W LED RWGR 8153 ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120-277 DRIVER, IES ASYMMETRIC SHORT, ANSI C136.41 7-PIN PHOTOCONTROL RECEPTACLE	128364	ERL2019C330A GRAY R

LIGHT CODE	COLOR	APN	TYPE	WATTS	VOLTS	INITIAL LUMENS	PHOTOMETRIC CURVE
CL60		00128329		31	120/208/240/277	3,800	ERL1_04B327-120-277V.IES
CL61		00128330		39	120/208/240/277	4,700	ERL1_05C327-120-277V.IES
CL62	GRAY	00128331	LED	71	120/208/240/277	7,600	ERL1_08C327-120-277V.IES
➡ CL63		00128332		97	120/280/240/277	9,250	ERL1_10C327-120-277V.IES
➡ CL64		00128364		149	120/280/240/277	18,200	ERL2_19C330-120-277V.IES

CITY OF PHOENIX
REVISED 12/2013

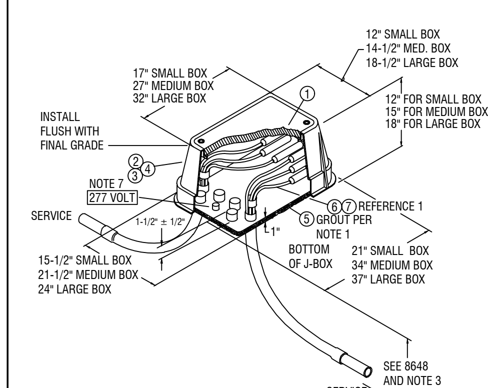
LUMINAIRE AND PHOTOCELL DETAIL

DETAIL NO. LT1

CODE	JUNCTION BARS
A	THREE-POSITION MOLDS
B	FIVE-POSITION MOLDS
C	EIGHT-POSITION MOLDS
D	TWO-POSITION GEL PACKS
N	NO CONNECTORS

8655. _ _ _ _ SEE NOTE 10 AND 11 SMALL BOX
8656. _ _ _ _ SEE NOTE 10 AND 12 MEDIUM BOX
8657. _ _ _ _ SEE NOTE 13 LARGE BOX

IF APPLICABLE G = APS GROUT APPROVED
IF APPICABLE L = LIGHTS
SECONDARY WIRE CODES
JUNCTION BARS



NOTES:
1. CONCRETE GROUT SHALL BE PREMIX, APN 71301280 OR EQUIVALENT.
2. PENTA-HEAD BOLTS SHALL BE INSTALLED PRIOR TO ENERGIZING NEW UNDERGROUND SYSTEMS. LOST OR MISPLACED PENTA-HEAD BOLTS SHALL BE REPLACED WITH APN 71402608.
3. BRINGING ALL CABLE/CONDUITS AND GROUND ROD INTO THE SAME END OF THE BOX TO ENABLE CABLES TO BE RAISED AND LOWERED EASILY. CONDUIT SWEEPS SHALL BE POSITIONED AND ALIGNED SO THAT WHEN TWO AND FOUR POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "A". WHEN SIX POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "B".
4. COMPACTION BENEATH AND AROUND JUNCTION BOX SHALL BE A MINIMUM OF 85 PERCENT.
5. REPLACEMENT LID FOR MEDIUM PLASTIC JUNCTION BOX IS 33100981. PENTAHEAD BOLTS AND EMS MARKER MUST BE REUSED FROM OLD LID.
6. ADDITIONAL TRENCH DEPTH IS USUALLY REQUIRED AT ALL EQUIPMENT LOCATIONS. SEE 8648 FOR THE MINIMUM TRENCH DEPTHS AND THE DEGREE OF SLOPE ALLOWED AS THE TRENCH DEPTH CHANGES.
7. ON 277 VOLT STREET LIGHT CIRCUITS, INSTALL "277 VOLT" RED MICARTA TAG (APN 00080796) PROVIDED BY SPEC 8129.
8. TORQUE BOLTS TO 5 FT - LBS (60 IN - LBS).

ARIZONA PUBLIC SERVICE COMPANY
T&D CONSTRUCTION STANDARDS

SECTION
SECTION/DESCRIPTION
DESCRIPTION 3

SH 1 OF 1
DETAIL NO. JB1

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ELEVATIONS FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS.

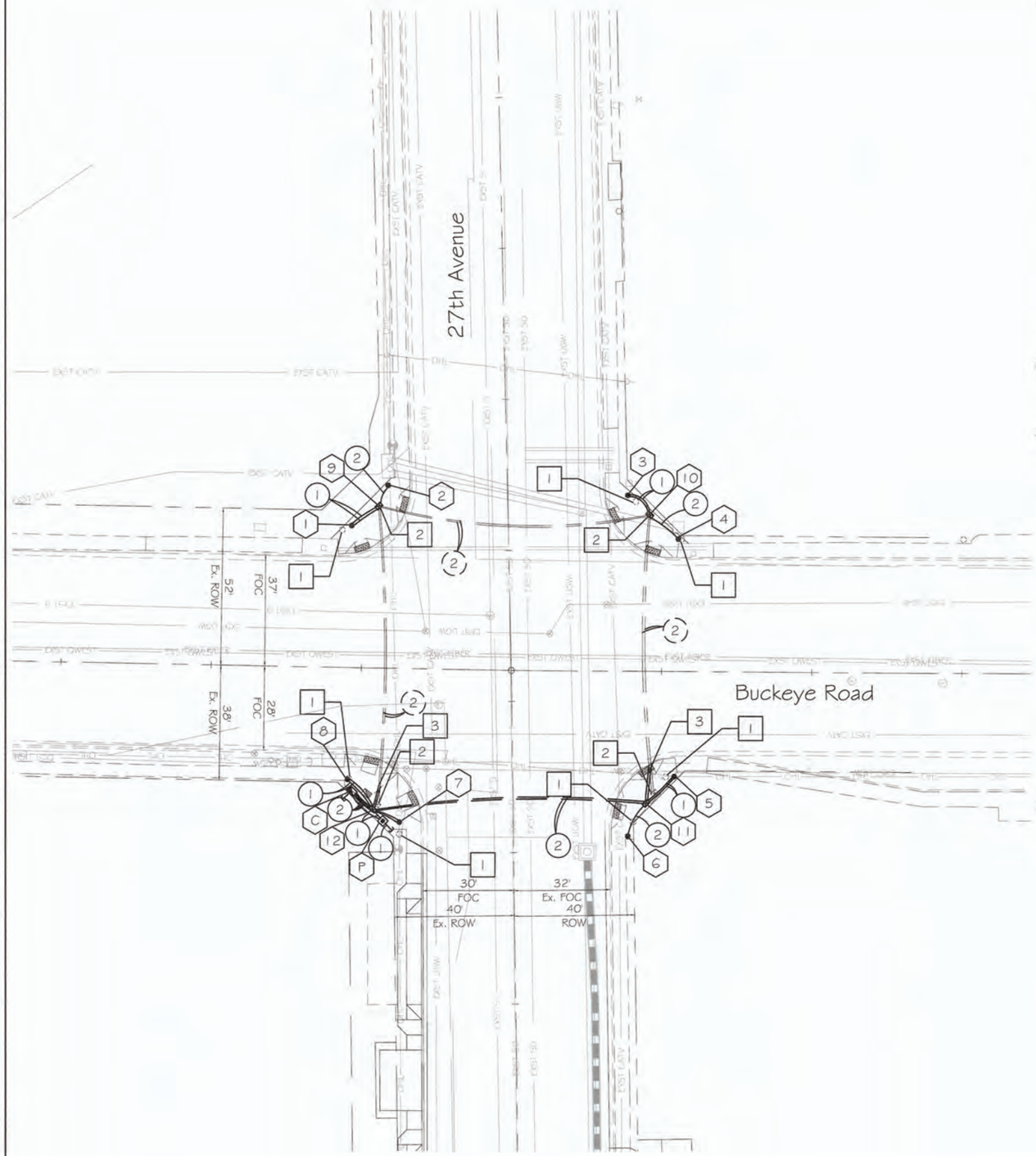
"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE
LOWER BUCKEYE ROAD TO BUCKEYE ROAD
ST85100341

DR: JKS	DES: JKS	CK: AMB	SHEET NO:	TOTAL SHEETS	AS BUILT
DATE:5/18	DATE: 5/18	DATE: 9/18			
SCALE:	1/4"=1'-0"		54	63	#

Brent Skabelund 9/27/2018 9:39:04 AM
H:\2016\16164-27th Avenue ST85100341\16164-SL-27th Ave.dwg



TYPICAL WORK SPLIT: FOUNDATIONS ONLY

1. GENERAL NOTES:

1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.

1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.

1.3 The Contractor shall layout of all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative. All ADA ramps shall be layed out in white marking paint to determine best traffic signal pole locations.

1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.

1.5 Traffic Signal Plan approval is valid for 365 calendar days from date sealed. If signal construction has not begun prior to the 365 days elapsing, the signal plans must be re-submitted for approval or an extension granted by the Deputy Director Traffic Services or an authorized representative to ensure that existing traffic signal equipment locations and standard detail references are current.

1.6 The contractor shall have a competent supervisor capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the construction of traffic signals assigned to the project. The Contractor's supervisor or lead shall possess a current International Municipal Signal Association (IMSA) Level II Traffic Signal Electrician Certification and must be on site during any traffic signal construction activities. The Contractor shall have a complete set of construction drawings including current City of Phoenix standards and Traffic Signal Details on site at all times during signal & lighting systems construction.

2. CONTRACTOR NOTE FOR CITY OF PHOENIX TRAFFIC SIGNAL POLES

2.1 The contractor shall provide and install four (4) City of Phoenix Type SR foundations, three (3) City of Phoenix Type LM foundations, one (1) City of Phoenix Type G foundation, all with anchor cages, nuts bolts, as per C.O.P. Street Transportation drawing # 10164.

3. WORK TO BE PERFORMED BY THE CONTRACTOR

The contractor shall provide the traffic signal equipment as indicated in note 2.1 The contractor is to provide all underground work including, but not limited to:

3.1
- All demolition work, unless otherwise noted
- All trenching
- All foundations (pole, controller and power service pedestal)
- All pole anchor cages, nuts and bolts required for pole foundations installed by the contractor in addition to those specified in note 2.1
- All junction boxes with 18" of sump
- All conduit runs
- Provide and install the power service pedestal
- Provide and install conduit runs from PSP to Utility Company feed

3.2 All underground conduits shall be schedule 40 rigid polyvinyl chloride (PVC) installed 24 inches to 30 inches below finished grade with the exception of loop lead-in conduits, which shall be schedule 40 rigid PVC installed in accordance with the latest City of Phoenix Standard Detail Sheet. All conduits shall be installed in straight lines (unless approved by the Signal Shop Inspector) junction box to junction box or junction box to signal equipment foundation with one 90 degree sweep on each end as specified in the plans. All conduits entering junction boxes shall be vertical. Conduits in all foundations shall be located as close as possible to center of the foundation and vertical with foundation below the bottom of the cover. All conduit ends except those in the controller cabinet foundation will be provided with a "bell end" fitting of appropriate size.

3.3 Removal of existing streetlights:

The contractor shall:
- Request de-energization of all streetlights listed for removal.
- Provide complete removal of streetlight pole, mast arm and luminaire
- Properly dispose of all streetlight material

4. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS

The City of Phoenix traffic signal crews will provide and install all above ground traffic signal equipment including:

- All poles and mast arms
- All signal heads
- All pedestrian heads
- All APS push buttons
- All controllers
- All LED luminaires
- All illuminated street signs
- All signal wiring
- All loop and non-invasive detectors
- All pole grouting
- All cameras
- All radios

Registered Professional Engineer (Electrical) Certificate No. 48691 ADAM M. BOWERS Date Signed 7-19-18 Arizona U.S.A.
Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		55	63

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengineering.us
WRIGHT PROJECT # 16164

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018

PROPOSED FOUNDATION SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
P	PSP	43.5 ft. West	50.6 ft. South
C	CONT	53.7 ft. West	40.8 ft. South
1	SR	52.2 ft. West	47.0 ft. North
2	G	39.9 ft. West	60.5 ft. North
3	SR	40.1 ft. East	58.2 ft. North
4	LM	51.1 ft. East	46.7 ft. North
5	SR	53.7 ft. East	34.7 ft. South
6	LM	38.0 ft. East	54.6 ft. South
7	SR	38.0 ft. West	50.9 ft. South
8	LM	55.1 ft. West	37.0 ft. South

NOTE: Distance is perpendicular to roadway center line

PROPOSED JUNCTION BOX SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
9	5	42.9 ft. West	53.6 ft. North
10	5	47.1 ft. East	51.8 ft. North
11	5	41.6 ft. East	46.4 ft. South
12	7	46.8 ft. West	46.7 ft. South

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

(1) thru (8) See Foundation Schedule

(9) thru (12) See Junction Box Schedule

(1) 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

(2) 2½" Schedule 40 PVC with detectable mule tape

REMOVE

[1] Traffic Signal Foundation - 7

[2] Junction Box - 4

[3] Intercept existing conduit and extend to new junction box. Conduit splices to be field checked and approved by signal shop staff

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(602) 263-1100

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD

FOUNDATION

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Wolen — DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR: for B. Velez — DATE: 7/20/18

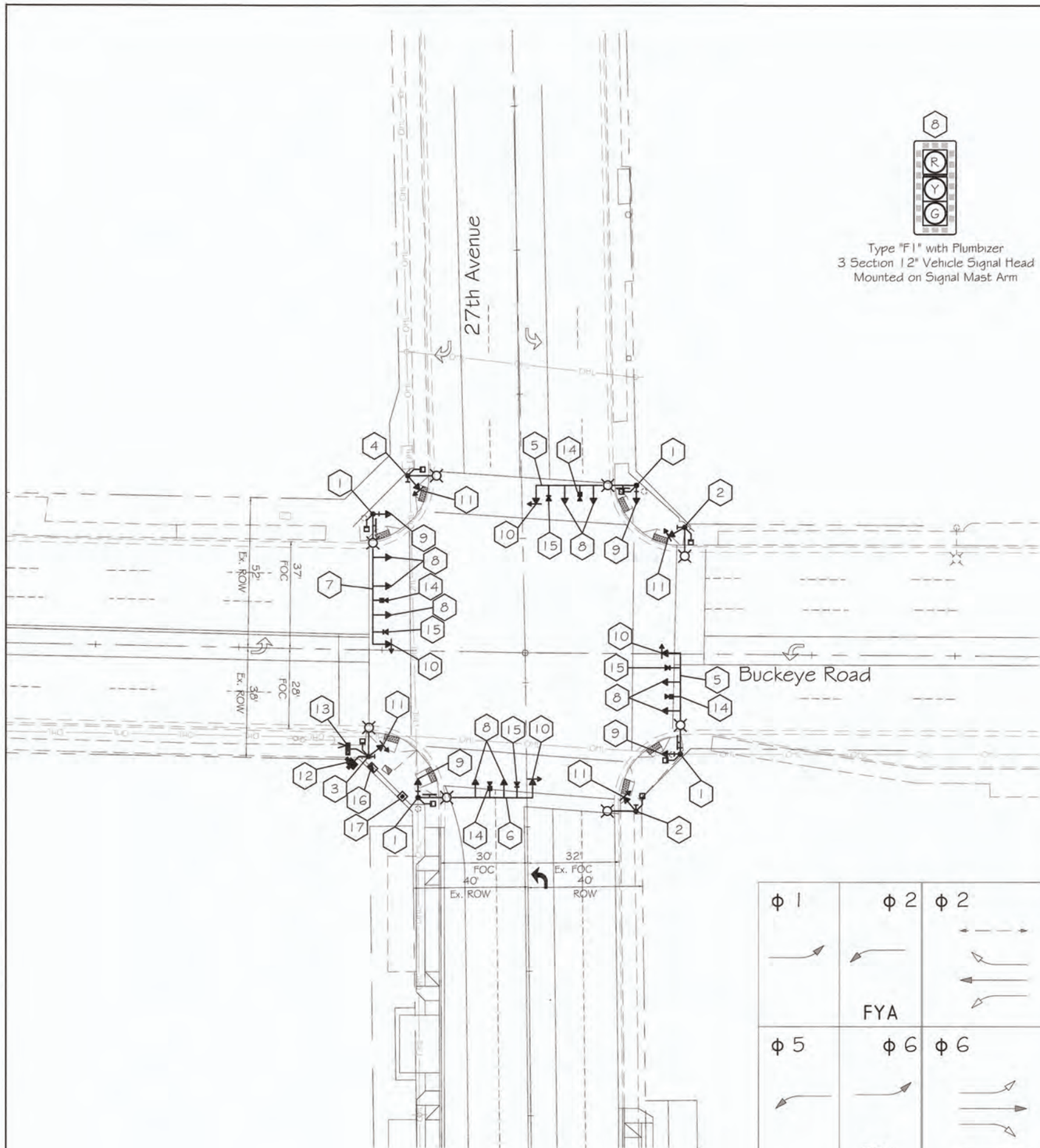
N

PROJECT #: ST85100341			FILE NO: 10679	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS #:	1	3

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD

PROJECT #: ST85100341

FILE #: 10679



Type "F1" with Plumbizer
3 Section 12" Vehicle Signal Head
Mounted on Signal Mast Arm

Type "F"
3 Section 12" Vehicle Signal Head
Mounted on Signal Pole

Type "FY1" with Plumbizer
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Mast Arm

Type "FY"
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Pole

INSTALL

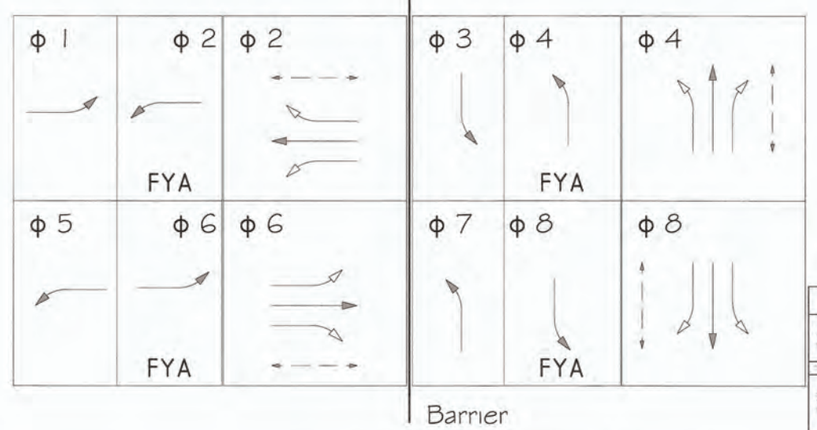
1. Traffic Signal Pole Type "SR" - 4 New
2. Traffic Signal Pole Type "LM"- 2 New
3. Traffic Signal Pole Type "LM" with 20' Riser - 1 New
4. Traffic Signal Pole Type "G" - 1 New
5. 35' Signal Mast Arm - 2 New
6. 40' Signal Mast Arm - 1 New
7. 45' Signal Mast Arm - 1 New
8. Type F1 12" Signal Head - 9 New (Mast Arm Mount with Plumbizer)
9. Type F 12" Signal Head - 4 New (Pole Mount)
10. Type FY1 4 Section 12" Signal Head, Left Arrow - 4 New (Mast Arm Mount with Plumbizer)
11. Type FY 4 Section 12" Signal Head, Left Arrow - 4 New (Pole Mount)
12. CCTV Camera - 1 New
13. Wireless Radio - 1 New
14. Video Detection Camera - 4 New
15. Emergency Vehicle Protection - 4 New
16. 8 Phase Controller Cabinet - 1 New
17. Power Service Pedestal - 1 New

Luminaire
LED - 8 New

Signs at Signal
LED Illuminated Street Sign - 4 New

Pedestrian Head - 8 New
Pedestrian Push Button - 8 New

Note:
Adjust all signal head placement as shown on plan.



N

(602) 263-1100

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Weber
DATE: 7/26/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR: For B. Velez
DATE: 7/30/18

PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD

EQUIPMENT

PROJECT #: ST85100341			FILE NO: 10679	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS. #:	2	3

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOMERS Date Signed 7-19-18 Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		56	63

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengineering.us
WRIGHT PROJECT # 16164

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD

PROJECT #: ST85100341

FILE #: 10679

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		57	63

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOMERS Date Signed 7-19-18 Expires 6-30-19

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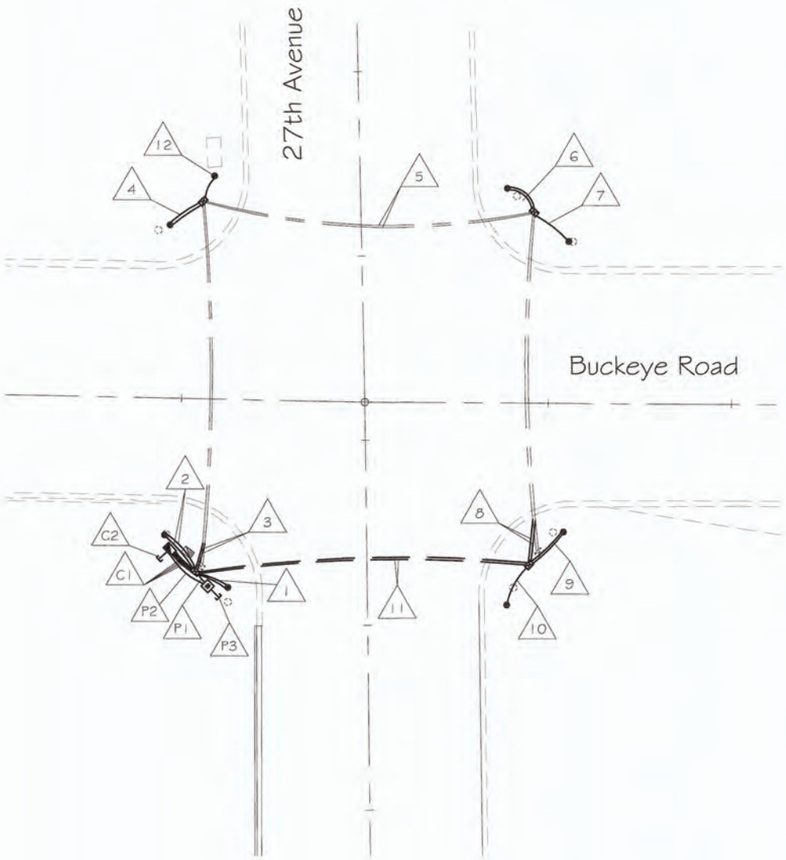
DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD



C1 Controller to J-Box (27 lf*)

CONDUIT 1	CONDUIT 2	CONDUIT 3	CONDUIT 4
#10 Bare Copper	#10 Bare Copper	#10 Bare Copper	#10 Bare Copper

C2 Controller to stub out (4 lf*)

CONDUIT 1
#10 Bare Copper

P1 Power Service Pedestal to J-Box (4 lf*)

CONDUIT 1
#10 Bare Copper

P2 PSP to controller (12 lf*)

CONDUIT 1
#10 Bare Copper

P3 PSP to stub out (4 lf*)

CONDUIT 1
#10 Bare Copper

1 J-Box to Mast Arm Pole (9 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

2 J-Box to LM Pole (14 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

3 J-Box to J-Box (15 lf* New, 180 lf* Ex)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

4 J-Box to Mast Arm Pole (10 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

5 J-Box to J-Box (180 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

6 J-Box to Mast Arm Pole (10 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

7 J-Box to LM Pole (10 lf*)

CONDUIT 1
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable

8 J-Box to J-Box (28 lf* New, 175 lf* Ex)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

9 J-Box to Mast Arm Pole (16 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

10 J-Box to LM Pole (3 lf*)

CONDUIT 1
#10 Bare Copper #10 White THHN 20C IMSA Cable

11 J-Box to J-Box (175 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

12 J-Box to G Pole (10 lf*)

CONDUIT 1
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable

WIRING DIAGRAM NOTES

New Wire

Existing Wire

PROJECT #: ST85100341

FILE #: 10679

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"TO ASSURE MEASUREMENT YOU ARE CALL FOR THE BLUE STAKES"
(602) 263-1100
"Blue Stake Center Stake Holder"

