



## INVITATION TO BID

### CONSTRUCTION PROJECT

#### DCS – Engineering

10000 N. El Mirage Rd.  