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD

WIRING

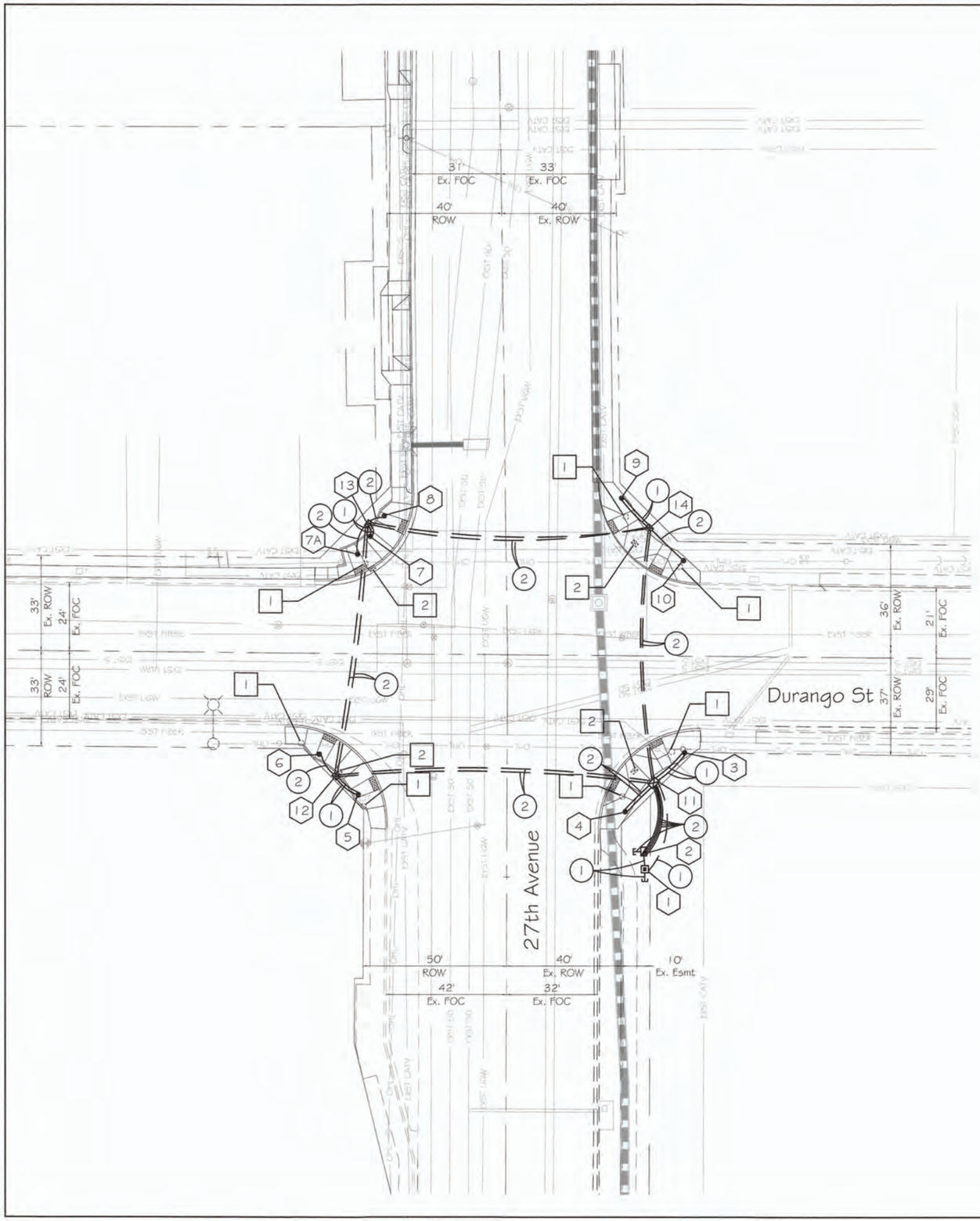
APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Wicer — DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR: for B. Yilce — DATE: 7/20/18

N

PROJECT #: ST85100341			FILE NO: 10679	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS. #:	3	3



TYPICAL WORK SPLIT: FOUNDATIONS ONLY

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1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.

1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.

1.3 The Contractor shall layout of all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative. All ADA ramps shall be layed out in white marking paint to determine best traffic signal pole locations.

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2. CONTRACTOR NOTE FOR CITY OF PHOENIX TRAFFIC SIGNAL POLES

2.1 The contractor shall provide and install four (4) City of Phoenix Type SR foundations, four (4) City of Phoenix Type LM foundations, all with anchor cages, nuts bolts per C.O.P. Street Transportation drawing # 10164.

3. WORK TO BE PERFORMED BY THE CONTRACTOR

The contractor shall provide the traffic signal equipment as indicated in note 2.1 The contractor is to provide all underground work including, but not limited to:

3.1
- All demolition work, unless otherwise noted
- All trenching
- All foundations (pole, controller and power service pedestal)
- All pole anchor cages, nuts and bolts required for pole foundations installed by the contractor in addition to those specified in note 2.1
- All junction boxes with 18" of sump
- All conduit runs
- Provide and install the power service pedestal
- Provide and install conduit runs from PSP to Utility Company feed

3.2 All underground conduits shall be schedule 40 rigid polyvinyl chloride (PVC) installed 24 inches to 30 inches below finished grade with the exception of loop lead-in conduits, which shall be schedule 40 rigid PVC installed in accordance with the latest City of Phoenix Standard Detail Sheet. All conduits shall be installed in straight lines (unless approved by the Signal Shop Inspector) junction box to junction box or junction box to signal equipment foundation with one 90 degree sweep on each end as specified in the plans. All conduits entering junction boxes shall be vertical. Conduits in all foundations shall be located as close as possible to center of the foundation and vertical with foundation below the bottom of the cover. All conduit ends except those in the controller cabinet foundation will be provided with a "bell end" fitting of appropriate size.

3.3 Removal of existing streetlights:

The contractor shall:
- Request de-energization of all streetlights listed for removal,
- Provide complete removal of streetlight pole, mast arm and luminaire
- Properly dispose of all streetlight material

4. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS

The City of Phoenix traffic signal crews will provide and install all above ground traffic signal equipment including:

- All poles and mast arms
- All signal heads
- All pedestrian heads
- All APS push buttons
- All controllers
- All LED luminaires
- All illuminated street signs
- All signal wiring
- All loop and non-invasive detectors
- All pole grouting
- All cameras
- All radios

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS Date Signed 7-19-18 Arizona, U.S.A. Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		58	63

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

DR: WTB | DES: WTB | CK: AMB | DATE: JUL 2018

PROPOSED FOUNDATION SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
1	PSP	48.1 ft. East	73.9 ft. South
2	CONT	47.7 ft. East	67.8 ft. South
3	SR	61.9 ft. East	33.5 ft. South
4	LM	41.2 ft. East	54.1 ft. South
5	SR	51.9 ft. West	48.8 ft. South
6	LM	65.5 ft. West	34.9 ft. South
7	SR	47.3 ft. West	40.7 ft. North
7A	PED	51.8 ft. West	34.4 ft. North
8	LM	42.3 ft. West	47.8 ft. North
9	SR	40.5 ft. East	54.6 ft. North
10	LM	61.8 ft. East	33.1 ft. North

NOTE: Distance is perpendicular to roadway center line as shown on plans

PROPOSED JUNCTION BOX SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
11	7	51.1 ft. East	44.0 ft. South
12	5	58.8 ft. West	42.5 ft. South
13	5	45.6 ft. West	43.7 ft. North
14	5	50.2 ft. East	44.2 ft. North

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

(1) thru (10) See Foundation Schedule

(11) thru (14) See Junction Box Schedule

(1) 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

(2) 2½" Schedule 40 PVC with detectable mule tape

REMOVE

[1] Traffic Signal Foundation - 7

[2] Junction Box - 4

TRAFFIC SIGNAL: 27TH AVE AND DURANGO ST

PROJECT #: ST85100341

FILE #: 10680

PER PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW

(602) 263-1100

N

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Wasser
DATE: 7/20/18

STREET TRANSPORTATION, TRAFFIC SERVICES DEPUTY DIRECTOR: for B. Yelez
DATE: 7/20/18

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVE AND DURANGO ST

FOUNDATION

PROJECT #: ST85100341			FILE NO: 10680	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: FEB 2018	DATE: FEB 2018	DATE: FEB 2018		
SCALE: 1" = 20'		QS. #:	1	3

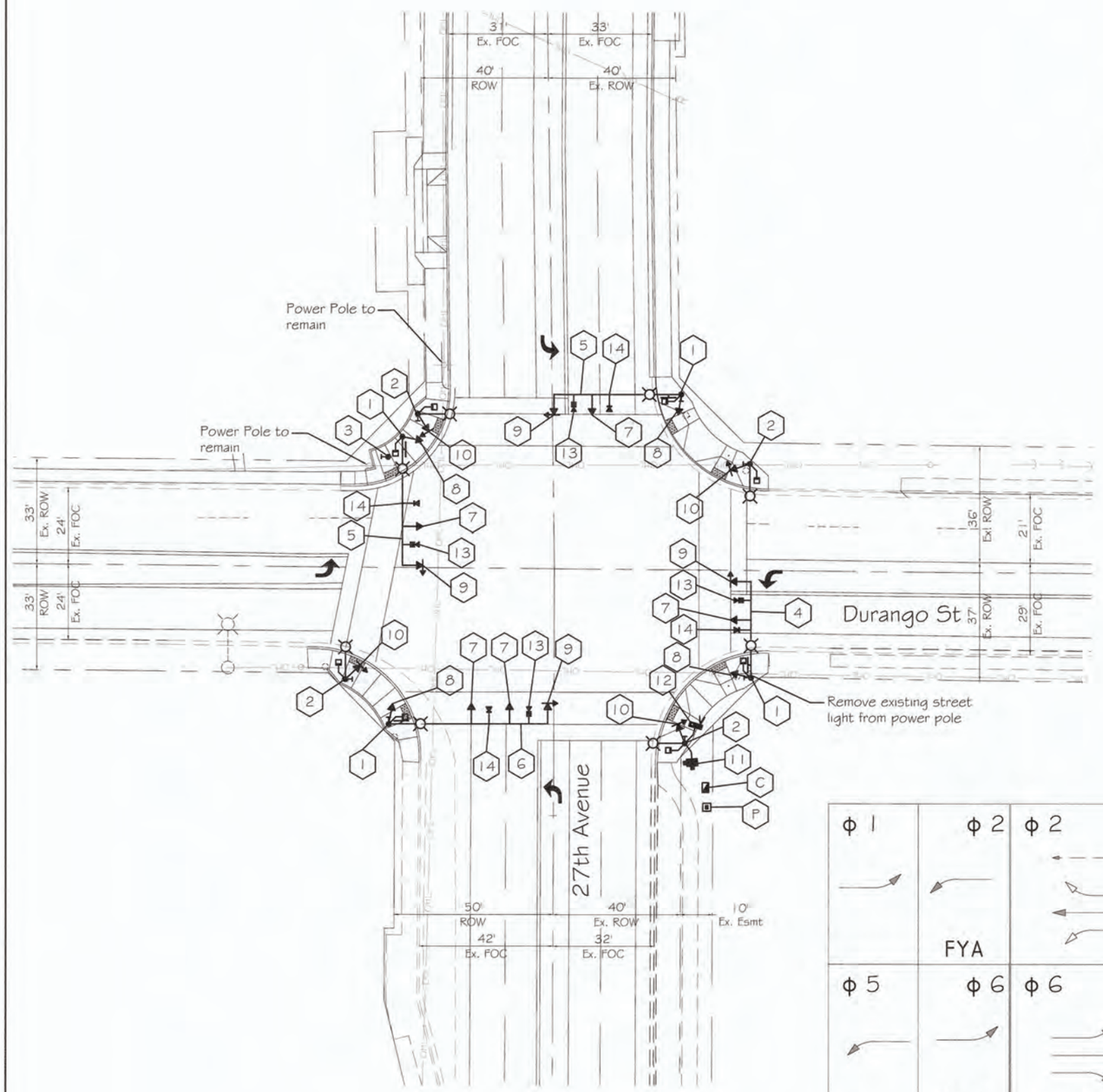
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		59	63

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225
PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOMERS Date Signed 7-19-18 Expires 9-30-19

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 18

TRAFFIC SIGNAL: 27TH AVE AND DURANGO ST



Type "F1" with Plumbizer
3 Section 12" Vehicle Signal Head
Mounted on Signal Mast Arm

Type "F"
3 Section 12" Vehicle Signal Head
Mounted on Signal Pole

Type "FY1" with Plumbizer
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Mast Arm

Type "FY"
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Pole

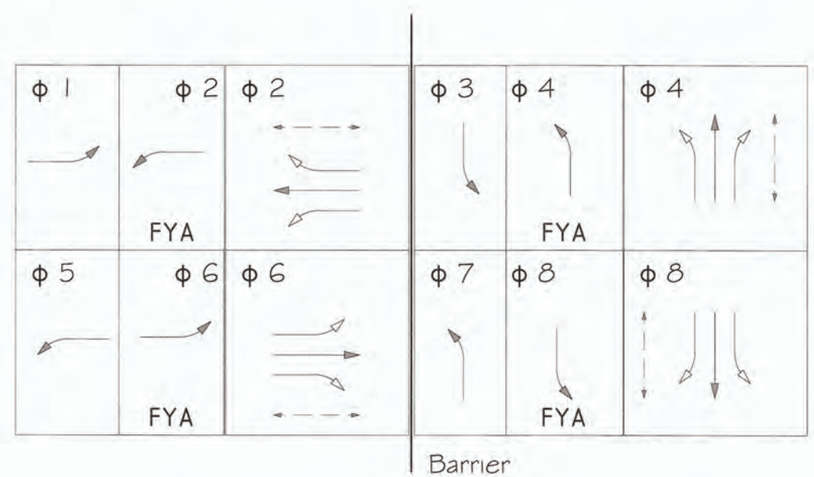
INSTALL

- (1) Traffic Signal Pole Type "SR" - 4 New
- (2) Traffic Signal Pole Type LM - 4 New
- (3) Pedestrian Push Button Pole- 1 New
- (4) 30' Signal Mast Arm - 1 New
- (5) 40' Signal Mast Arm - 2 New
- (6) 50' Signal Mast Arm - 1 New
- (7) Type F1 12" Signal Head - 5 New (Mast Arm Mount with Plumbizer)
- (8) Type F 12" Signal Head - 4 New (Pole Mount)
- (9) Type FY1 4 Section 12" Signal Head, Left Arrow - 4 New (Mast Arm Mount with Plumbizer)
- (10) Type FY 4 Section 12" Signal Head, Left Arrow - 4 New (Pole Mount)
- (11) CCTV Camera - 1 New
- (12) Wireless Radio - 1 New
- (13) Video Detection Camera - 4 New
- (14) Emergency Vehicle Protection - 4 New
- (C) 8 Phase Controller Cabinet - 1 New
- (P) Power Service Pedestal - 1 New

Luminaire
- LED - 8 New

Signs at Signal
- LED Illuminated Street Sign - 4 New
- Pedestrian Head - 8 New
- Pedestrian Push Button - 8 New

Note:
Adjust all signal head placement as shown on plan.



N

(602) 263-1100

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Weber
DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DIRECTOR: for B. Yelez
DATE: 7/20/18

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TRAFFIC SIGNAL PLAN
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
27TH AVE AND DURANGO ST

EQUIPMENT

PROJECT #: ST85100341			FILE NO: 10680	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: FEB 2018	DATE: FEB 2018	DATE: FEB 2018		
SCALE: 1" = 20'		QS. #:	2	3

PROJECT #: ST85100341

FILE #: 10680

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		60	63

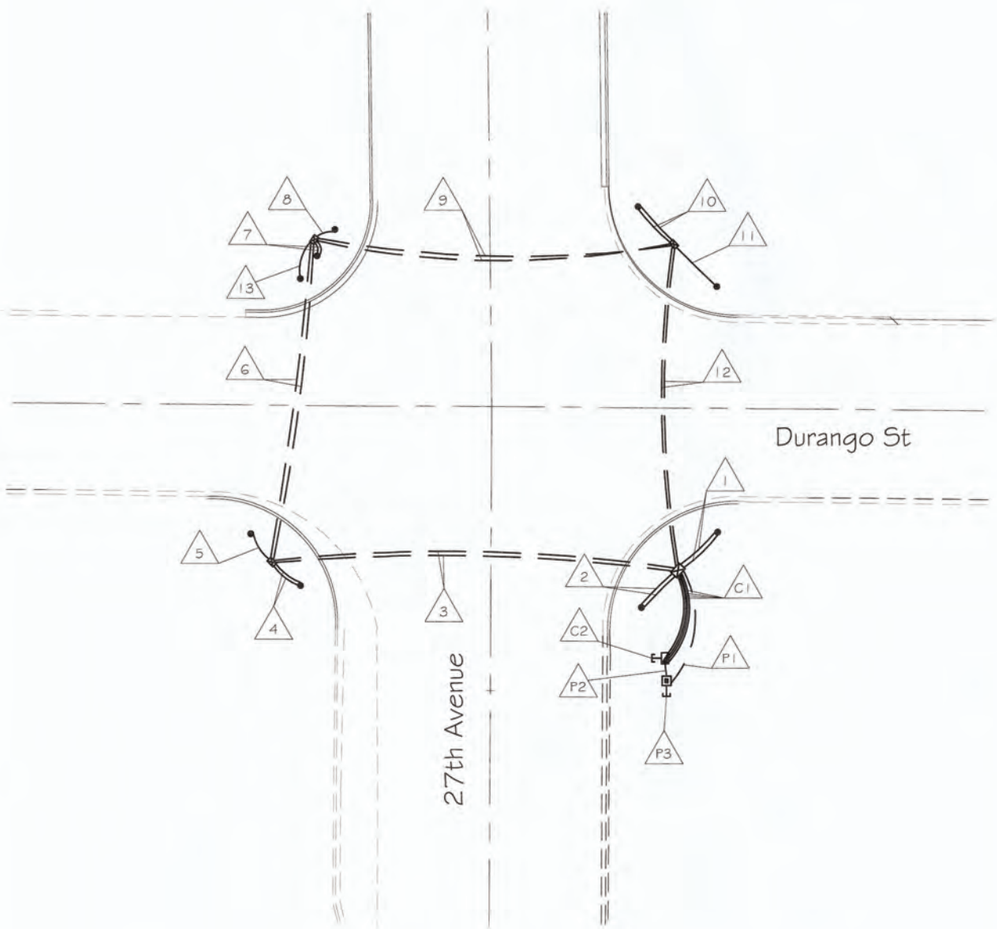
Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS Date Signed 9-19-18 Expires 9-30-19

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
165 EAST CHILTON DR • CHANDLER, AZ 85225

PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

DR: WTB | DES: WTB | CK: AMB | DATE: JUL 2018

TRAFFIC SIGNAL: 27TH AVE AND DURANGO ST



C1 Controller to J-Box (105 lf*)

CONDUIT 1	CONDUIT 2	CONDUIT 3	CONDUIT 4
#10 Bare Copper	#10 Bare Copper	#10 Bare Copper	#10 Bare Copper

C2 Controller to stub out (4 lf*)

CONDUIT 1
#10 Bare Copper

P1 Power Service Pedestal to J-Box (35 lf*)

CONDUIT 1
#10 Bare Copper

P2 PSP to controller (4 lf*)

CONDUIT 1
#10 Bare Copper

P3 PSP to stub out (4 lf*)

CONDUIT 1
#10 Bare Copper

WIRING DIAGRAM NOTES

New Wire

Existing Wire

1 J-Box to Mast Arm Pole (8 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

2 J-Box to A Pole (8 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

3 J-Box to J-Box (210 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

4 J-Box to Mast Arm Pole (10 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

5 J-Box to LM Pole (10 lf*)

CONDUIT 1
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable

6 J-Box to J-Box (170 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

7 J-Box to Mast Arm Pole (5 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

8 J-Box to LM Pole (5 lf*)

CONDUIT 1
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable

9 J-Box to J-Box (180 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

10 J-Box to Mast Arm Pole (8 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

11 J-Box to A Pole (10 lf*)

CONDUIT 1
#10 Bare Copper #10 White THHN 20C IMSA Cable

12 J-Box to J-Box (160 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

13 J-Box to Ped Push Button Pole (10 lf*)

CONDUIT 1
#10 Bare Copper #10 White THHN 20C IMSA Cable

N

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(602) 263-1100

APPROVED BY:

TRAFFIC SIGNAL ENGINEER — DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR — for B. Velez — DATE: 7/20/18

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

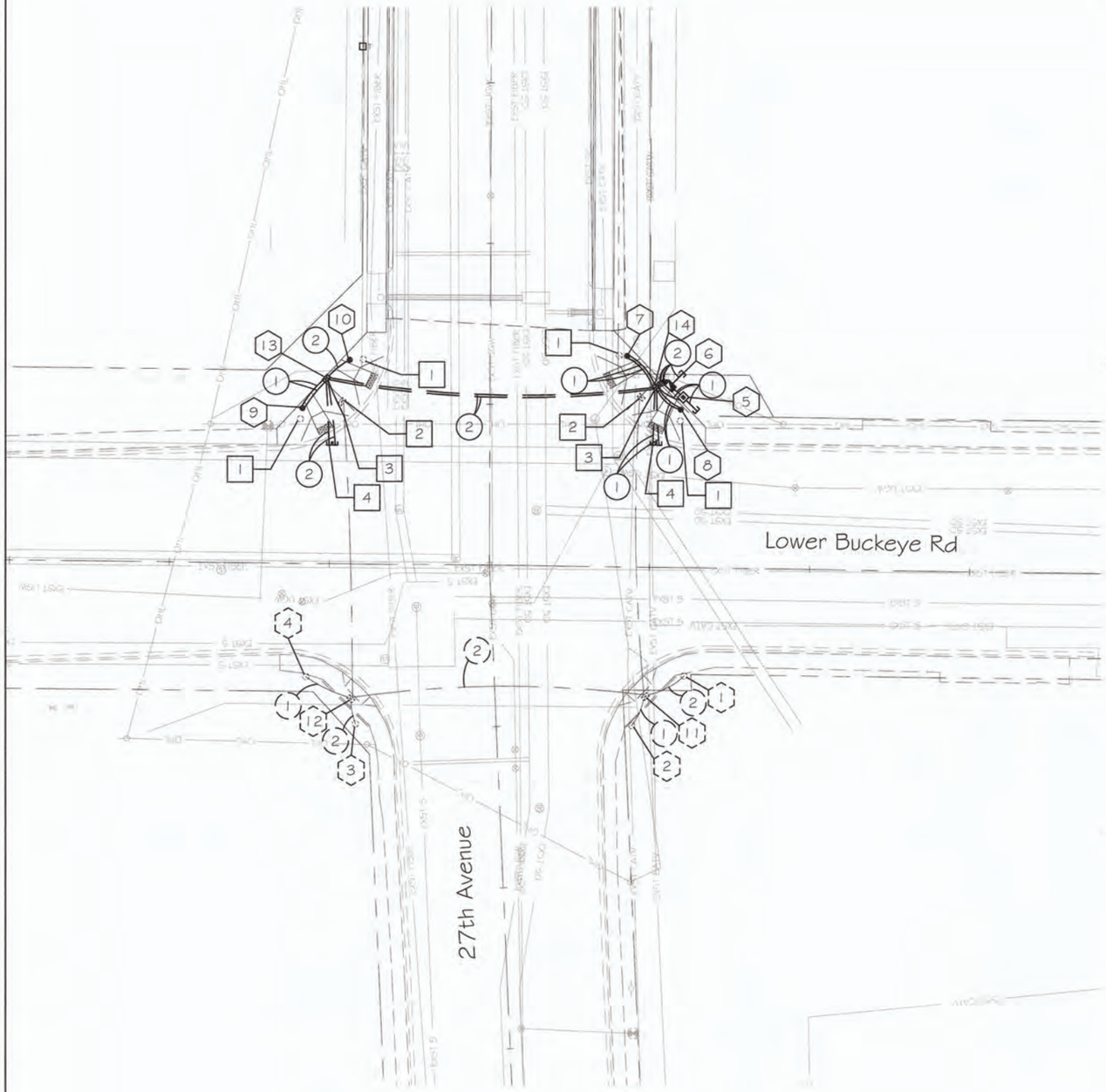
27TH AVE AND DURANGO ST

WIRING

PROJECT #: ST85100341			FILE NO: 10680	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE: FEB 2018	DATE: FEB 2018	DATE: FEB 2018		
SCALE: 1" = 20'		QS. #:	3	3

PROJECT #: ST85100341

FILE #: 10680



TYPICAL WORK SPLIT: FOUNDATIONS ONLY

1. GENERAL NOTES:

1.1 The contractor shall notify the City Of Phoenix Traffic Signal Shop (602-262-6733) a minimum of fourteen (14) calendar days prior to beginning any traffic signal work. Submittals of all equipment shall be furnished to the Signal Shop and approved prior to the ordering of any traffic signal equipment. The contractor shall verify that they have the most current set of drawings prior to start and ordering of any equipment.

1.2 Foundation elevations must be within 1/4" of finished sidewalk grade.

1.3 The Contractor shall layout of all ADA ramps, junction boxes and foundation locations for approval by the traffic signal representative. All ADA ramps shall be layed out in white marking paint to determine best traffic signal pole locations.

1.4 A minimum of four (4) feet of clearance is required between all traffic signal poles and the back edge of sidewalk pedestrian ramps.

1.5 Traffic Signal Plan approval is valid for 365 calendar days from date sealed. If signal construction has not begun prior to the 365 days elapsing, the signal plans must be re-submitted for approval or an extension granted by the Deputy Director Traffic Services or an authorized representative to ensure that existing traffic signal equipment locations and standard detail references are current.

1.6 The contractor shall have a competent supervisor capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the construction of traffic signals assigned to the project. The Contractor's supervisor or lead shall possess a current International Municipal Signal Association (IMSA) Level II Traffic Signal Electrician Certification and must be on site during any traffic signal construction activities. The Contractor shall have a complete set of construction drawings including current City of Phoenix standards and Traffic Signal Details on site at all times during signal & lighting systems construction.

2. CONTRACTOR NOTE FOR CITY OF PHOENIX TRAFFIC SIGNAL POLES

2.1 The contractor shall provide and install two (2) City of Phoenix Type SR foundations, two (2) City of Phoenix Type LM foundations, all with anchor cages, nuts bolts, as per C.O.P. Street Transportation drawing # 10164.

3. WORK TO BE PERFORMED BY THE CONTRACTOR

The contractor shall provide the traffic signal equipment as indicated in note 2.1 The contractor is to provide all underground work including, but not limited to:

3.1
- All demolition work, unless otherwise noted
- All trenching
- All foundations (pole, controller and power service pedestal)
- All pole anchor cages, nuts and bolts required for pole foundations installed by the contractor in addition to those specified in note 2.1
- All junction boxes with 18" of sump
- All conduit runs
- Provide and install the power service pedestal
- Provide and install conduit runs from PSP to Utility Company feed

3.2 All underground conduits shall be schedule 40 rigid polyvinyl chloride (PVC) installed 24 inches to 30 inches below finished grade with the exception of loop lead-in conduits, which shall be schedule 40 rigid PVC installed in accordance with the latest City of Phoenix Standard Detail Sheet. All conduits shall be installed in straight lines (unless approved by the Signal Shop Inspector) junction box to junction box or junction box to signal equipment foundation with one 90 degree sweep on each end as specified in the plans. All conduits entering junction boxes shall be vertical. Conduits in all foundations shall be located as close as possible to center of the foundation and vertical with foundation below the bottom of the cover. All conduit ends except those in the controller cabinet foundation will be provided with a "bell end" fitting of appropriate size.

3.3 Removal of existing streetlights:

The contractor shall:
- Request de-energization of all streetlights listed for removal.
- Provide complete removal of streetlight pole, mast arm and luminaire
- Properly dispose of all streetlight material

4. WORK TO BE PERFORMED BY CITY OF PHOENIX SIGNAL CREWS

The City of Phoenix traffic signal crews will provide and install all above ground traffic signal equipment including:

- All poles and mast arms
- All signal heads
- All pedestrian heads
- All APS push buttons
- All controllers
- All LED luminaires
- All illuminated street signs
- All signal wiring
- All loop and non-invasive detectors
- All pole grouting
- All cameras
- All radios

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS Date Signed 7-11-18 Arizona U.S.A. Expires 9-30-19

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		61	63

WRIGHT engineering corporation
ELECTRICAL ENGINEERING AND DESIGN
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PHONE 480.497.5829
FAX 480.497.5807
www.wrightengr.com
WRIGHT PROJECT # 16164

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018

Existing FOUNDATION SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
1	M	59.3 ft. East	33.4 ft. South
2	A	42.2 ft. East	49.0 ft. South
3	M	44.0 ft. West	49.5 ft. South
4	A	58.8 ft. West	35.0 ft. South

PROPOSED FOUNDATION SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
5	PSP	59.9 ft. East	52.9 ft. North
6	CONT	56.4 ft. East	56.4 ft. North
7	SR	42.9 ft. East	65.7 ft. North
8	LM	59.6 ft. East	49.1 ft. North
9	SR	58.6 ft. West	48.3 ft. North
10	LM	43.8 ft. West	63.5 ft. North

NOTE: Distance is perpendicular to roadway center line as shown on plans

Existing JUNCTION BOX SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
11	5	47.0 ft. East	39.9 ft. South
12	5	45.0 ft. West	41.7 ft. South

PROPOSED JUNCTION BOX SCHEDULE

NO.	TYPE	FROM ℄ OF 56TH ST	FROM ℄ OF LONE MOUNTAIN RD
13	5	51.2 ft. West	57.4 ft. North
14	7	51.9 ft. East	55.8 ft. North

NOTE: Distance is perpendicular to roadway center line as shown on plans

INSTALL

1 thru 10 See Foundation Schedule

11 thru 14 See Junction Box Schedule

(1) 2" Schedule 40 PVC with #10 copper pull wire bent over lip of stubout

(2) 2 1/2" Schedule 40 PVC with detectable mule tape

[4] Stub out Conduit past the new curb

REMOVE

[1] Traffic Signal Foundation - 4

[2] Junction Box - 2

[3] Intercept existing conduit and extend to new junction box. Conduit splices to be field checked and approved by signal shop staff

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(602) 263-1100

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD
LOWER

FOUNDATION

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Ulbers — DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR: for B. Velez — DATE: 7/20/18

N

PROJECT #: 5T85100341			FILE NO: 10678	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS. #:	1	3

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD

PROJECT #: 5T85100341

FILE #: 10678

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		62	63

WRIGHT engineering corporation
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PHONE 480.497.5829
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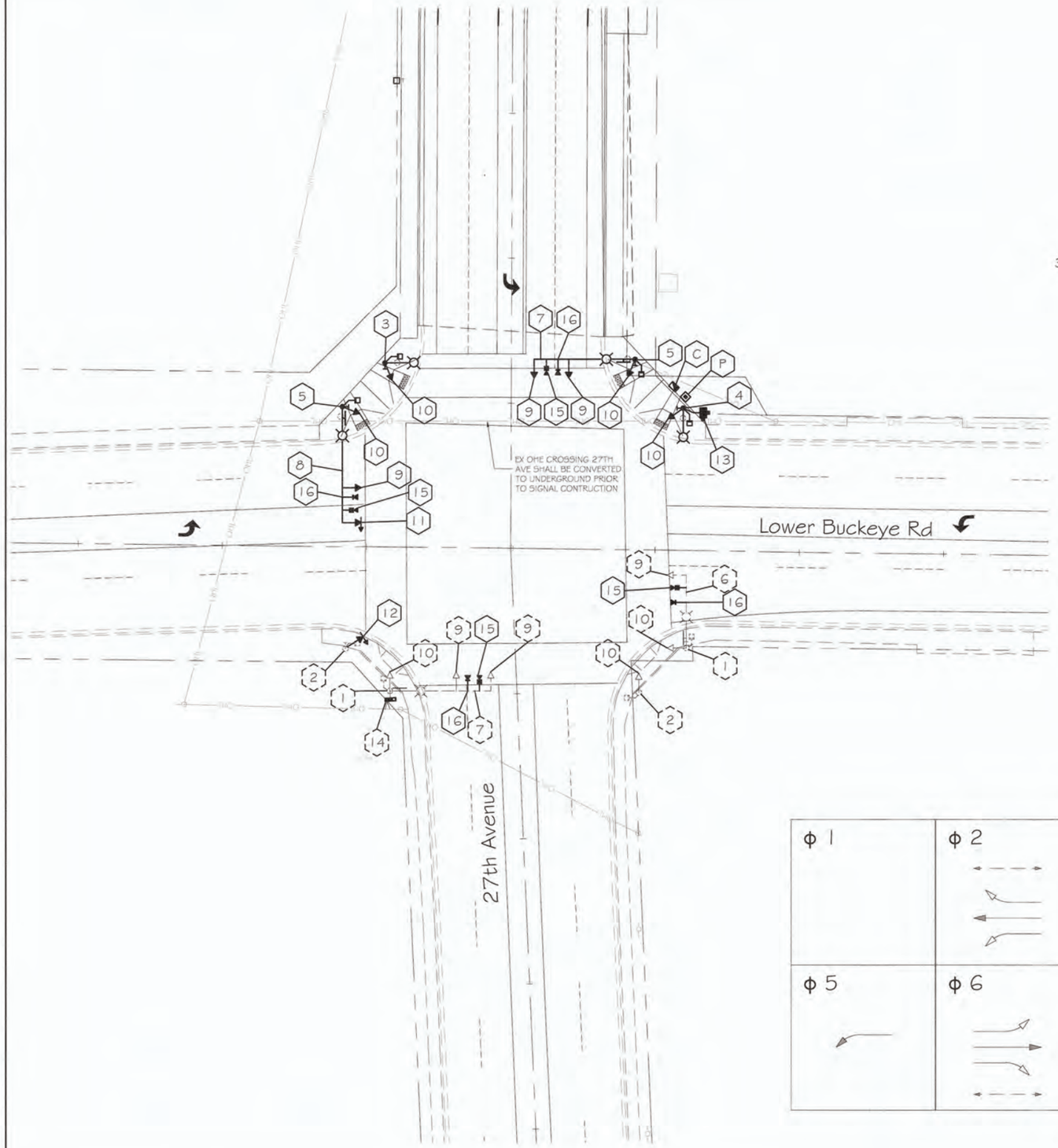
www.wrightengr.com
WRIGHT PROJECT # 16164

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS Date Signed 7-19-18 Expires 6-30-19

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018



Type "F1" with Plumbizer
3 Section 12" Vehicle Signal Head
Mounted on Signal Mast Arm

Type "F"
3 Section 12" Vehicle Signal Head
Mounted on Signal Pole

Type "FY"
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Mast Arm

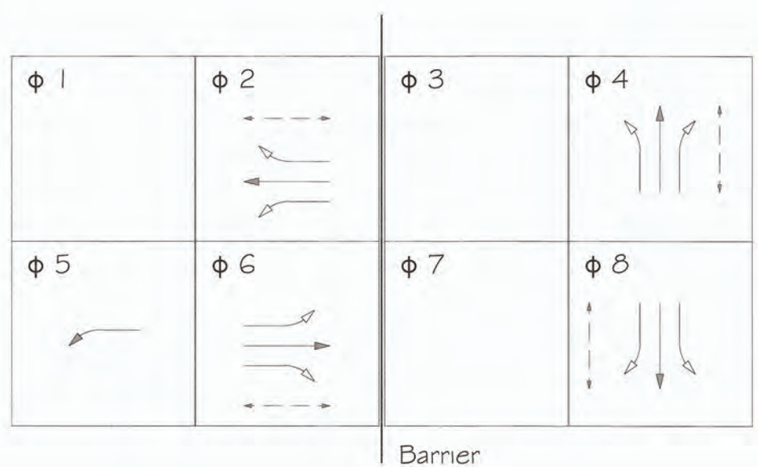
Type "FY"
4 Section 12" Signal Head
with Flashing Yellow Arrow
Mounted on Signal Pole

INSTALL

- 1 Traffic Signal Pole Type "M" - 2 Existing
- 2 Traffic Signal Pole Type "A"- 2 Existing
- 3 Traffic Signal Pole Type "LM" - 1 New
- 4 Traffic Signal Pole Type "LM" With 20' Riser - 1 New
- 5 Traffic Signal Pole Type "SR" - 2 New
- 6 25' Signal Mast Arm - 1 Existing
- 7 35' Signal Mast Arm - 1 New, 1 Existing
- 8 40' Signal Mast Arm - 1 New
- 9 Type F1 12" Signal Head - 3 New, 3 Existing (Mast Arm Mount with Plumbizer)
- 10 Type F 12" Signal Head - 4 New, 3 Existing (Pole Mount)
- 11 Type FY 12" Signal Head - 1 New (Mast Arm Mount with Plumbizer)
- 12 Type FY 12" Signal Head - 1 New (Pole Mount)
- 13 CCTV Camera - 1 New
- 14 Wireless Radio - 1 Existing
- 15 Video Detection Camera - 4 New
- 16 Emergency Vehicle Protection - 4 New
- C 8 Phase Controller Cabinet - 1 New
- P Power Service Pedestal - 1 New

Luminaire
- LED - 4 New
- HPS - 2 Ex

Signs at Signal
- LED Illuminated Street Sign - 2 New
- Illuminated Street Sign - 2 Existing
- Pedestrian Head - 4 New, 4 Existing
- Pedestrian Push Button - 4 New, 2 Existing



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(602) 263-1100

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Thomas E. Wolter — DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR: for B. Velez — DATE: 7/20/18

TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD

LOWER

EQUIPMENT

PROJECT #: ST85100341			FILE NO: 10678	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS. #:	2	3

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD ST85100341

PROJECT #: ST85100341 FILE #: 10678

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.		63	63

Registered Professional Engineer (Electrical) Certificate No. 46691 ADAM M. BOWERS Date Signed 7-19-18 Arizona U.S.A. Expires 6-30-19

WRIGHT engineering corporation
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165 EAST CHILTON DR • CHANDLER, AZ 85225
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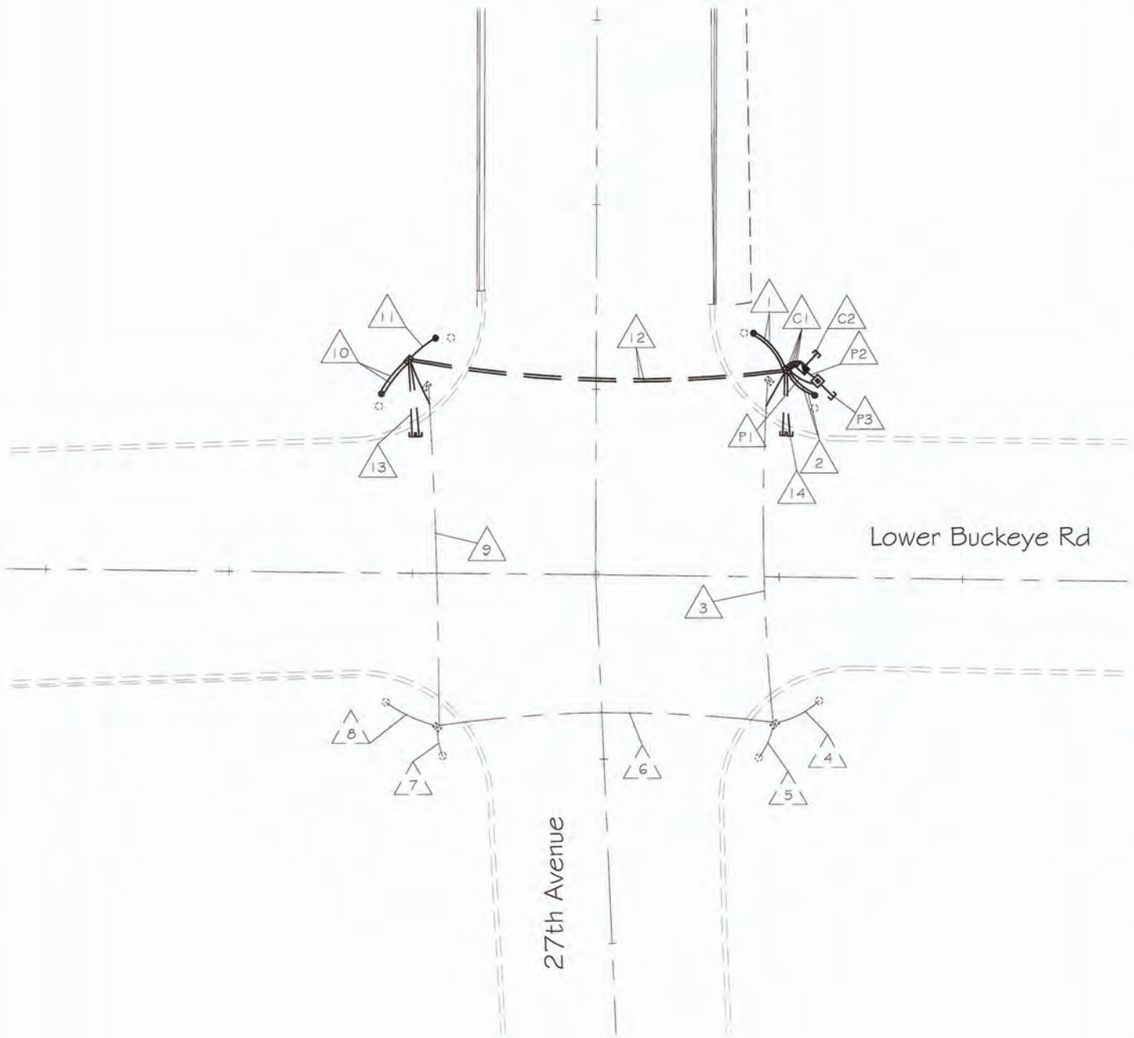
WRIGHT PROJECT # 16164

DR: WTB	DES: WTB	CK: AMB	DATE: JUL 2018

TRAFFIC SIGNAL: 27TH AVENUE & BUCKEYE ROAD

ST85100341



C1 Controller to J-Box (20 lf*)

CONDUIT 1	CONDUIT 2	CONDUIT 3	CONDUIT 4
#10 Bare Copper	#10 Bare Copper	#10 Bare Copper	#10 Bare Copper

C2 Controller to stub out (3 lf*)

CONDUIT 1
#10 Bare Copper

P1 Power Service Pedestal to J-Box (8 lf*)

CONDUIT 1
#10 Bare Copper

P2 PSP to controller (3 lf*)

CONDUIT 1
#10 Bare Copper

P3 PSP to stub out (3 lf*)

CONDUIT 1
#10 Bare Copper

1 J-Box to Mast Arm Pole (25 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

2 J-Box to LM Pole (20 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

3 J-Box to J-Box (11 lf* New, 85 lf* Ex)

CONDUIT 1
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable

4 J-Box to Mast Arm Pole (13 lf*)

CONDUIT 1
#10 Bare Copper

5 J-Box to A Pole (9 lf*)

CONDUIT 1
#10 Bare Copper

6 J-Box to J-Box (92 lf*)

CONDUIT 1
#10 Bare Copper

7 J-Box to Mast Arm Pole (7 lf*)

CONDUIT 1
#10 Bare Copper

8 J-Box to A Pole (15 lf*)

CONDUIT 1
#10 Bare Copper

9 J-Box to J-Box (15 lf* New, 85 lf* Ex)

CONDUIT 1
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable

10 J-Box to Mast Arm Pole (21 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 20C IMSA Cable	#10 Bare Copper

11 J-Box to A Pole (9 lf*)

CONDUIT 1
#10 Bare Copper 5C IMSA Cable 20C IMSA Cable

12 J-Box to J-Box (200 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper #10 White THHN 5C IMSA Cable 42C IMSA Cable	#10 Bare Copper

13 J-Box to Mast Arm Pole (20 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper	#10 Bare Copper

14 J-Box to Mast Arm Pole (20 lf*)

CONDUIT 1	CONDUIT 2
#10 Bare Copper	#10 Bare Copper

WIRING DIAGRAM NOTES

New Wire

Existing Wire

N

APPROVED BY:

TRAFFIC SIGNAL ENGINEER: Vilmus E. Liberas
DATE: 7/20/18

STREET TRANSPORTATION TRAFFIC SERVICES DEPUTY DIRECTOR:
DATE: 7/20/18

(602) 263-1100

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TRAFFIC SIGNAL PLAN

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

27TH AVENUE & BUCKEYE ROAD

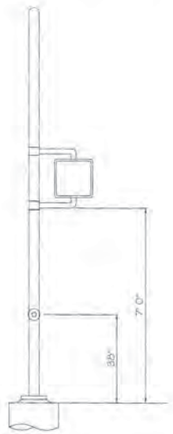
LOWER

WIRING

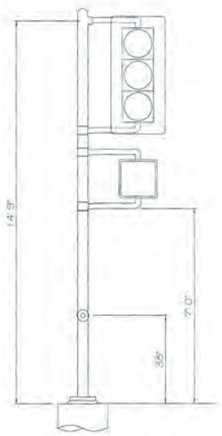
PROJECT #: ST85100341			FILE NO: 10678	
DR: WTB	DES: WTB	CK: AMB	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE: 1" = 20'		QS. #:	3	3

PROJECT #: ST85100341

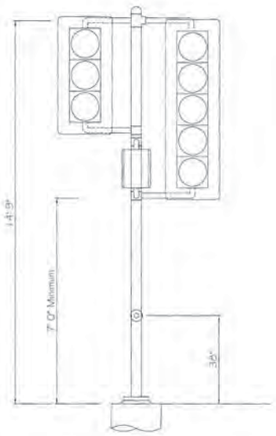
FILE #: 10678



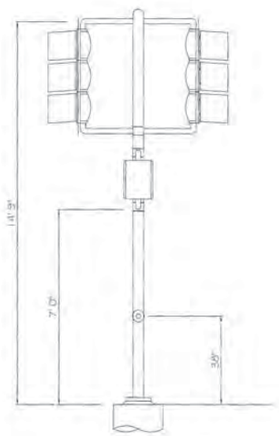
TYPE A POLE
PED SIGNAL



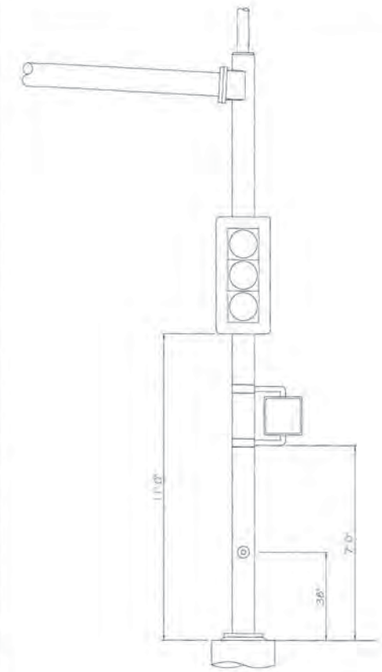
TYPE A POLE
12" VEHICLE SIGNAL AND PED SIGNAL



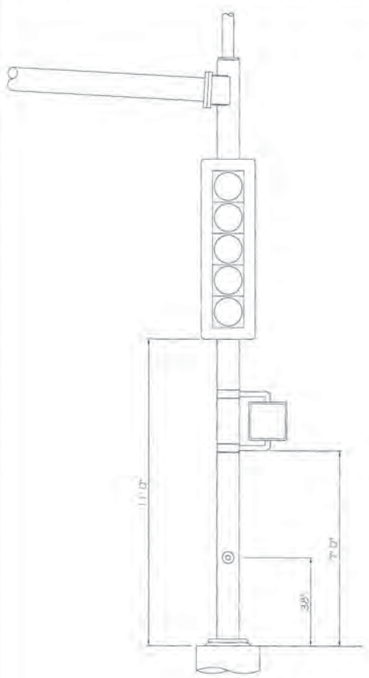
TYPE A POLE
12" 5 SECTION VEHICLE SIGNAL
AND PED SIGNAL



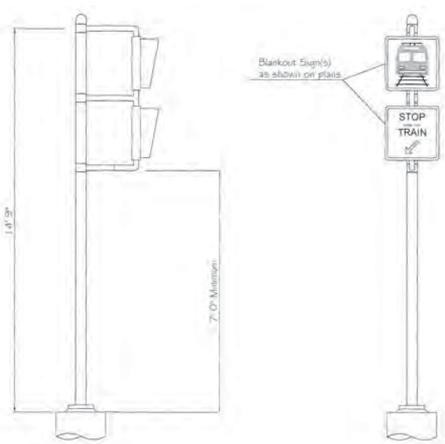
TYPE A POLE
12" BACK TO BACK VEHICLE SIGNAL
AND PED SIGNAL



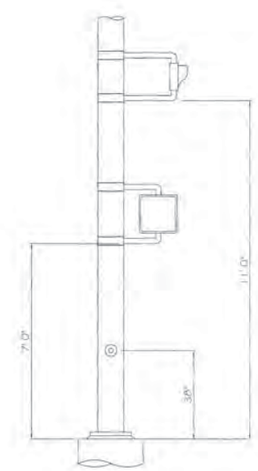
TYPE SM OR SR POLE
12" VEHICLE SIGNAL HEAD
AND PED SIGNAL



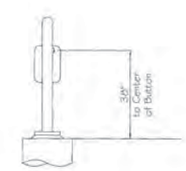
TYPE SM OR SR POLE
12" 5 SECTION VEHICLE SIGNAL HEAD
AND PED SIGNAL



TYPE A POLE
WITH BLANKOUT SIGNS



OCS POLE WITH
LRT SIGNAL, PEDESTRIAN SIGNAL
PUSHBUTTON AND SIGNS



TYPE A POLE
PEDESTRIAN PUSH BUTTON POLE

NOTES

1. Height measurement for Pedestrian Pushbutton is from finished grade to center of pushbutton, regardless of pushbutton style.
2. Height measurement for other Traffic Signal Devices are minimums. Up to a plus 6" will be acceptable.

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	

TRAFFIC SIGNAL DETAILS:

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

TRAFFIC SIGNAL STANDARD DETAILS

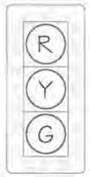
MOUNTING DETAILS
SIDE MOUNT SIGNAL EQUIPMENT

BRUCE E. LITTLETON
ARIZONA U.S.A.
EXPIRES: 06-30-2015

TPP File Number 10164 | TS 3-1

TRAFFIC SERVICES DEPUTY DIRECTOR: Thomas J. Stalder | 8-1-2014

PROJECT #:				
DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		QS. #:		



Type "F"
3 Section 12" Vehicle Signal Head
Mounted on Signal Pole

Type "F1" with Plumbizer
3 Section 12" Vehicle Signal Head
Mounted on Signal Mast Arm

Type "R" (Right Turns)
3 Section 12" Vehicle Signal Head
with Arrows
Mounted on Signal Pole

Type "R1" (Right Turns) with Plumbizer
3 Section 12" Vehicle Signal Head
with Arrows
Mounted on Signal Mast Arm

Type "R"
3 Section 12" Vehicle Signal Head
with Arrows
Mounted on Signal Pole

Type "R1" with Plumbizer
3 Section 12" Vehicle Signal Head
with Arrows
Mounted on Signal Mast Arm

Type "Q2" with Plumbizer
5 Section 12" Signal Head
Mounted on Signal Mast arm

Type "T1" with Plumbizer
3 Section 12" HAWK Signal Head
Mounted on Signal Mast arm

Type "T"
3 Section 12" HAWK Signal Head
Mounted on Signal Pole

Type "FA"
4 Section 12" Signal Head
Mounted on Signal Pole
FLASHING YELLOW

Type "FA1" with Plumbizer
4 Section 12" Signal Head
Mounted on Signal Mast Arm
FLASHING YELLOW

Type "G"
4 Section 12" Signal Head
Mounted on Signal Pole

Type "G1" with Plumbizer
4 Section 12" Signal Head
Mounted on Signal Mast Arm

Type "Q"
5 Section 12" Vehicle Signal Head
Mounted on Signal Pole

Type "Q" (Right Turns)
5 Section 12" Vehicle Signal Head
Mounted on Signal Pole

F.H.W.A. REGION	STATE	PROJ. NO.	NO	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	

TRAFFIC SIGNAL DETAILS:

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

TRAFFIC SIGNAL HEAD
GRAPHIC DETAIL

54530
BRUCE E. LITTLETON
ARIZONA, U.S.A.
EXPIRES: 06-30-2019

TPP File Number 10164	TS 3-3
TRAFFIC SERVICES DEPUTY DIRECTOR:	5-8-2017

PROJECT #:				
DR:	DES:	CK:	SHEET NO.	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		OS. #:		

TRAFFIC SIGNAL COLOR CODE TABLE

SIGNAL INDICATION	PHASE / DIRECTION	INSIDE/OUTSIDE BUNDLE COLOR	42 CONDUCTOR CABLE	25 CONDUCTOR CABLE	20 CONDUCTOR CABLE
		OUTSIDE BUNDLE ORANGE			
Red Yellow Green	Eastbound	Outside Outside Outside	Red Orange Green	Red Orange Green	Red Orange Green
Red Yellow Green	Northbound	Outside Outside Outside	Red/Black Orange/Black Green/Black	Red/Black Orange/Black Green/Black	Red/Black Orange/Black Green/Black
L/T Red Arrow L/T Yellow Arrow L/T Green Arrow	Eastbound to Northbound	Outside Outside Outside	Red/White Orange/Red Green/White	Red/White Orange/Red Green/White	Red/White Orange/Red Green/White
L/T Red Arrow L/T Yellow Arrow L/T Green Arrow	Northbound to Westbound	Outside Outside Outside	Red/Green Orange/Green Blue/Red	Red/Green Orange/Green Blue/Red	Red/Green Black/Red Blue/Red
Walk Don't Walk	East/West North Leg	Outside Outside	Blue Black	Blue Black	Blue Black
Walk Don't Walk	North/South East Leg	Outside Outside	Blue/White Black/White	Blue/White Black/White	Blue/White Black/White
Ped Push Button	East/West North Leg	Outside	White/Black	White/Black	White/Black
Ped Push Button	North/South East Leg	Outside	White/Red	White/Red	White/Red
Ped Common	All	Outside	White	White	White
Spare	North to West Flashing Yellow Arrow	Outside	Blue/Black	Blue/Black	Blue/Black
Spare	East to North Flashing Yellow Arrow	Outside	Black/Red	Black/Red	
Spare				Yellow/Red	
Spare				Yellow/Blue	
Spare				Brown	
Spare				Brown/White	
		INSIDE BUNDLE BLUE			
Red Yellow Green	Westbound	Inside Inside Inside	Red Orange Green	Red Orange Green	Red Orange Green
Red Yellow Green	Southbound	Inside Inside Inside	Red/Black Orange/Black Green/Black	Red/Black Orange/Black Green/Black	Red/Black Orange/Black Green/Black
L/T Red Arrow L/T Yellow Arrow L/T Green Arrow	Westbound to Southbound	Inside Inside Inside	Red/White Orange/Red Green/White	Red/White Orange/Red Green/White	Red/White Orange/Red Green/White
L/T Red Arrow L/T Yellow Arrow L/T Green Arrow	Southbound to Eastbound	Inside Inside Inside	Red/Green Orange/Green Blue/Red	Red/Green Orange/Green Blue/Red	Red/Green Black/Red Blue/Red
Walk Don't Walk	East/West South Leg	Inside Inside	Blue Black	Blue Black	Blue Black
Walk Don't Walk	North/South West Leg	Inside Inside	Blue/White Black/White	Blue/White Black/White	Blue/White Black/White
Ped Push Button	East/West South Leg	Inside	White/Black	White/Black	White/Black
Ped Push Button	North/South West Leg	Inside	White/Red	White/Red	White/Red
Ped Common	All	Inside	White	White	White
Spare	South to East Flashing Yellow Arrow	Inside	Blue/Black	Blue/Black	Blue/Black
Spare	West to South Flashing Yellow Arrow	Inside	Black/Red	Black/Red	
Spare				Yellow/Red	
Spare				Yellow/Blue	
Spare				Brown	
Spare				Brown/White	

OUTSIDE BUNDLE MARKED WITH ORANGE TAPE

INSIDE BUNDLE MARKED WITH BLUE TAPE

TYPE F SIGNAL HEADS INSIDE & SIDE MOUNT

5 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Spare
2	White	Vehicle Common
3	Red	Red
4	Green	Green
5	Orange	Yellow

OUTSIDE MAST ARM AND TYPE Q HEADS

7 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Yellow Arrow
2	White	Vehicle Common
3	Red	Red
4	Green	Green
5	Orange	Yellow
6	Blue	Green Arrow
7	White/Black	Spare

4 SECTION FLASHING YELLOW ARROW MAST ARM AND SIDE MOUNT

7 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Flashing Yellow Arrow
2	White	Vehicle Common
3	Red	Red
4	Green	Green
5	Orange	Yellow
6	Blue	Green Arrow
7	White/Black	Spare

LRT SIGNAL DOUBLE TRAIN

7 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Spare
2	White	Neutral
3	Red	LRT Horizontal (Red)
4	Green	LRT Vertical (Green)
5	Orange	Spare
6	Blue	Spare
7	White/Black	Spare

LRT SIGNAL

5 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Spare
2	White	Neutral
3	Red	LRT Horizontal
4	Green	LRT Vertical
5	Orange	Spare

120V ILLUMINATED STREET SIGN AND LUMINAIRE

5 CONDUCTOR CABLE

NO.	COLOR	FUNCTION
1	Black	Sign
2	White	Neutral (Shared)
3	Red	Luminaire
4	Green	Ground
5	Orange	Spare

240V ILLUMINATED STREET SIGN AND LUMINAIRE

5 CONDUCTOR CABLE

NO.	COLOR	FUNCTION
1	Black	Sign
2	White	Sign
3	Red	Luminaire
4	Green	Ground
5	Orange	Luminaire

LUMINAIRE (FROM LUMINAIRE)

3 CONDUCTOR CABLE

NO.	BASIC COLOR	FUNCTION
1	Black	Load
2	White	Neutral
3	Green	Ground

ILLUMINATED STREET SIGN (FROM SIGN)

3 CONDUCTOR CABLE

NO.	BASIC COLOR	FUNCTION
1	Black	Load
2	White	Neutral
3	Green	Ground

PUSH BUTTON

3 CONDUCTOR CABLE

NO.	BASIC COLOR	PUSH BUTTON STATION
1	Black	Push Button
2	White	Push Button Common
3	Green	Spare

PEDESTRIAN HEAD

5 CONDUCTOR CABLE

NO.	BASIC COLOR	SIGNAL INTERVAL
1	Black	Spare
2	White	Pedestrian Common
3	Red	Don't Walk
4	Green	Walk
5	Orange	Spare

COMMUNICATION RADIO

3 CONDUCTOR CABLE

NO.	BASIC COLOR	FUNCTION
1	Black	Load
2	White	Neutral
3	Green	Ground

BLANK OUT SIGN

5 CONDUCTOR CABLE

NO.	COLOR	FUNCTION
1	Black	BO Sign
2	White	Neutral
3	Red	BO Sign *
4	Orange	Spare
5	Green	Spare

* Where second function is required

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

GENERAL NOTES

1. All IMSA Cable shall be pulled continuous (no splicing) from the Terminal Compartment in each Signal Head or Push Button Station to the Hand Hole at the base of Pole.
2. Cable shall be utilized as follows:
   - 3 Conductor - All Push Button Stations, Luminaires, Illuminated Street Signs.
   - 5 Conductor - All 3 Section, 4 Section Signal Heads, HAWK Signal Heads, Pedestrian Heads.
   - 7 Conductor - All outside Mast Arm and Type Q Signal Heads.
3. Orange (North or East) or blue (South or West) Tape shall be applied six (6) inches above PVC bell end on IMSA Cable Jacket in Junction Box.
4. All Cable shall be tagged in the Hand Hole with orange (North or East) or blue (South or West) tape as follows:

MAST ARM VEHICLE INDICATIONS		
FIELD	CONDUCTOR(S)	TAPE(S)
On Pole	5	
First (or Mast Arm)	5	2
Next Outside	5	3
Next Outside	5	4
End of Mast Arm	7	5*

* Band Number corresponds to Field Number

5. IMSA Cables for Pedestrian Heads shall be identified in Hand Hole using Brown tape in addition to color of phase.
6. IMSA Cable for Luminaires shall be run continuous to Junction Box and identified with one (1) band of purple tape.
8. IMSA Cable for Illuminated Street Signs shall be run continuous to Junction Box and identified with two (2) bands of purple tape.
9. IMSA Cables for Communication Radio shall be pulled continuous to Junction Box and shall be connected to luminaire circuit and identified with three (3) bands of purple tape.
10. CAT 5e Cable shall be pulled continuous from Wireless Radio to inside the Controller Cabinet.
11. CCTV Cable and Video Detection Cable shall be pulled continuous from the device to inside the Controller Cabinet.
12. All IMSA Cable to be #16 AWG Stranded unless otherwise noted on approved signal plans. When terminating in Signal Heads use suitable manufactured crimp on connector of appropriate size.

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-38, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

WIRE CODE TABLES

54530 BRUCE E. LITTLETON ARIZONA U.S.A. EXPIRES: 06-30-2018 5/5/17

TPP File Number 10164 | TS 4-1

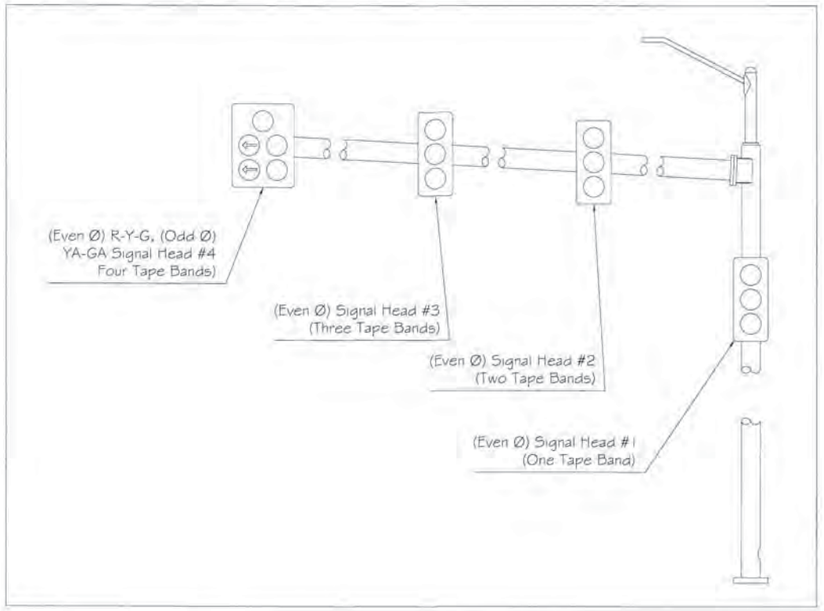
TRAFFIC SERVICES DEPUTY DIRECTOR | 5-08-2017

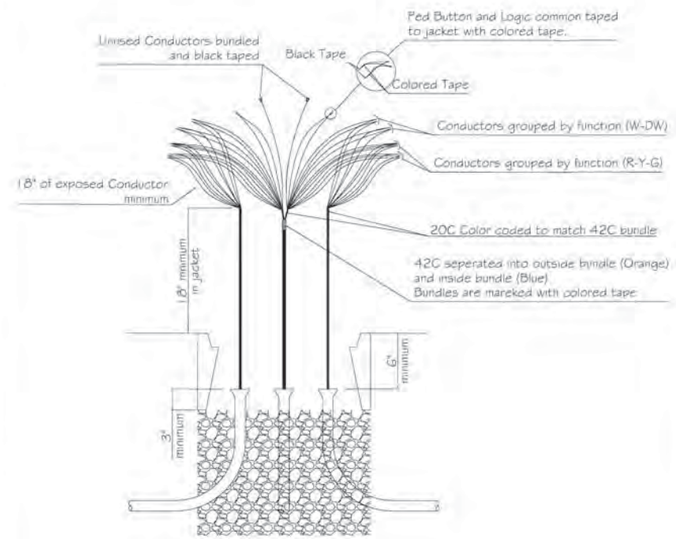
PROJECT #:

DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		DS. #:		

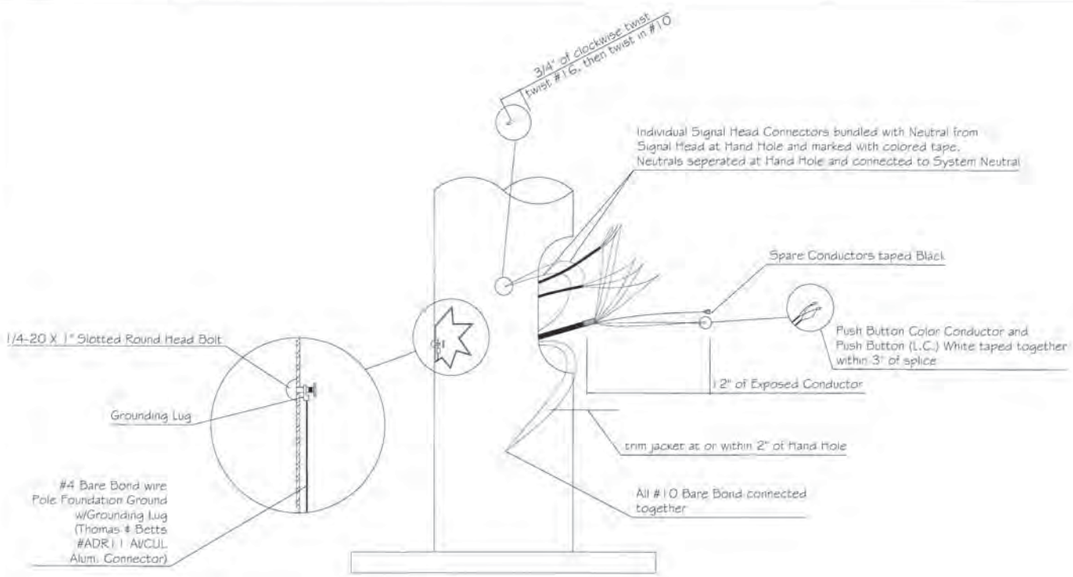
SIGNAL DETAILS:

PROJECT #:





TYPICAL CONDUCTOR DETAILS IN
JUNCTION BOX



WIRING DETAILS FOR TRAFFIC SIGNAL CONDUCTORS
IN POLE HANDHOLE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

SIGNAL DETAILS:

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26: THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

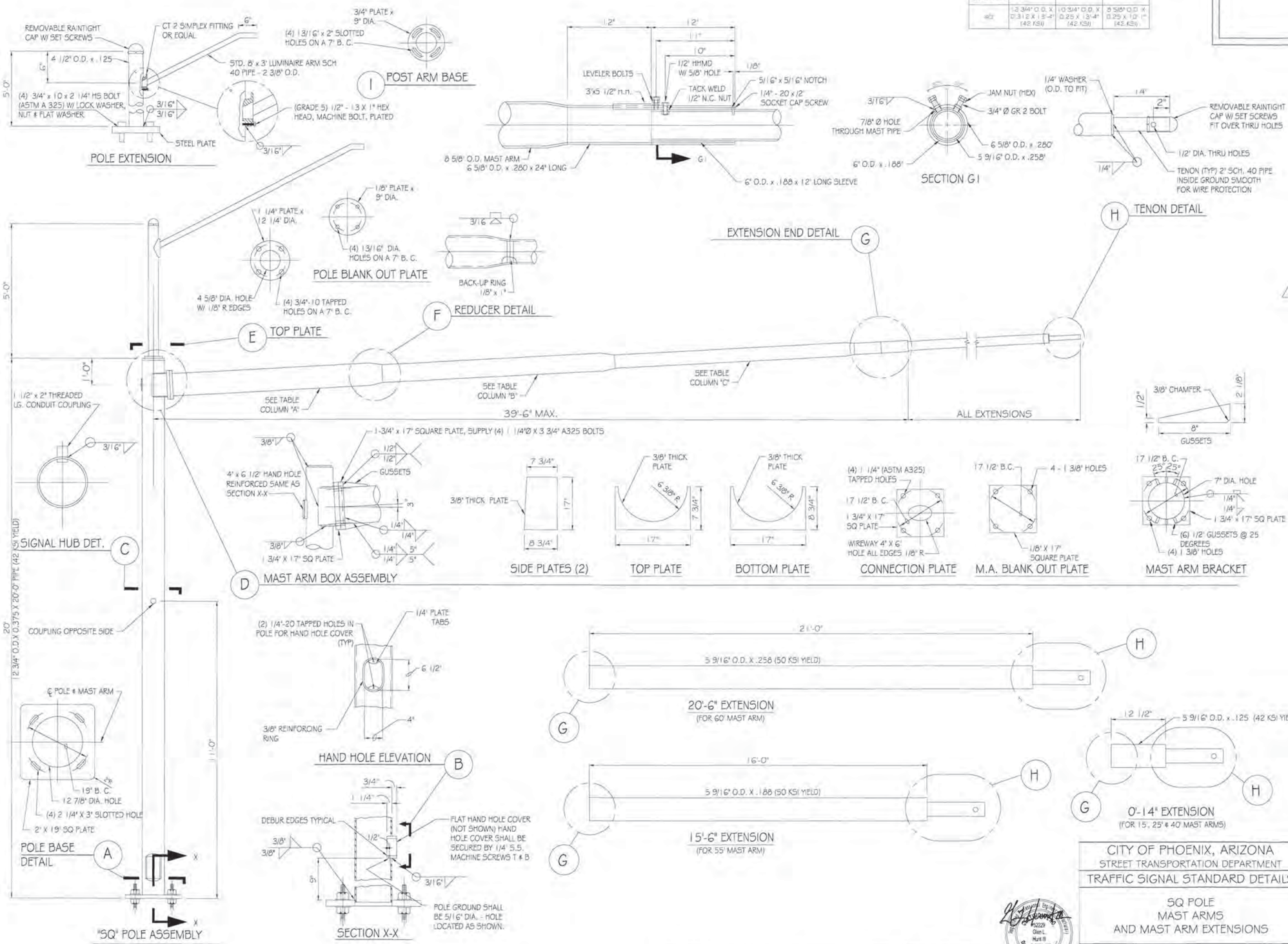
PULL BOX/POLE HAND HOLE WIRING

TPP File Number 10164 | TS 4-2

TRAFFIC SERVICES DEPUTY DIRECTOR | 8-1-2016

PROJECT #:
DR: DES: CK: SHEET NO: TOTAL SHEETS:
DATE: DATE: DATE:
SCALE: DS. #:

MAST ARM STAGE PIPE DIAMETER			
PRIMARY MAST ARM LENGTH	COLUMN A	COLUMN B	COLUMN C
60'	12 3/4" O.D. X 0.312 X 13'-4" (42 KSI)	10 3/4" O.D. X 0.25 X 13'-4" (42 KSI)	8 5/8" O.D. X 0.25 X 10'-1" (42 KSI)



REVISION #	DATE	REVISION	DRAWN BY	APPROVED BY
1	5/8/2017	Added note #9	ZB	

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", 5TH EDITION, 2009.
2. PIPE SHALL HAVE MINIMUM YIELD STRENGTH SPECIFIED.
3. ALL OTHER STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
4. WELDING SHALL BE WITH E-70 LOW HYDROGEN RODS AND SHALL CONFORM TO AWS D1.1 LATEST EDITION).
5. POLE AND ARM SHALL BE POWDER COATED PER CITY SPECIFICATIONS.
6. INCLUDE ALL HANDHOLE COVERS W/ 2 EA. 1/4"-20 SS MACHINE SCREWS.
7. 'SQ' POLE CAN SUPPORT THE 55', & 60' MAST ARMS AS SHOWN.
8. 'SQ' POLE IS NOT COMPATIBLE WITH OTHER MAST ARMS.
9. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH MANUFACTURERS NAME, MONTH, DAY, YEAR MANUFACTURED AND EQUIPMENT TYPE.

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26 THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

SQ POLE
MAST ARMS
AND MAST ARM EXTENSIONS

TPP File Number 10164 | TS 1-1

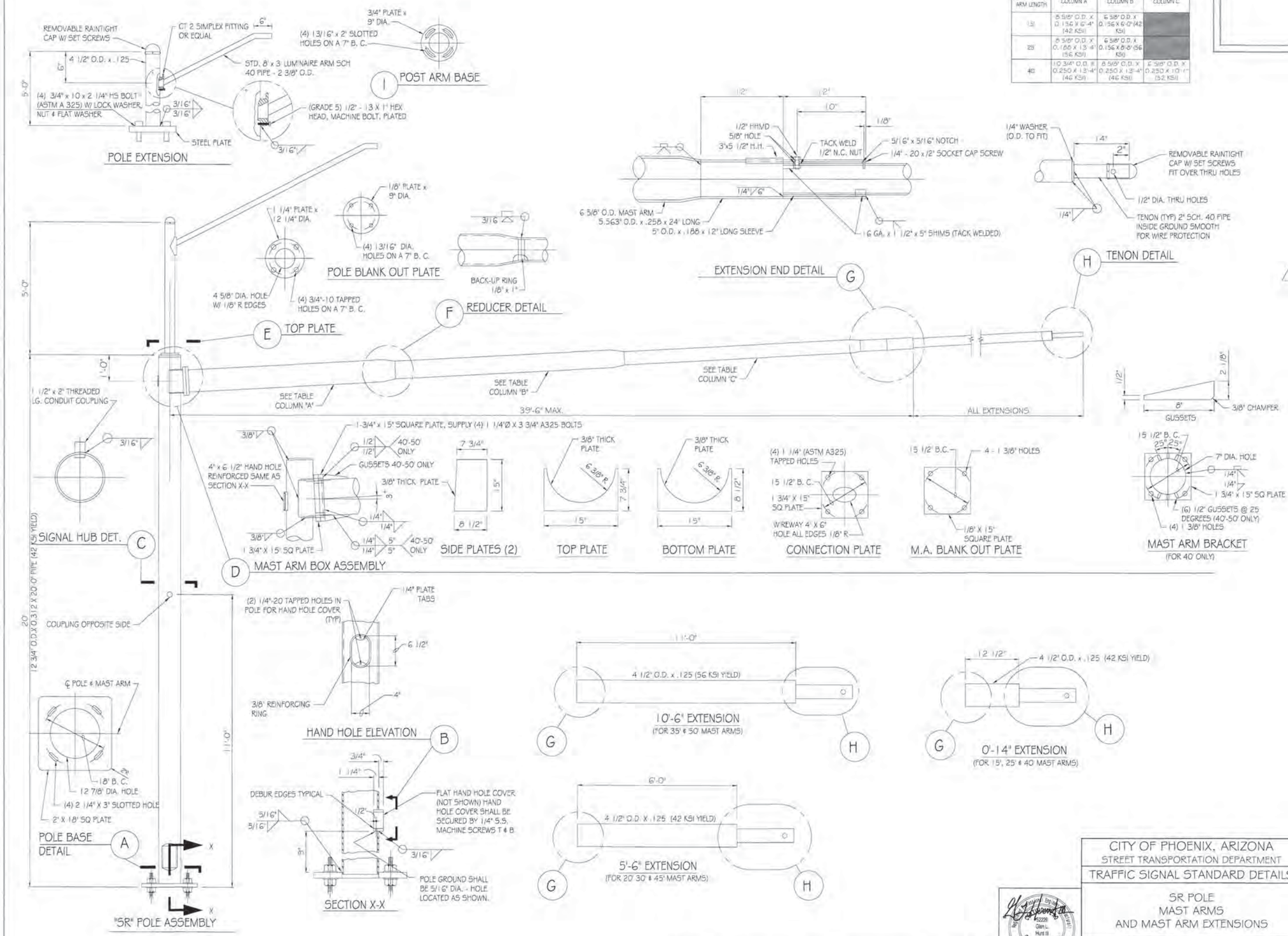
TRAFFIC SIGNAL ENGINEER 5-8-2017

PROJECT #: DR: DATE: DES: DATE: CK: DATE: SHEET NO: TOTAL SHEETS: SCALE: QS #:

TRAFFIC SIGNAL DETAILS:

PROJECT #:

MAST ARM STAGE PIPE DIAMETER			
PRIMARY MAST ARM LENGTH	COLUMN A	COLUMN B	COLUMN C
15	8 5/8" O.D. X 0.156 X 6'-4" (42 KSI)	6 5/8" O.D. X 0.156 X 6'-0" (42 KSI)	
25	8 5/8" O.D. X 0.188 X 13'-4" (56 KSI)	6 5/8" O.D. X 0.156 X 8'-0" (56 KSI)	
40	10 3/4" O.D. X 0.250 X 13'-4" (46 KSI)	8 5/8" O.D. X 0.250 X 13'-4" (46 KSI)	6 5/8" O.D. X 0.250 X 10'-1" (52 KSI)



REVISION #	DATE	REVISION	DRAWN BY	APPROVED BY
1	5/8/2017	Added note #8	ZR	

FHWA REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

TRAFFIC SIGNAL DETAILS:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", 5TH EDITION, 2009.
2. PIPE SHALL HAVE MINIMUM YIELD STRENGTH SPECIFIED.
3. ALL OTHER STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
4. WELDING SHALL BE WITH E-70 LOW HYDROGEN RODS AND SHALL CONFORM TO AWS D1.1 LATEST EDITION).
5. POLE AND ARM SHALL BE POWDER COATED PER CITY SPECIFICATIONS.
6. INCLUDE ALL HANDHOLE COVERS W/ 2 EA. 1/4"-20 SS MACHINE SCREWS.
7. SR POLE CAN ONLY SUPPORT UP TO A 50' MAST ARM.
8. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH MANUFACTURERS NAME, MONTH, DAY, YEAR MANUFACTURED AND EQUIPMENT TYPE.

PROJECT #:

"PER CITY OF PHOENIX CITY CODE-CHAPTER 2, SECTION 2-26, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

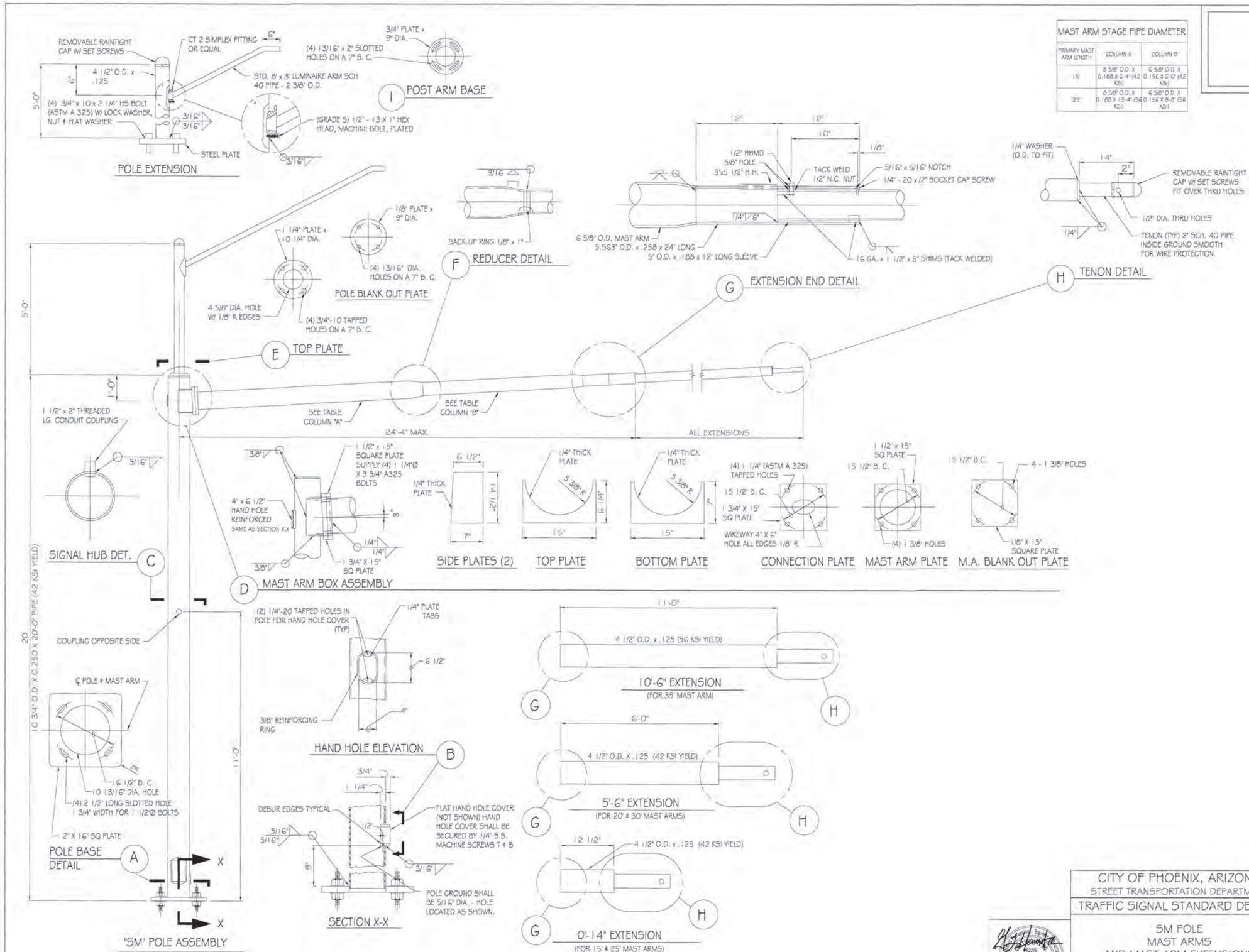
TRAFFIC SIGNAL STANDARD DETAILS

SR POLE
MAST ARMS
AND MAST ARM EXTENSIONS

TPP File Number 10164 | TS 1-2

TRAFFIC SIGNAL ENGINEER | 5-8-2017

PROJECT #:				
DR:	DES:	CK:	SHEET NO.:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		OS #:		



MAST ARM STAGE PIPE DIAMETER		
PRIMARY MAST ARM LENGTH	COLUMN A	COLUMN B
15'	6 5/8" O.D. X 0.188 X 0'-4" (42 KSI)	6 5/8" O.D. X 0.156 X 0'-0" (42 KSI)
25'	6 5/8" O.D. X 0.188 X 13'-4" (56 KSI)	6 5/8" O.D. X 0.156 X 8'-8" (56 KSI)

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

TRAFFIC SIGNAL DETAILS:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO 'STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS', 5TH EDITION, 2009.
2. PIPE SHALL HAVE MINIMUM YIELD STRENGTH SPECIFIED.
3. ALL OTHER STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
4. WELDING SHALL BE WITH E-70 LOW HYDROGEN RODS AND SHALL CONFORM TO AWS D1.1 LATEST EDITION).
5. POLE AND ARM SHALL BE POWDER COATED PER CITY SPECIFICATIONS.
6. INCLUDE ALL HANDHOLE COVERS W/ 2 EA. 1/4"-20 SS MACHINE SCREWS.
7. 'SM' POLE CAN ONLY SUPPORT UP TO A 35' MAST ARM.
8. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH MANUFACTURERS NAME, MONTH, DAY, YEAR MANUFACTURED AND EQUIPMENT TYPE.

REVISION #	DATE	REVISION	DRAWN BY	APPROVED BY
1	5/8/2017	Added Note #8	JR	

Roger Dale Hunt III, 5/03/17, Date Signed, ARIZONA, U.S.A., Expires 6/30/2017

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

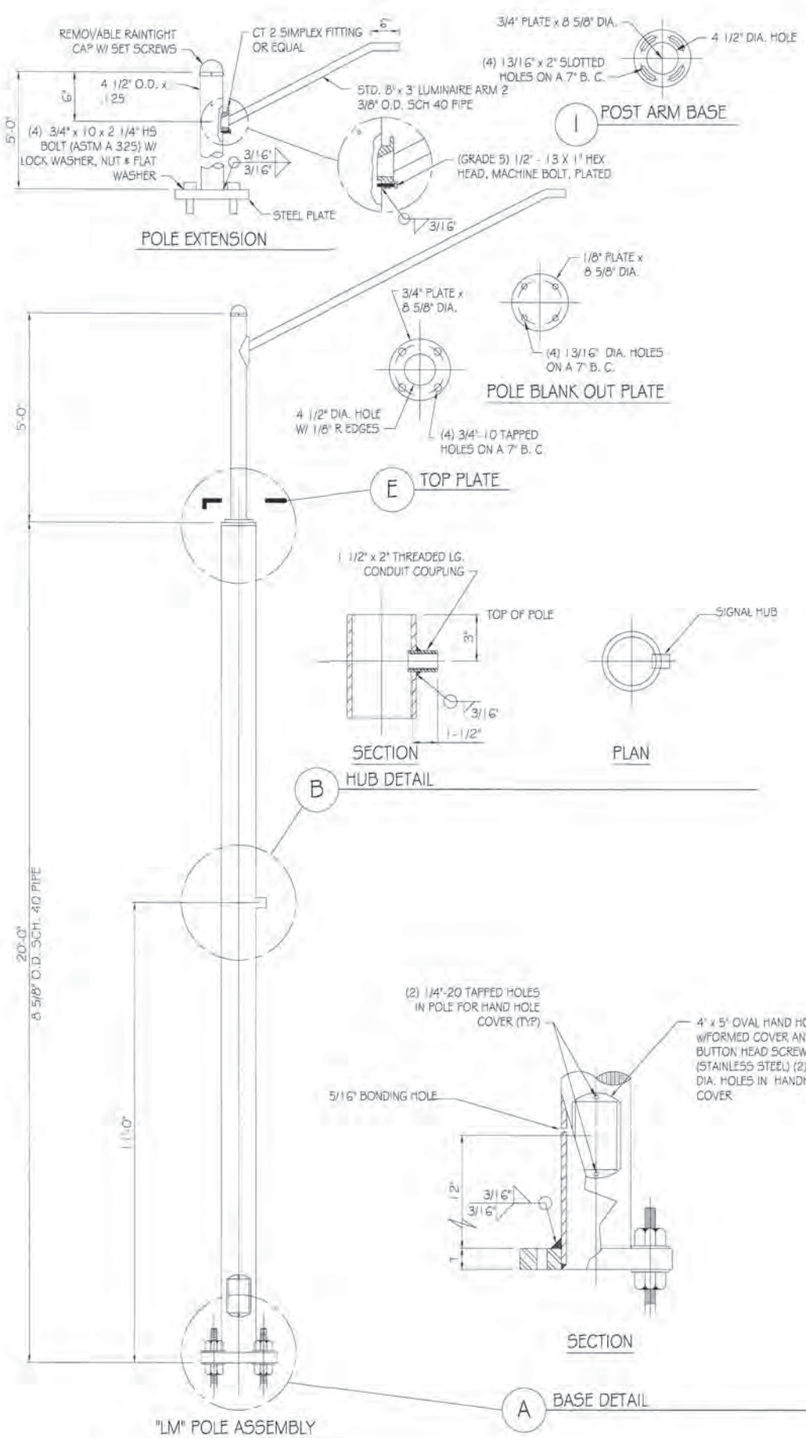
SM POLE
MAST ARMS
AND MAST ARM EXTENSIONS

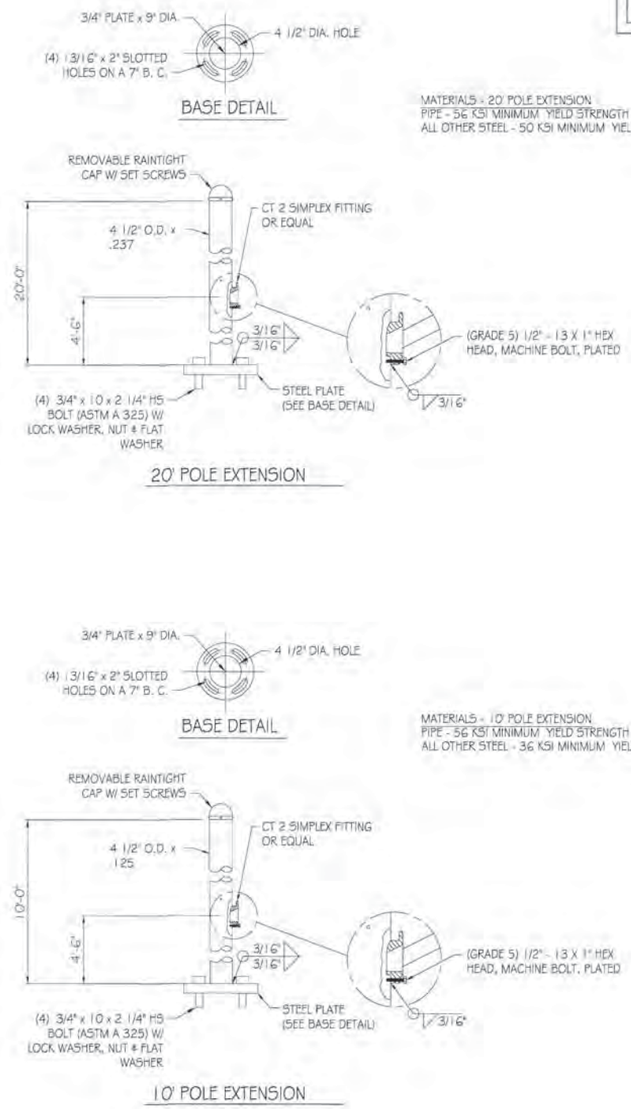
TPP File Number 10164 | TS 1-3
TRAFFIC SIGNAL ENGINEER | 5-8-2017

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

PROJECT #:
DR: DES: CK: SHEET NO: TOTAL SHEETS
DATE: DATE: DATE:
SCALE: QS. #:





MATERIALS - 20' POLE EXTENSION
PIPE - 56 KSI MINIMUM YIELD STRENGTH
ALL OTHER STEEL - 50 KSI MINIMUM YIELD STRENGTH

MATERIALS - 10' POLE EXTENSION
PIPE - 56 KSI MINIMUM YIELD STRENGTH
ALL OTHER STEEL - 36 KSI MINIMUM YIELD STRENGTH

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	

TRAFFIC SIGNAL DETAILS:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO 'STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS', 5TH EDITION, 2009.
2. MATERIALS - ALL NEW
   PIPE - ASTM A 53 GR B
   PLATES - ASTM A 36
   ANCHOR BOLTS - ASTM A 36
3. WELDING
   ALL WELDING SHALL USE E-70 ELECTRODES AND SHALL CONFORM TO ANSI/A.W.S. D1.1.
4. POLE AND ARM SHALL BE POWDER COATED PER CITY SPECIFICATIONS.
5. TOP MOUNTED CAMERA DIMENSIONS: 5" X 5" X 25"
6. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH MANUFACTURER'S NAME, MONTH, DAY, YEAR MANUFACTURED AND EQUIPMENT TYPE.

PROJECT #:

REVISION #	DATE	REVISION	DRAWN BY	APPROVED BY
1	5/8/2017	Added note #6	JR	

Glen L. Hunt III
Date Signed 5/8/2017
ARIZONA, U.S.A.
Expires 6/30/2017

"PER CITY OF PHOENIX CITY CODE CHAPTER 2 SECTION 2-26: 'THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.'"

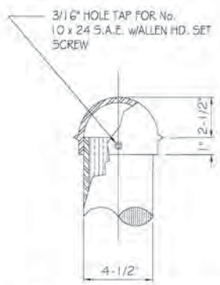
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

LM POLE
AND RISERS

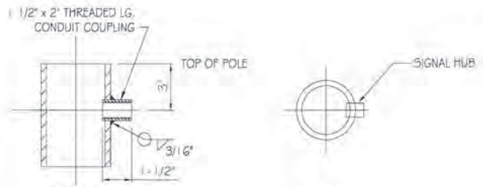
TRAFFIC SIGNAL DETAILS
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

TPP File Number 10164 | TS 1-4
TRAFFIC SIGNAL ENGINEER | 5-8-2017

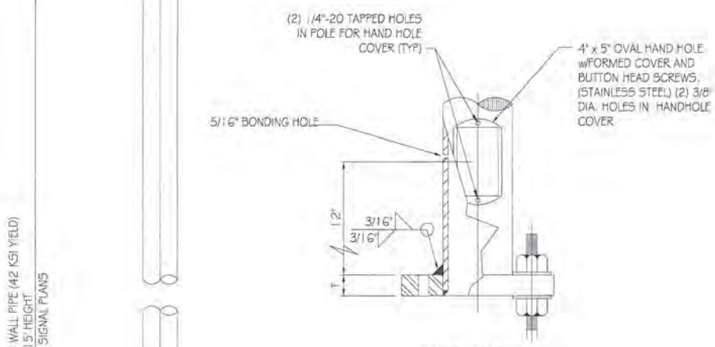
PROJECT #:				
DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		QS #:		



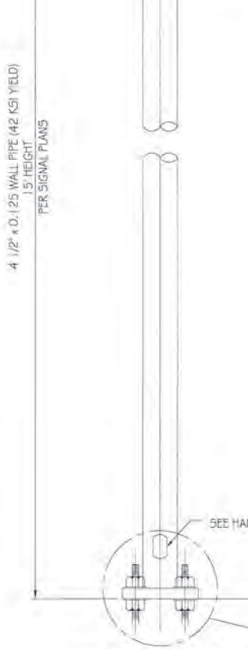
C RAINTIGHT CAP DETAIL

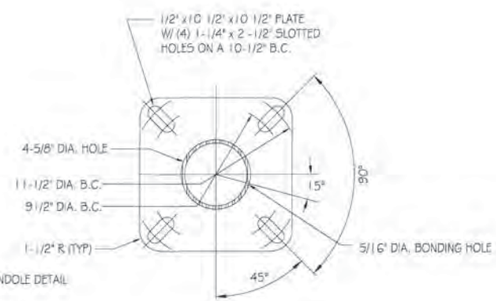


B HUB DETAIL



HANDOLE DETAIL

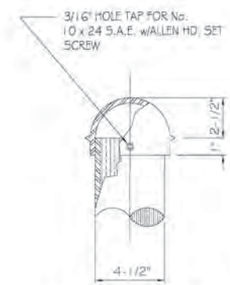




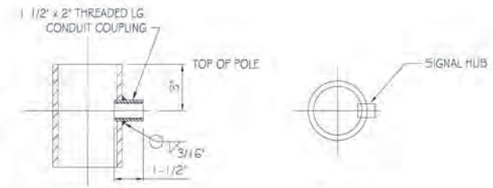
PLAN

A BASE DETAIL

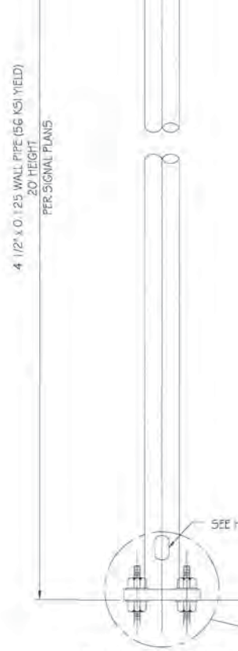
15' "A" POLE ASSEMBLY

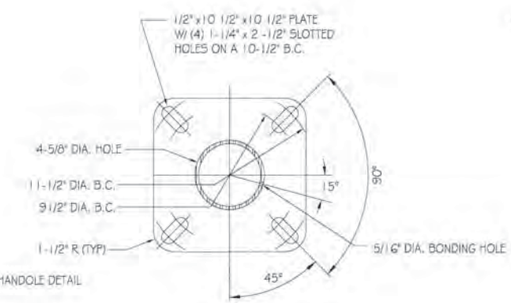


C RAINTIGHT CAP DETAIL



B HUB DETAIL

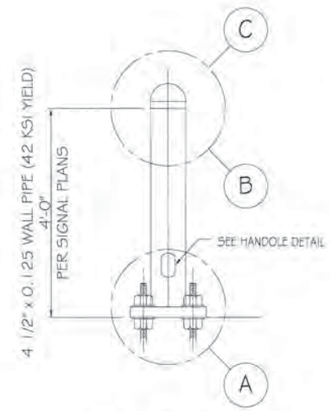




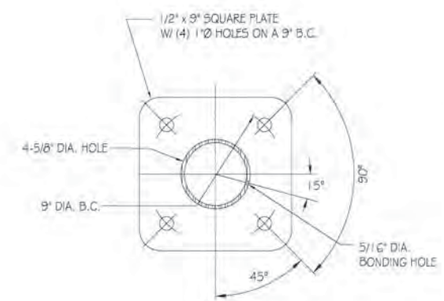
PLAN

A BASE DETAIL

20' "A" POLE ASSEMBLY



"PB" POLE ASSEMBLY



PLAN

A "PB" POLE BASE DETAIL

REVISION #	DATE	REVISION	DRAWN BY	APPROVED BY
1	5/8/2017	Added note #6	ZR	

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR:	DES:	CK:	DATE:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", 5TH EDITION, 2009.
2. PIPE SHALL HAVE MINIMUM YIELD STRENGTH SPECIFIED.
3. ALL OTHER STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI.
4. WELDING
   ALL WELDING SHALL USE E-70 ELECTRODES AND SHALL CONFORM TO ANSI/A.W.S. D1.1.
5. POLE AND ARM SHALL BE POWDER COATED PER CITY SPECIFICATIONS.
6. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH MANUFACTURERS NAME, MONTH, DAY, YEAR MANUFACTURED AND EQUIPMENT TYPE.

TRAFFIC SIGNAL DETAILS:

PROJECT #:

PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

TRAFFIC SIGNAL STANDARD DETAILS

A POLE
AND PB POLE

TPP File Number 10164

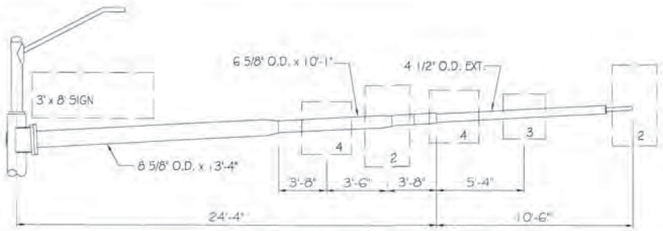
TS 1-5

TRAFFIC SIGNAL ENGINEER

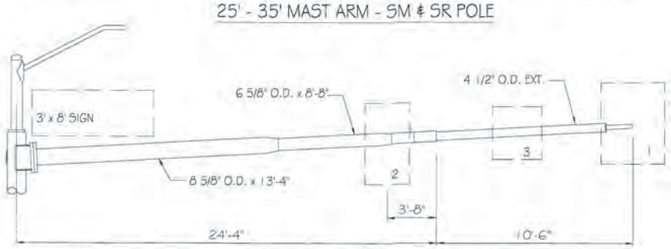
5-8-2017

Registered Professional Engineer (Civil) CERTIFICATE NO. 52228 Glen L. Hunt III Date Signed 5/8/17 ARIZONA, U.S.A. Expires 6/30/2017

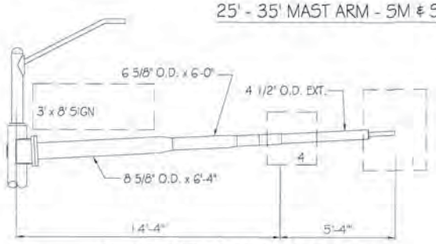
PROJECT #:				
DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS:
DATE:	DATE:	DATE:		
SCALE:		QS #:		



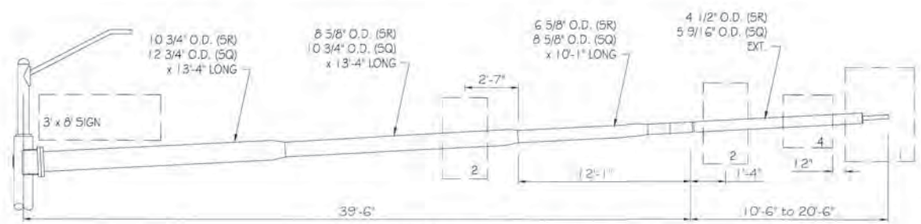
25' - 35' MAST ARM - 5M & 5R POLE



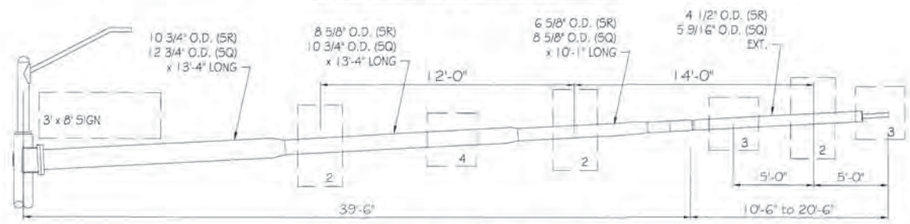
25' - 35' MAST ARM - 5M & 5R POLE



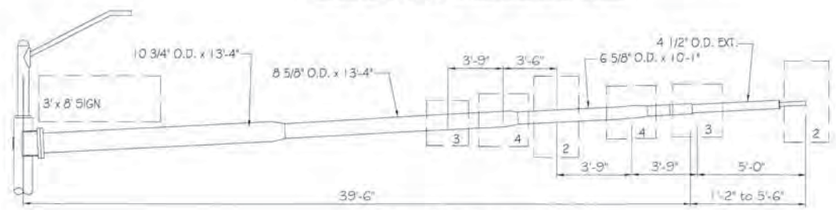
15' - 20' MAST ARM - 5M & 5R POLE



50' (5R), 55' (5Q), & 60' (5Q) MAST ARM



50' (5R), 55' (5Q), & 60' (5Q) MAST ARM



40' - 45' MAST ARM - 5R POLE

4 1/2" O.D. EXT.	
CONTROLLER CABINET	WEIGHT
PAD MOUNT CABINET	325 POUNDS
POLE MOUNT CABINET	190 POUNDS

"A" POLE	
-	WEIGHT
POLE ONLY	90 POUNDS

"5M" POLE AND MAST ARM EXTENTION WEIGHTS	
-	WEIGHT
POLE ONLY	710 POUNDS
MAST ARM - 25 FT TO 35 FT	-
MAST ARM - 15 FT TO 20 FT	225 POUNDS

"R" POLE AND MAST ARM EXTENTION WEIGHTS	
-	WEIGHT
POLE ONLY	850 POUNDS
40 FT MAST ARM EXTENTION	-
5 FT MAST ARM EXTENTION	30 POUNDS
-	120 POUNDS
-	175 POUNDS

-	
-	WEIGHT
POLE ONLY	850 POUNDS
MAST ARM	-

"5R" POLE AND MAST ARM EXTENTION WEIGHTS	
-	WEIGHT
POLE ONLY	1050 POUNDS
MAST ARM - 45 FT	-

"5Q" POLE AND MAST ARM EXTENTION WEIGHTS	
-	WEIGHT
POLE ONLY	1050 POUNDS
MAST ARM - 55 FT	-

-	WEIGHT
LUMINAIRE RISER 5FT	40 POUNDS
LUMINAIRE ARM 8FT	-
LUMINAIRE FIXTURE N/A	20 POUNDS

-	WEIGHT
3' X 8' SMART SIGN WITH HARDWARE	225 POUNDS

-	-	WEIGHT
DOG HOUSE	-	60 POUNDS
5 SECTION	-	-
3 SECTION		5 POUNDS

-	-	WEIGHT
	-	95 POUNDS
	-	500 POUNDS

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	

TRAFFIC SIGNAL DETAILS:

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", 5TH EDITION, 2009.
2. FOR DETAILS OF "Q" AND "R" POLES AND MAST ARMS, SEE ARIZONA DOT (ADOT) TRAFFIC SIGNALS AND LIGHTING STANDARD DRAWINGS.

ATTACHMENTS

1 - 42" x 58" x 90# SIGNAL
2 - 24" x 54" x 40# SIGNAL
3 - 30" x 30" x 100# BLANK OUT SIGN
4 -36" x 36" x 15# SIGN

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

LOADS FOR
POLES, MAST ARMS
SIGNAL EQUIPMENT

Registered Professional Engineer (Civil) CERTIFICATE NO. 32229 Glen L. Hunt III Date Signed 5-8-17 ARIZONA, U.S.A. Expires 6/30/2017

TPP File Number T0164 | TS 1-6

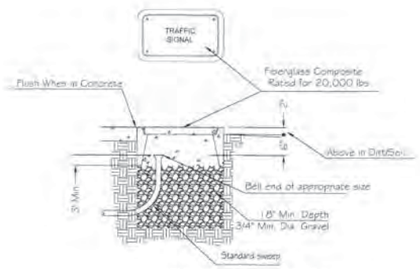
TRAFFIC SIGNAL ENGINEER | 5-8-2017

PROJECT #:				
DR:	DES:	CK:	SHEET NO:	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		DS. #:		

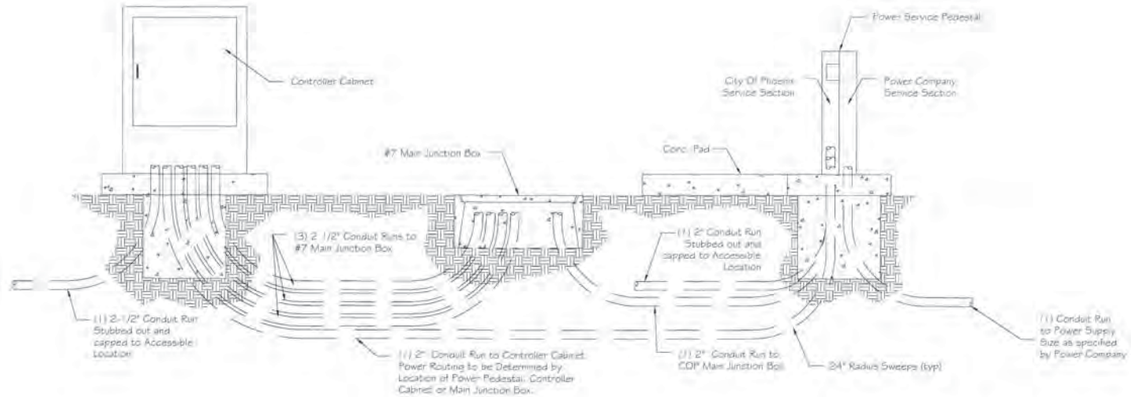
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

TRAFFIC SIGNAL DETAILS:



JUNCTION BOX DETAIL

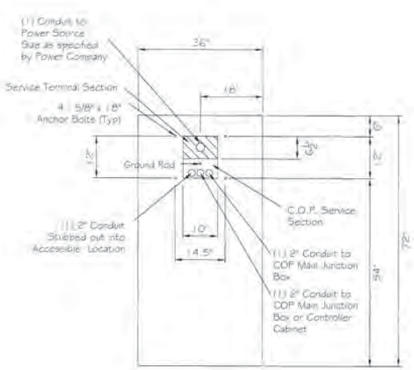


CONTROLLER CABINET POWER CONDUIT RUN

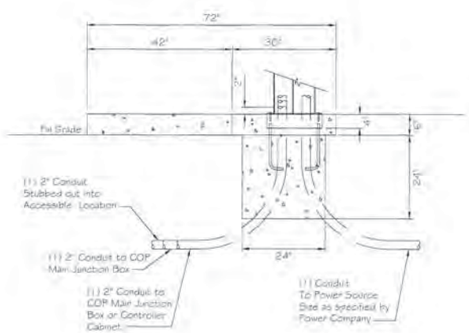
JUNCTION BOX:

1. All Junction Box Lids shall be imprinted to say "TRAFFIC SIGNALS" and be a fiberglass composite rated for 20,000 lbs. and supplied with bolt lock downs. A minimum depth of eighteen (18) inches of three quarter (3/4) inch rock shall be installed under each Junction Box.

2. All Conduit shall be installed between twentyfour (24) inches and forty (40) inches below finished grade, in straight lines, Junction Box to Junction Box or Junction Box to Pole Base, with one (1) 90° sweep on each end as specified in the plans. All Conduit entering Junction Boxes shall be vertical with the top of the Conduit six (6) inches below the bottom of the Junction Box cover. Conduit in all Foundations shall be located as close as possible to the center of the Foundation.

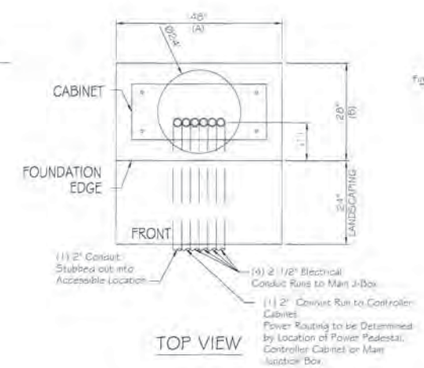


TOP VIEW

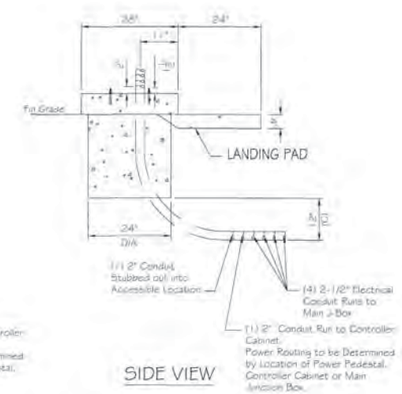


SIDE VIEW

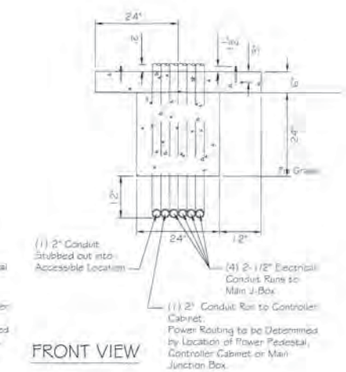
POWER PEDESTAL BASE DETAIL



TOP VIEW



SIDE VIEW



FRONT VIEW

CONTROLLER CABINET FOUNDATION BASE DETAIL

CONTROLLER CABINET FOUNDATION DIMENSION SCHEDULE			
CONTROLLER TYPE	FOUNDATION LENGTH (A)	FOUNDATION WIDTH (B)	CONDUIT SWEEP (C)
3 PHASE	48"	28"	24"

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-26, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT
TRAFFIC SIGNAL STANDARD DETAILS

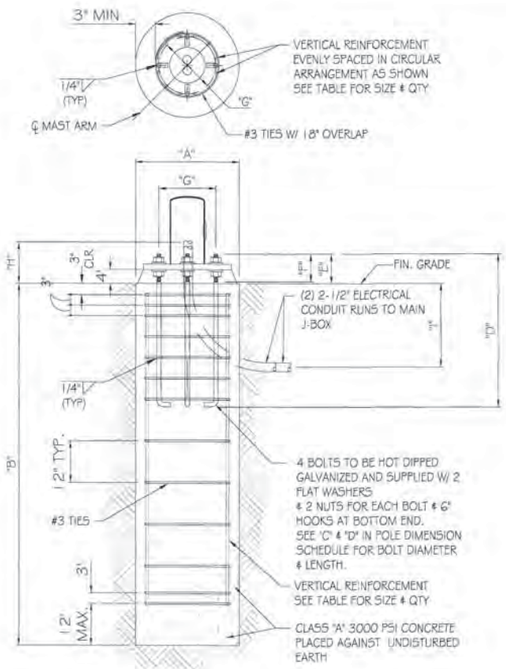
JUNCTION BOXES
FOUNDATIONS FOR CONTROLLER AND POWER SERVICE PEDESTAL

54530 BRUCE E. LITTLETON ARIZONA U.S.A. EXPIRES: 06-30-2018

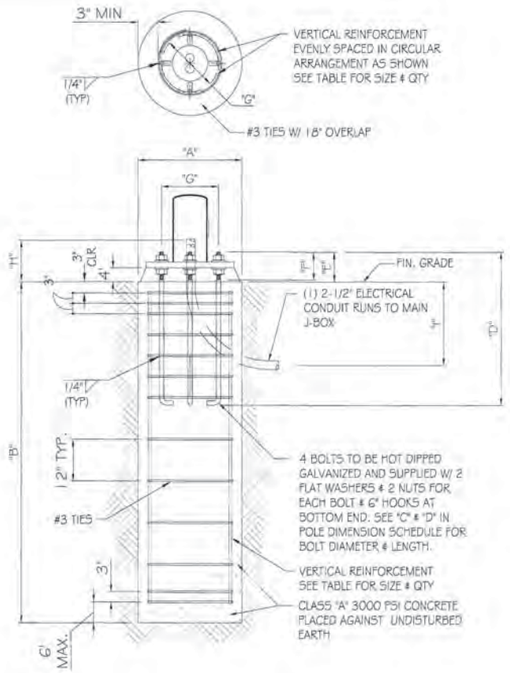
TPP File Number 10164 | TS 2-1

TRAFFIC SERVICES DEPUTY DIRECTOR | 5-8-2017

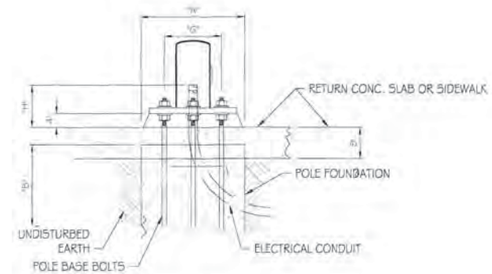
PROJECT #:				
DR:	DES:	CK:	SHEET NO.	TOTAL SHEETS
DATE:	DATE:	DATE:		
SCALE:		QS #:		



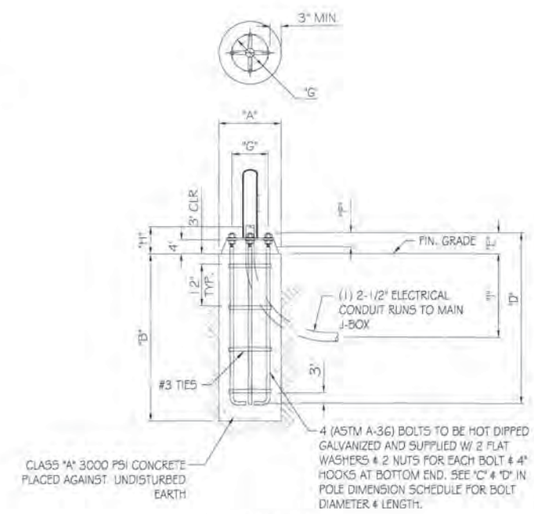
FOUNDATION, ANCHOR BOLT & REBAR CAGE DETAIL FOR SQ, SR, SM, & LM POLES



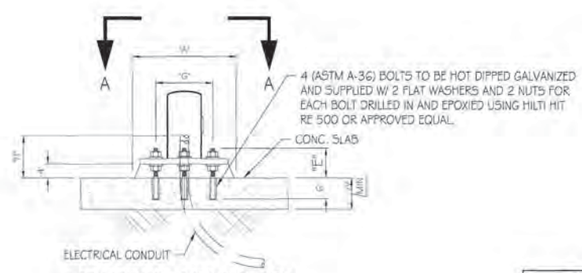
FOUNDATION, ANCHOR BOLT & REBAR CAGE DETAIL FOR "A" POLES



TYPICAL POLE FOUNDATION LOCATED WITHIN SIDEWALK SLAB



FOUNDATION & ANCHOR BOLT CAGE DETAIL FOR "PB" POLES



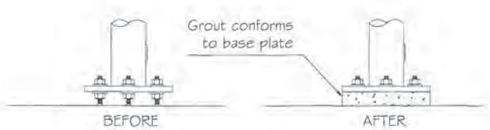
"PB" POLE SLAB FOUNDATION LOCATED ON SIDEWALK SLAB

POLE FOUNDATION DIMENSION SCHEDULE

FOUNDATION POLE TYPE	POLE DETAIL (ft.)		LUMINAIRE ADAPTABLE	FOUNDATION DETAIL (in.)		VERT. REINFORCEMENT		BOLT DETAIL (in.)						✱ CONDUIT DETAIL		
	POLE HEIGHT	MAST ARM LENGTH		'A' WIDTH	'B' DEPTH	REBAR QUANTITY	REBAR SIZE	ASTM MATERIAL GRADE	"C" DIAMETER	"D" LENGTH OVERALL	"E" PROJECTION	"F" THREAD	"G" BOLT CIRCLE	"H" CLEAR	"I" MIN. DEPTH	CONDUIT QUANTITY
TYPE 'SQ'	20	55-60	YES	36	156	12	#6	F1554-55	2	66	8½	10	19	12	24	2
				30	186	10	#6									
TYPE 'SR'	20	15-50	YES	36	138	12	#6	F1554-55	2	66	8½	10	18	12	24	2
				30	168	10	#6									
TYPE 'SM'	20	15-35	YES	36	120	12	#6	F1554-55	1½	54	8½	8	16½	12	24	2
				30	132	10	#6									
TYPE "LM"	20	N/A	YES	36	84	12	#6	F1554-55	1⅛	44	7	6	12 1/2	12	24	2
				24	96	8	#5									
TYPE 'A'	15, 20	N/A	N/A	18	72	8	#5	F1554-36	1	36	6	4	10½	12	24	1
TYPE 'PB'	4	N/A	N/A	18	36**	N/A	N/A	F1554-36	¾	30	6	4	9	12	24	1

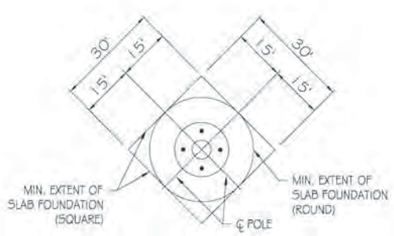
✱ CONDUIT SHALL ENTER 24" MINIMUM DEPTH, VERTICALLY, THROUGH THE BOTTOM OF THE FOUNDATION

**UNLESS INSTALLED ON SLAB FOUNDATION PER DETAIL ON THIS SHEET



Grout material per City of Phoenix specifications

GROUT DETAIL



SECTION A-A

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			

DR: DES: CK: DATE:

FOUNDATION GENERAL NOTES:

1. FOUNDATION ELEVATIONS MUST BE WITHIN 1/4" OF FINISHED SIDEWALK GRADE.
2. ALL FOUNDATION CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'c= 3000 PSI AT 28 DAYS. CONCRETE MIX SHALL BE DESIGNED BY AN APPROVED LABORATORY. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION. CEMENT SHALL BE TYPE III, CONFORMING TO ASTM C-150. ALL AGGREGATE USED IN THE CONCRETE SHALL CONFORM TO ASTM C-33. MAXIMUM AGGREGATE SIZE TO BE 1 1/2". SLUMP 4" - 6"
3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615. VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION
4. A 25' COIL OF #4 AWG STRANDED BARE COPPER GROUNDING ELECTRODE SHALL BE INSTALLED AT THE BASE OF SIGNAL POLE FOUNDATIONS AND EXTEND CENTERED, 2' ABOVE TOP OF FOUNDATION. CONDUCTOR SHALL BE INSTALLED 6" BELOW FOUNDATION AND COVERED WITH 6" OF SOIL PRIOR TO CONCRETE PLACEMENT.

TRAFFIC SIGNAL DETAILS:

PROJECT #:

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2.20, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX."

TRAFFIC SIGNAL DETAILS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

TRAFFIC SIGNAL STANDARD DETAILS

POLE FOUNDATIONS

TRP File Number 10164 | TS 2-2

TRAFFIC SIGNAL ENGINEER 5-8-2017

PROJECT #: DR: DATE: DES: DATE: CK: DATE: SHEET NO: TOTAL SHEETS

SCALE: QS. #:

WATER SRP ENGINEERING

PHOENIX, ARIZONA

SALT RIVER PROJECT

IRRIGATION IMPROVEMENTS

SRP ENGINEERING FILE NO. 1600453

27TH AVENUE: LOWER BUCKEYE ROAD TO BUCKEYE ROAD

ST85100341

CUSTOMER: THOMAS FISHER, CITY OF PHOENIX
TEL. (602) 534-1285

CUSTOMER'S ENGINEER: T.Y.LIN INTERNATIONAL, CARLOS SANCHEZ-SORIA, P.E.
TEL. (480) 333-4406

SRP DESIGNER: VICTOR LUCERO
TEL. (602) 236-5586

SRP INSPECTOR: JEFF HYATT
TEL. (602) 600-7004

LEGEND

PLAN SYMBOLS

- BENCHMARK
- SECTION CORNER
- SURVEY POINT (CALLOUT)
- SECTION LINE
- CONSTRUCTION BASELINE
- PROPERTY OR RIGHT OF WAY LINE
- EASEMENT LINE
- CENTERLINE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- SLIPFORM LINING
- EXISTING DITCH
- EXISTING PIPE
- PROPOSED PIPE
- EXISTING HEADWALL WITH AND WITHOUT SLIPFORM
- PROPOSED HEADWALL WITH SLIPFORM
- EXISTING HEADWALL/ TRASHRACK WITH AND WITHOUT SLIPFORM
- PROPOSED HEADWALL/ TRASHRACK WITH SLIPFORM
- EXISTING TURNOUT STRUCTURE
- PROPOSED TURNOUT STRUCTURE
- EXISTING MANHOLE
- PROPOSED MANHOLE
- FIRE HYDRANT
- WATER VALVE
- METER (WATER-W /GAS-G)
- W — WATER LINE
- S — SEWER LINE
- G — GAS LINE
- T — TELEPHONE (DUCT OR CABLE)
- E — UNDERGROUND ELEC (DUCT OR CABLE)
- MANHOLE (NON WUA)
- SD — STORM DRAIN
- CB — CATCH BASIN
- UTILITY POLE
- DOWN GUY
- FENCE (WOOD)
- FENCE (WIRE/NOT SPECIFIED)
- FENCE (MASONRY)
- PALM TREE
- TREE (TYPE)
- STUMP
- MB — MAIL BOX
- EXISTING FACILITIES (CALLOUT)
- PROPOSED FACILITIES (CALLOUT)

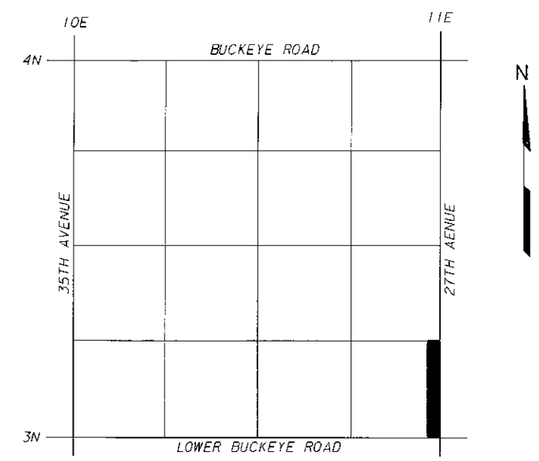
PROFILE SYMBOLS

- LOW BANK
- BED
- AVERAGE GROUND LEFT
- AVERAGE GROUND RIGHT
- AVERAGE GROUND (ONE GIVEN)
- HIGH WATER
- BED (PRIVATE DELIVERY)
- HIGH GROUND
- LOW GROUND
- CENTERLINE OF ROAD
- V — BED (DRAIN DITCH)
- T — CATCH BASIN
- PROPOSED UTILITY
- EXISTING UTILITY
- PH — POTHOLED UTILITY
- PROPOSED PIPE

GENERAL NOTES

1. THE CUSTOMER/CONTRACTOR IS RESPONSIBLE TO OBTAIN A PERMIT FOR WORK WITHIN PUBLIC AGENCY R/W AND ASSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL SAFETY AND ENVIRONMENTAL REGULATIONS.
2. THE WORK SPECIFIED ON THESE PLANS MAY INVOLVE THE USE OF AREAS LOCATED BOTH WITHIN SRP RIGHTS-OF-WAY AND PUBLIC AGENCY RIGHTS-OF-WAY. IF THE PUBLIC AGENCY ISSUES A PERMIT FOR WORK WITHIN ITS RIGHTS-OF-WAY, IT WILL APPLY ONLY TO THE AREA WITHIN THE PUBLIC AGENCY RIGHTS-OF-WAY. SUCH PERMIT SHALL NOT APPLY TO WORK WITHIN SRP RIGHTS-OF-WAY HAVING PRIOR RIGHTS.
3. THE CONTRACTOR SHALL CONTACT BLUE STAKE AT (602) 263-1100 AND SUCH OTHER LOCATORS/UTILITIES AS NECESSARY TO LOCATE AND FLAG ALL EXISTING UNDERGROUND UTILITIES BEFORE FIELD CONSTRUCTION BEGINS.
4. THE CUSTOMER'S CONTRACTOR IS REQUIRED TO CALL THE SRP INSPECTOR FOR A PRECONSTRUCTION CONFERENCE IN ACCORDANCE WITH THE APPLICABLE SRP LICENSE OR CONSTRUCTION AGREEMENT BEFORE OBTAINING CONSTRUCTION CLEARANCE AND STARTING CONSTRUCTION. CONTRACTOR MUST SIGN A TEMPORARY IRRIGATION OUTAGE AGREEMENT, IF REQUIRED, BEFORE CONSTRUCTION CAN BEGIN.
5. ALL CONSTRUCTION WATER AND POWER SHALL BE OBTAINED, HANDLED, AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL MAKE ARRANGEMENTS TO PROCURE AND TRANSPORT WATER TO THE CONSTRUCTION SITE. ALL TEMPORARY FACILITIES SHALL BE REMOVED BEFORE FINAL ACCEPTANCE BY SRP.
6. ANY QUESTIONS RELATIVE TO THE ACCURACY OF THE IMPROVEMENT INSTALLATION SHALL BE SUBMITTED IN WRITING IMMEDIATELY AND BEFORE COMPLETION OF THE WORK IF ALL SURVEY STAKES ARE MAINTAINED INTACT AS ORIGINALLY PLACED. SHOULD SUCH STAKES NOT BE PRESENT AND VERIFIED AS TO THEIR ORIGIN, NO CLAIM FOR ADDITIONAL COMPENSATION FOR CORRECTION SHALL BE PRESENTED TO ANY PARTY AND SUCH WORK SHALL BE CORRECTED AND PAID FOR BY THE CONTRACTOR.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL QUANTITIES AND ANY OTHER ITEMS AFFECTING THE BID TO COMPLETE THE WORK SHOWN ON THE PLANS, AND TO BASE THE BID SOLELY UPON VERIFIED QUANTITIES, IRRESPECTIVE OF THE INFORMATION FURNISHED AS NOTED ABOVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE SRP INSPECTOR BEFORE CONSTRUCTION, OF ANY SIGNIFICANT DISCREPANCIES BETWEEN THE CONTRACTOR'S ESTIMATED QUANTITIES AND THOSE SHOWN ON THE PLANS.
8. THE CUSTOMER IS RESPONSIBLE FOR CLEARING THE PROPOSED SRP IRRIGATION SYSTEM ALIGNMENT BEFORE SRP CONSTRUCTION BEGINS. CLEARING SHALL INCLUDE REMOVAL OF PAVEMENT, CURBS, GUTTERS, SIDEWALKS, SIGNS, UTILITY POLES, STREETLIGHTS, FENCING AND ANY OTHER EXISTING CONFLICTS.
9. CONTACT SRP CUSTOMER SERVICE AT (602) 236-8888 FOR REQUIREMENTS FOR PROTECTING, RELOCATING OR REMOVING SRP POWER POLES (INCLUDING DOWN GUYS), UNDERGROUND POWER LINES AND OTHER ELECTRICAL EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR ALL COSTS OF COMPLYING WITH THESE REQUIREMENTS.
10. FOR IRRIGATION OUTAGE INFORMATION, CONTACT THE SRP INSPECTOR.
11. IF THERE ARE CONFLICTS BETWEEN SRP'S PLANS AND SPECIFICATIONS AND LOCAL GOVERNING REQUIREMENTS, THE MOST STRINGENT REQUIREMENT SHALL APPLY, AS DETERMINED BY THE SRP INSPECTOR.
12. ALL TRENCHING SHALL BE DONE IN ACCORDANCE WITH OSHA CONSTRUCTION STANDARDS FOR EXCAVATIONS.
13. BACKFILL MATERIAL, PLACEMENT AND COMPACTION SHALL CONFORM TO REQUIREMENTS OF MAG 601 EXCEPT THAT COMPACTION DENSITY SHALL BE 100% FOR GRANULAR MATERIAL AND 95% FOR NON-GRANULAR MATERIAL. BACKFILL SHALL BE ABC WHERE SO REQUIRED BY THE GOVERNING PUBLIC AGENCY. WATER CONSOLIDATION IS NOT PERMITTED.
14. ALL DELIVERY STRUCTURES WILL BE INSTALLED BY SRP FORCES. ALLOW A MINIMUM OF 30 DAYS BETWEEN ISSUANCE OF THE SRP LICENSE OR NOTICE TO PROCEED, AND THE INSTALLATION OF THE STRUCTURE.
15. SRP WILL PROVIDE STUBOUT FOR PRIVATE CONNECTION. CUSTOMER IS RESPONSIBLE FOR DESIGN, CONSTRUCTION, AND CONNECTION OF PRIVATE IRRIGATION FACILITIES. CONNECTION TO SRP STUBOUT SHALL BE MADE USING MAG STANDARD IRRIGATION STAND PIPE (MAG 503), JUNCTION BOX (MAG 504), OR HEADWALL (MAG 501-1). JUNCTION BOX AND HEADWALL SHALL PROJECT MINIMUM 12" ABOVE FINISH GRADE. CUSTOMER SHALL COMPLETE CONNECTION TO SRP STUBOUT PRIOR TO DATE SET BY SRP FOR SYSTEM ACTIVATION.
16. PIPE BEDDING SHALL BE CLASS "C" OR BETTER, AND BACKFILL SHALL BE PER SRP SPECIFICATIONS FOR PRECAST PIPE, UNLESS OTHERWISE NOTED.
17. ALL PRECAST CONCRETE PIPE SHALL BE IN ACCORDANCE WITH ASTM C76 CLASS III WALL B OR WALL C UNLESS OTHERWISE NOTED, AND MEET SRP SPECIFICATIONS FOR PRECAST PIPE.
18. ALL EXISTING IRRIGATION FACILITIES DISTURBED BY NEW CONSTRUCTION SHALL BE RECONSTRUCTED TO CURRENT SRP STANDARDS.
19. ALL WORK AND MATERIALS THAT DO NOT CONFORM TO THESE PLANS, SPECIFICATIONS AND SRP LICENSES/CONSTRUCTION AGREEMENTS, ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
20. ALL DUST AND TRAFFIC CONTROLS REQUIRED BY THE LOCAL GOVERNING AGENCY WILL BE OBTAINED, COORDINATED, AND PAID FOR BY THE CONTRACTOR.
21. SRP DOES NOT GUARANTEE THE LOCATION OR ELEVATION OF UTILITIES AND WILL NOT BE RESPONSIBLE FOR THEIR RELOCATION.
22. THE UTILITIES IDENTIFIED ON THE PLANS MAY NOT REPRESENT ALL EXISTING AND/OR CONFLICTING UTILITIES WITHIN THE PROJECT LIMITS.
23. ALL UTILITIES WHICH HAVE BEEN POTHOLED (GENERALLY ALL PIPES OR CONDUITS 2 INCHES OR LARGER IN DIAMETER AND ALL CABLES WITH 25 PAIRS OR GREATER) ARE DESIGNATED IN THE PROFILE WITH THE TERM "PH".
24. ALL UTILITIES MUST UNDERCROSS THE PROPOSED SRP PIPELINE AND MAINTAIN A MINIMUM CLEARANCE OF ONE FOOT, UNLESS NOTED OTHERWISE.
25. MAINTAIN MINIMUM TWO FOOT HORIZONTAL CLEARANCE BETWEEN OUTSIDE BELL DIAMETER OF SRP PIPE AND PARALLEL UTILITY. LOCATE PARALLEL UTILITY OUTSIDE AREA SRP EXCAVATES TO MAINTAIN ITS PIPE. TYPICAL EXCAVATION INCLUDES AREA ABOVE AND TO EACH SIDE OF SRP PIPE. SIDE EXCAVATION EXTENDS UP AND OUT AT ONE-TO-ONE SLOPE FROM POINT THAT IS LEVEL WITH BOTTOM OF SRP PIPE AND A MINIMUM OF TWO FEET BEYOND ITS OUTSIDE BELL DIAMETER.
26. LOCATION AND ELEVATION OF ALL BLUE STAKED UTILITIES ARE TO BE FIELD VERIFIED. ALL CONFLICTING UTILITIES ARE TO BE RELOCATED PRIOR TO SRP PIPE INSTALLATION. CONTACT THE UTILITY COMPANY FOR COST AND SCHEDULE REQUIREMENTS FOR RELOCATION.
27. VERTICAL CONTROLS ARE BASED ON SEA LEVEL DATUM AS DEFINED BY THE BENCHMARK ON EACH PLAN/PROFILE. VERTICAL CONTROLS MAY DIFFER BETWEEN PLAN/PROFILES. CHECK PLANS FOR ELEVATION EQUATIONS.
28. STATIONS SHOWN ON THE PLAN/PROFILE ARE ALONG THE SECTION LINE, UNLESS OTHERWISE NOTED.
29. DIMENSIONS LOCATING IRRIGATION MANHOLES AND DELIVERY STRUCTURES ARE FROM THE SECTION LINE TO THE CENTERLINE OF THE MANHOLE, AND TO THE FACE OF THE DELIVERY STRUCTURE RESPECTIVELY, UNLESS OTHERWISE NOTED.
30. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE LOCATED ONLY APPROXIMATELY AND WITH THE BEST AVAILABLE KNOWLEDGE.
31. ALL STAKING CONTROLS SHALL BE LEFT UNDISTURBED. THE CONTRACTOR SHALL CALL THE SRP INSPECTOR TO REFERENCE AND RESET ANY CONTROL POINTS THAT HAVE TO BE DISTURBED. THE CONTRACTOR WILL BE CHARGED FOR RESTAKING COSTS IF ANY STAKES ARE DESTROYED AND REQUIRE REPLACEMENT.
32. ELEVATIONS SHOWN FOR IRRIGATION MANHOLES ARE AT THE TOP OF THE PROPOSED SIDEWALK OR FINISHED ROADWAY GRADE AT THE CENTERLINE OF THE MANHOLE (TWO CORNER POINTS FOR THE 5-SIDED MANHOLE), UNLESS OTHERWISE NOTED. THE TOP OF THE MANHOLE SHALL BE STAKED BY THE CUSTOMER'S ENGINEER, AND THE HORIZONTAL OFFSET CHECKED TO VERIFY THAT THE LOCATION IS IN CONFORMANCE WITH THE LATEST REVISIONS TO THE GOVERNING AUTHORITY'S PAVING PLANS. ALL OTHER SRP IRRIGATION STAKING SHALL BE BY SRP FORCES, UNLESS OTHERWISE NOTED.
33. THE CUSTOMER'S ENGINEER SHALL VERIFY OR RE-ESTABLISH SECTION CORNERS TO BE USED AS THE BASELINE FOR IRRIGATION FACILITIES AND ALSO STAKE RIGHT-OF-WAY LINES AND TEMPORARY CONSTRUCTION AND PERMANENT EASEMENT LINES, SIDEWALKS AND BACK OF CURBS SHALL BE STAKED AT PROPOSED SRP MANHOLES AND STRUCTURES. ALL STAKING SHALL BE DONE PRIOR TO SRP STAKING NEW IRRIGATION FACILITIES. THE CUSTOMER'S ENGINEER SHALL MAINTAIN REFERENCE STAKES AS REQUIRED FOR THE DURATION OF SRP IRRIGATION SYSTEM CONSTRUCTION.

KEY PLAN



PLAN INDEX

PLAN/PROFILE(S) SHEET 2 THRU SHEET 3

MANHOLE DETAIL(S) SHEET 4

REV NO.	JOB NO.	DFTR	DSGN	ENGR CHK	ISSUE AUTH	DATE
0	1600453	BAJ	VL	REJ	RMP	3 /28/18
		BAJ	VL	REJ	RMP	

DESIGNED FOR CONSTRUCTION

SALT RIVER PROJECT
WATER ENGINEERING ◇ PHOENIX, ARIZONA

GRAND CANAL LATERAL 13.0 SEC 14 T1N R2E

SCALE: NONE			TEMPORARY - 1600453FSH.DGN	SHEET NO.
SUBJ CODE	DIST CODE	DWG SIZE	1600453FSH	1
CV	Y3	22X34		

NO	DATE	DRN	CHK	APPD	AUTH
19	04.08.14	JWS	-	-	REL
REVISED NOTE 17 TO INCLUDE "WALL C".					
18	04.10.07	JWS	-	CWT	REL
REVISED BENCHMARK SYMBOLOGY TO BE A SOLID TRIANGLE.					

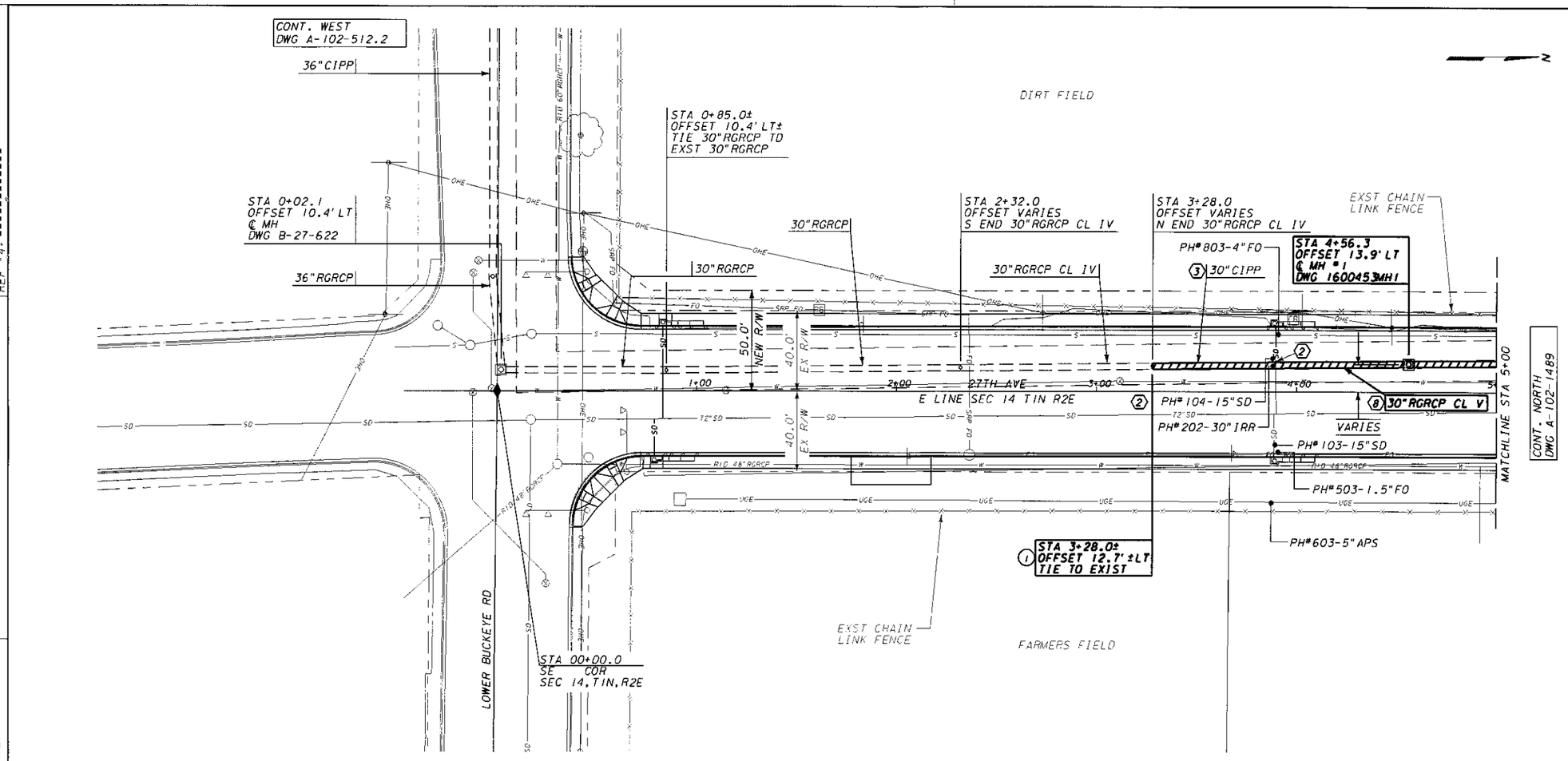
FORM NO

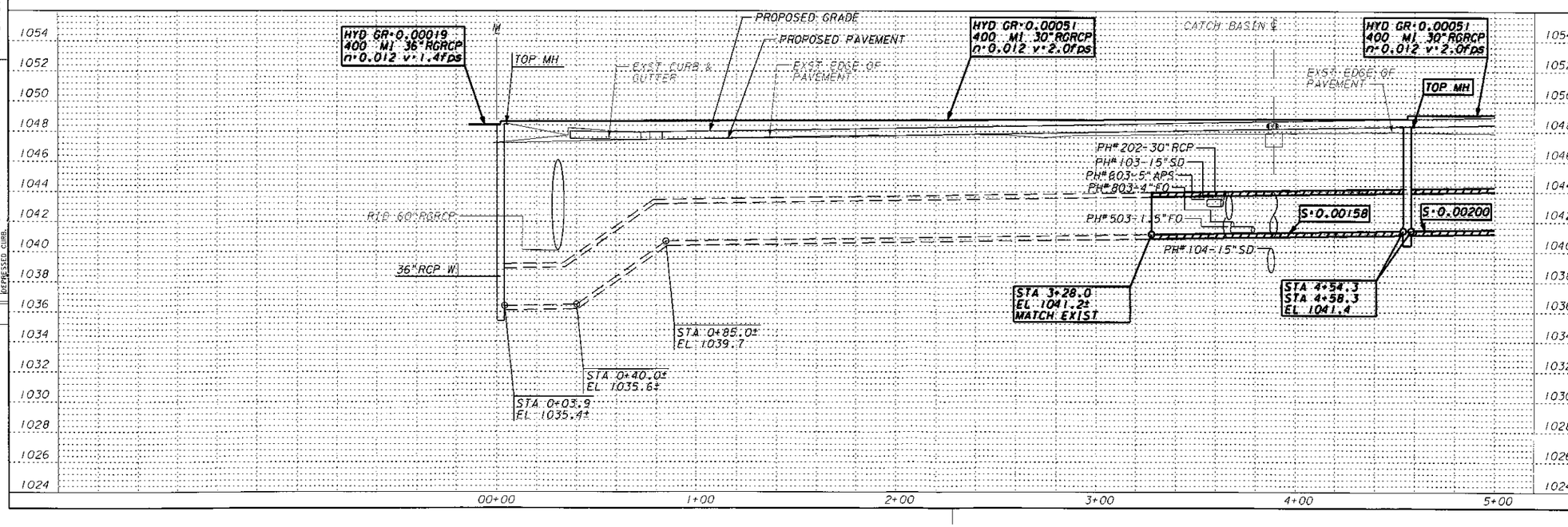
WDF-IRRIGFS

IRRIGFS.WDF

FOR CONSTRUCTION 13 August 2018 PRINTED BY GR

REFERENCE FILES USED:
REF #1: 27TH AVE SEC 14 T1N R2E BW.DGN
REF #2: 27TH AVE SEC 14 T1N R2E BW.DGN
REF #3: ----------
REF #4: ----------



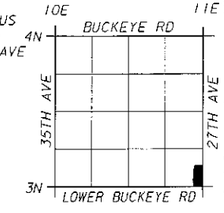


CONSTRUCTION NOTES

1. THE GENERAL NOTES ON THE COVER SHEET INCLUDE ADDITIONAL REQUIREMENTS RELATING TO THIS WORK.
2. UTILITY CROSSING/PARALLEL - SEE THE GENERAL NOTES CONCERNING BLUE STAKING EXISTING UTILITIES, MINIMUM CLEARANCES FROM SRP IRRIGATION FACILITIES, AND RELOCATING CONFLICTING UTILITIES.
3. REMOVE AS REQUIRED FOR CONSTRUCTION.
8. STANDARD SRP IRRIGATION MARKER BALLS, (STOCK CODE No. 50117711), SHALL BE INSTALLED BY THE CUSTOMER'S CONTRACTOR, AS DIRECTED BY SRP, BETWEEN STATION 03+28.0 AND STATION 05+00.0 AND AT OTHER PIPE LOCATIONS AS INDICATED. PLACE BALLS AT EVERY ANGLE POINT, AT 100' INTERVALS ALONG STRAIGHT RUNS, 50' INTERVALS ON CURVED RUNS, AT BURIED END POINTS, AND 3' BELOW THE SURFACE OR ON TOP OF THE PIPE/COLLAR (EMBED IN WET CONCRETE), WHICHEVER IS SHALLOWER. CONTACT SRP WATER INSPECTOR TO RECEIVE THE SRP IRRIGATION MARKER BALLS.
1. STRUCTURAL CONCRETE PIPE COLLARS SHALL CONFORM TO SRP STANDARD DRAWING WES-SPIPECLR.

ELEVATION EQUATION:
ELEVATION THIS DWG PLUS 0.07' EQUALS ELEVATION CITY OF PHOENIX 27TH AVE PROJECT ST85100341

LOCATION PLAN



BENCHMARK:
BRASS CAP ON SRP WELL SITE, ALONG EAST SIDE 27TH AVE AT STA 9+12.9, 49' RT
EL=1051.31

REDRAWN FROM A-102-512.3, SRP SURVEY W1382761-017 & COP DESIGN PLANS FOR 27TH AVE. DESIGN FROM STA 3+28.0 TO STA 5+00.0

REV NO.	JOB NO.	DFTR	DSGN	ENGR CHK	ISSUE AUTH	DATE
0	1600453	BAJ	VL	REJ	RMP	3 /28/18
		BAJ	VL	REJ	RMP	

SALT RIVER PROJECT
WATER ENGINEERING ◇ PHOENIX, ARIZONA

GRAND CANAL LATERAL 13.0 SEC 14 T1N R2E SE COR TO 500' N

SCALE: PLAN 1"=30', PROFILE 1"=4'			A1021488.DGN	SHEET NO
SUBJ CODE	DIST CODE	DWG SIZE	A-102-1488	2
PP	Y2	22X34		

FORM NO	REVISION	BY	DATE	APPD	LTR	APPD	AUTH
9	REVISED NOTE & STOCK CODE REFERENCE AND CONTACT FOR IRRIGATION MARKER BALL CONSTRUCTION.	JWS	06.28.16	-	-	-	REL
8	ADD CITING NOTE FOR INDUSTRIAL DRIVEWAY WITH DEPRESSED CURB.	JWS	04.10.07	CWT	-	-	REL

WDF-PPSNG

PPSNG.WDF

FOR CONSTRUCTION 13 August 2018 PRINTED BY GR

REFERENCE FILES USED:
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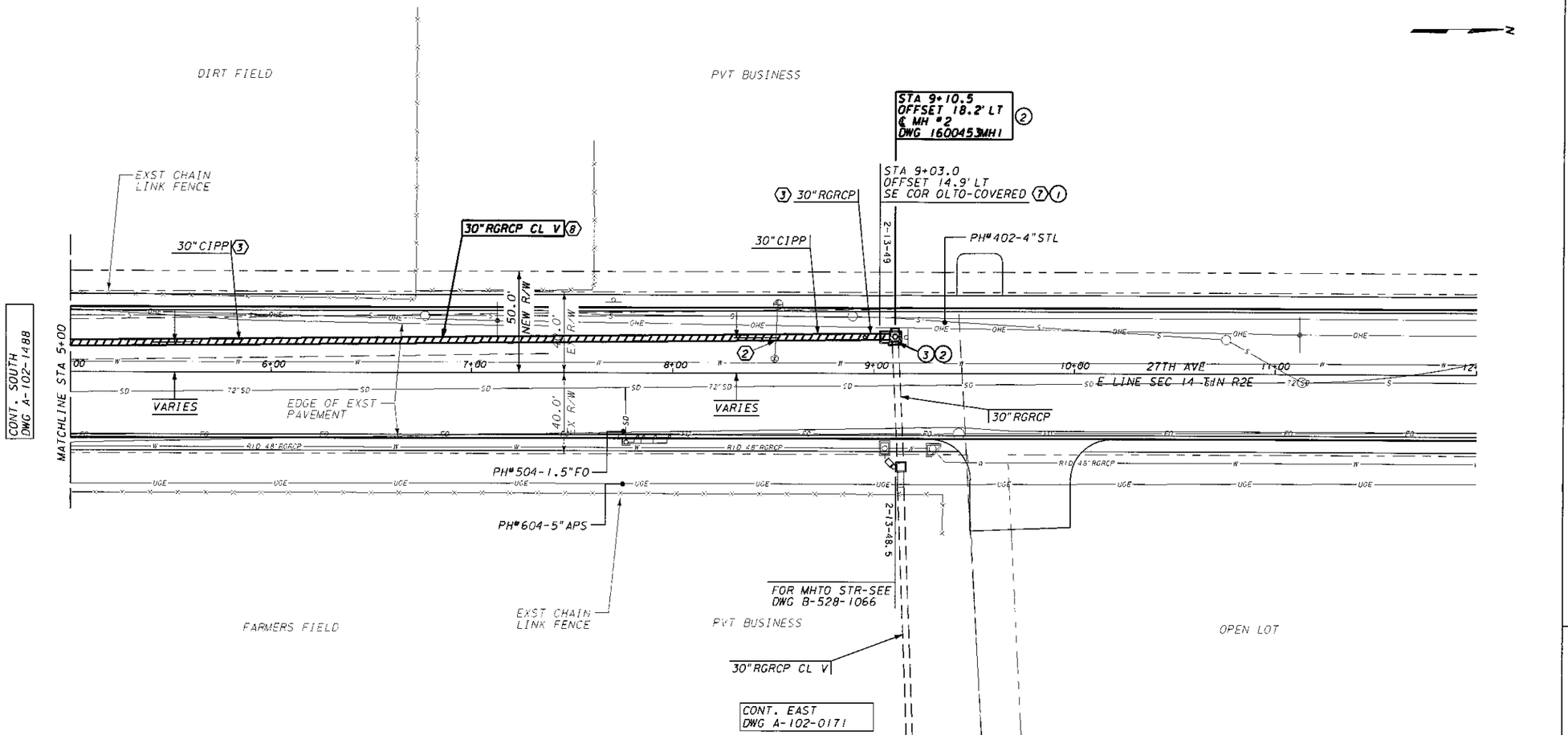
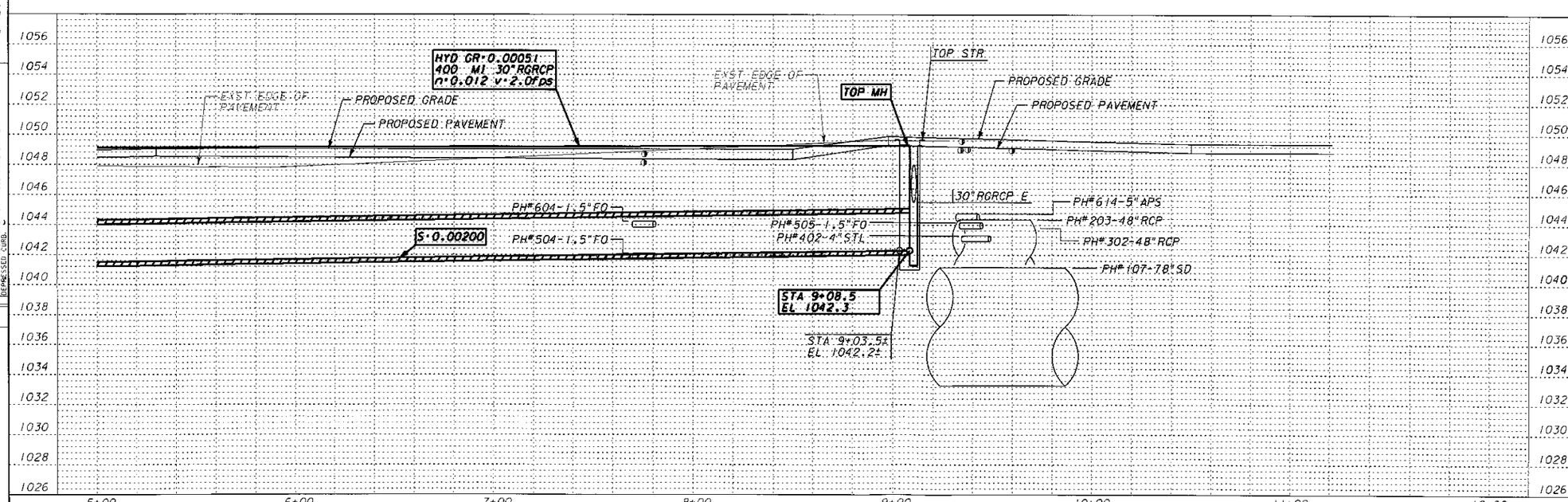
REF #2: 27TH AVE SEC 14 T1N R2E BM.DGN
REF #3: ----------
REF #4: ----------





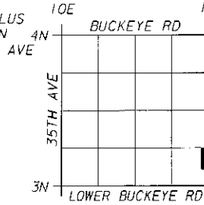
CONSTRUCTION NOTES

1. THE GENERAL NOTES ON THE COVER SHEET INCLUDE ADDITIONAL REQUIREMENTS RELATING TO THIS WORK.
2. UTILITY CROSSING/PARALLEL - SEE THE GENERAL NOTES CONCERNING BLUE STAKING EXISTING UTILITIES, MINIMUM CLEARANCES FROM SRP IRRIGATION FACILITIES, AND RELOCATING CONFLICTING UTILITIES.
3. REMOVE AS REQUIRED FOR CONSTRUCTION.
7. CUSTOMER SHALL REMOVE AND PROPERLY DISPOSE OF THOSE PARTS OF SRP IRRIGATION SYSTEM MADE OBSOLETE WHEN NEW SRP IRRIGATION SYSTEM IS COMPLETE AND OPERATIONAL. BACKFILL HOLES AND DEPRESSIONS TO BRING TO DESIGN GRADE.
8. STANDARD SRP IRRIGATION MARKER BALLS, (STOCK CODE No. 5011771), SHALL BE INSTALLED BY THE CUSTOMER'S CONTRACTOR, AS DIRECTED BY SRP, BETWEEN STATION 05 +00.0 AND STATION 09 +08.5 AND AT OTHER PIPE LOCATIONS AS INDICATED. PLACE BALLS AT EVERY ANGLE POINT, AT 100' INTERVALS ALONG STRAIGHT RUNS, 50' INTERVALS ON CURVED RUNS, AT BURIED END POINTS, AND 3' BELOW THE SURFACE OR ON TOP OF THE PIPE/COLLAR (EMBED IN WET CONCRETE), WHICHEVER IS SHALLOWER. CONTACT SRP WATER INSPECTOR TO RECEIVE THE SRP IRRIGATION MARKER BALLS.

1. NOTIFY THE SRP INSPECTOR A MINIMUM OF 72 HOURS PRIOR TO REMOVING SRP IRRIGATION STRUCTURE, SO SRP CAN SALVAGE HARDWARE.
2. STRUCTURAL CONCRETE PIPE COLLARS SHALL CONFORM TO SRP STANDARD DRAWING WES-SPIPECLR.
3. EXISTING IRRIGATION SYSTEM TO BE RESTORED WITH EQUIVALENT RGRCP AS APPROVED BY SRP INSPECTOR.

ELEVATION EQUATION:
ELEVATION THIS DWG PLUS 0.07' EQUALS ELEVATION CITY OF PHOENIX 27TH AVE PROJECT ST85100341

LOCATION PLAN



BENCHMARK:
BRASS CAP ON SRP WELL SITE, ALONG EAST SIDE 27TH AVE AT STA 9+12.9, 44' RT
EL=1051.31

REDRAWN FROM A-102-512.3, SRP SURVEY W1382761-017 & COP DESIGN PLANS FOR 27TH AVE. DESIGN FROM STA 5+00.0 TO STA 9+08.5

REV NO.	JOB NO.	DFTR	DSGN	ENGR CHK	ISSUE AUTH	DATE
0	1600453	BAJ	VL	REJ	RMP	3 /28/1
		BAJ	VL	REJ	RMP	/ /

SALT RIVER PROJECT
WATER ENGINEERING ◇ PHOENIX, ARIZONA

GRAND CANAL LATERAL 13.0 SEC 14 T1N R2E 500' N/O SE COR TO 200' S/O 16/7 COR

SCALE: PLAN 1"=30', PROFILE 1"=4'			A1021489.DGN	SHEET NO.
SUBJ CODE	DIST CODE	DWG SIZE	A-102-1489	3
PP	Y2	22X34		

NO	DATE	BY	CHK	APPD	AUTH	REL
3	06.28.16	JMS	-	-	-	REL
2	REVISED HDR'S, ADDED "REFRIGERATOR" AND "CONTACT FOR FRAIGHT ON MARKER BALL" ACQUISITION.	JMS	CWT	-	-	REL
1	04.10.07	-	-	-	-	REL
0	ADDED CIRCLE NOTE FOR INDUSTRIAL DRIVEWAY WITH DEPRESSED CURB.	JMS	CWT	-	-	REL

FORM NO
WDF-PPSNG

PPSNG, WDF

FOR CONSTRUCTION 13 August 2018 PRINTED BY GR

MANHOLE CONSTRUCTION DATA

MANHOLE NUMBER	STATION (SEE NOTE 4)	REFERENCE DRAWING	TOP EL.± (SEE NOTE 6)	BOT. EL.	PIPE 1 TYPE	PIPE 1 INV. EL.	PIPE 2 TYPE	PIPE 2 INV. EL.	PIPE 3 TYPE	PIPE 3 INV. EL.	PIPE 4 TYPE	PIPE 4 INV. EL.	MANHOLE DIMENSIONS (SEE NOTE 9) A	B	C	MANHOLE LOCATION ROADWAY	SIDEWALKS/ LANDSCAPE
1	4+56.3	A-102-1488	1048.3	1040.4	---	---	30"RGRCP	1041.4	---	---	30"RGRCP	1041.4	48"	48"	85"	X	-
2	9+10.5	A-102-1489	1049.3	1041.3	---	---	30"RGRCP	1042.3	EXIST 30"RGRCP	1045.5±	---	---	48"	48"	86"	X	-

MINIMUM REQUIREMENTS

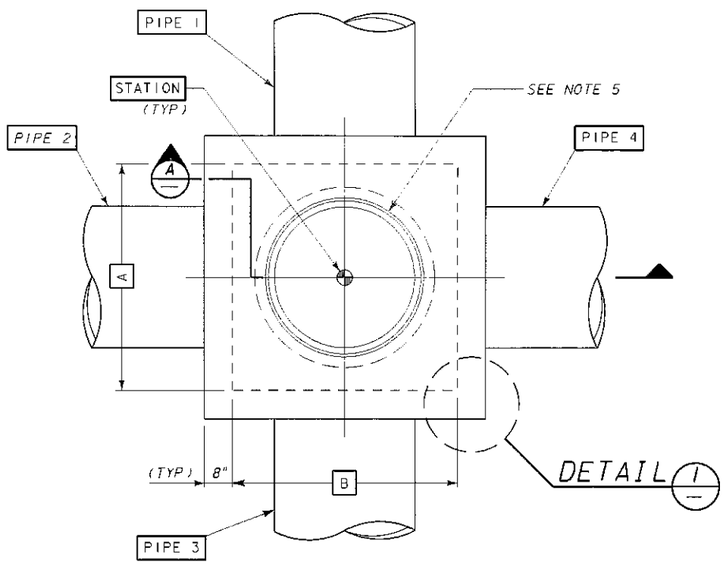
WALL LENGTH PIPE DIAMETER	A OR B	REINFORCING STEEL
36" OR LESS	48"	#4 @ 12" E.W. OR (1) LAYER 6x6-W5.5xW5.5 WWF
42"	56"	
48"	68"	
54" OR 60"	80"	#4 @ 12" E.W. OR 6x6-W10xW10 WWF
66" OR 72"	92"	
78" OR 84"	104"	

DESIGN CRITERIA

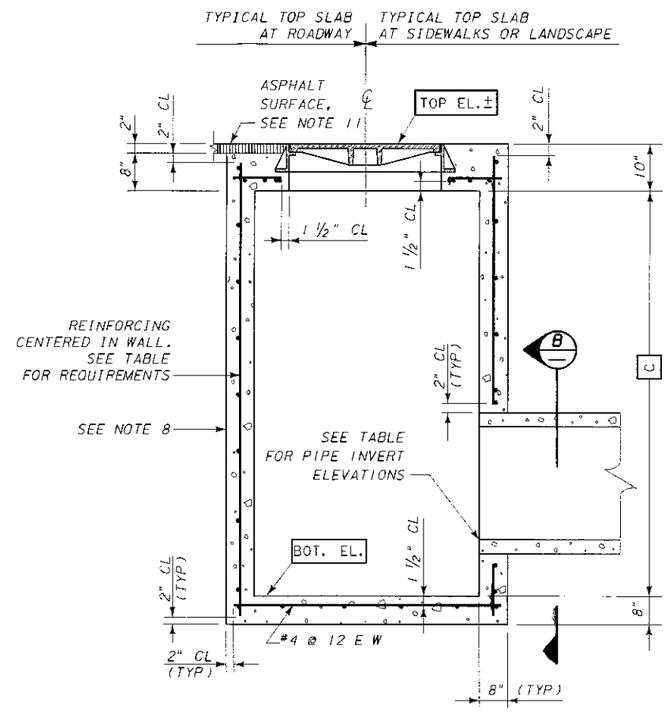
HS20 HIGHWAY LOADING, 32 KIPS ON REAR AXLE (16 KIPS/WHEEL), WHEEL SPACING 6', 30% IMPACT. ONE WHEEL CENTERED ON MANHOLE, OTHER WHEEL ADJACENT TO MANHOLE.

NOTES

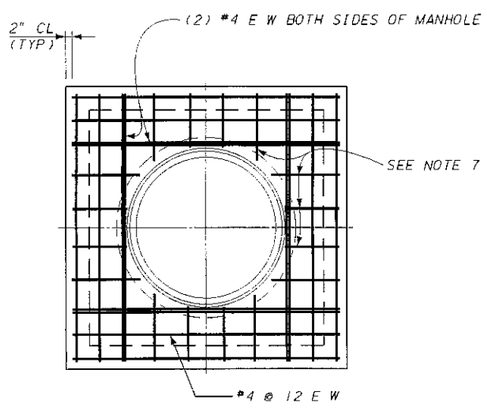
1. STRUCTURAL CONCRETE SHALL BE 3000 PSI @ 28 DAYS (MAG A) PER SRP 03300.
2. REINFORCING STEEL SHALL COMPLY WITH REQUIREMENTS OF SRP 03210; BARS SHALL BE ASTM A615 GRADE 60 AND WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
3. CONCRETE PLACEMENT SHALL BE PER GE 03305.
4. SEE PLAN AND PROFILE DRAWING FOR CORRECT ORIENTATION OF MANHOLE.
5. STANDARD SRP 30" CAST IRON MANHOLE FRAME AND COVER (STOCK CODE No. 5011703) CENTERED IN TOP OF MANHOLE. CONTACT SRP INVESTMENT RECOVERY DEPARTMENT AT (602) 236-2908, TO PURCHASE SRP MANHOLE FRAME AND COVER.
6. NOT TO BE USED FOR STAKING. EXACT TOP ELEVATION TO BE SET BY CUSTOMER'S ENGINEER BASED ON CUSTOMER'S PAVING & GRADING PLANS.
7. FIELD CUT REBAR AT MANHOLE.
8. CONCRETE SHALL BE PLACED WITH NO COLD JOINTS. ALL CONCRETE SHALL BE VIBRATED DURING PLACEMENT.
9. DIMENSIONS A AND B SHALL NOT EXCEED 104", AND DIMENSION C SHALL NOT EXCEED 180".
10. FOR PRESSURE MANHOLES, MAXIMUM HEAD SHALL NOT EXCEED 60" ABOVE TOP ELEVATION.
11. PROVIDE ASPHALT SURFACE AS REQUIRED.



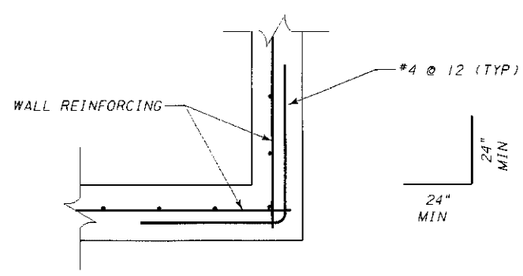
PLAN



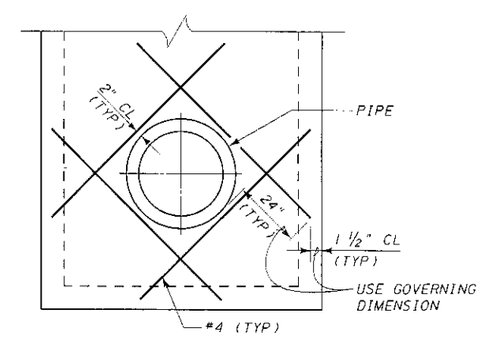
SECTION A



TOP SLAB REINFORCING PLAN



DETAIL 1



NOTE: MAIN WALL REINFORCING NOT SHOWN.

SECTION B

REFERENCES

REINFORCING SPECIFICATION ____ SRP 03210
CONCRETE SPECIFICATION ____ SRP 03300
CONCRETE PLACEMENT SPECIFICATION ____ GE 03305

DESIGNED FOR CONSTRUCTION

REV NO.	JOB NO.	DFTR	DSGN	ENGR CHK	ISSUE AUTH	DATE
0	1600453	BAJ / BAJ	VL / VL	REJ / REJ	RMP / RMP	3/28/18

SALT RIVER PROJECT
WATER ENGINEERING ◇ PHOENIX, ARIZONA

MANHOLE PLANS, SECTIONS AND DETAILS

SCALE: NONE			TEMPORARY - 1600453MH1.DGN	SHEET NO.
SUBJ CODE	DIST CODE	DWG SIZE	1600453MH1	4
MH	Y3	22X34		

NO	DATE	BY	CHK	APPD	AUTH
12	01.20.15	JWS	-	-	REL
11	08/26/07	JWS	CWT	CWT	REL

FORM NO WDF-NEWMH

NEWMH, WDF

UPDATED MH STOCK CODE NUMBER FROM 004-024 TO 5011703.
ADDED NOTE 12, AND REVISED ASSOCIATED CALLOUTS.

FOR CONSTRUCTION 13 August 2018 PRINTED BY GR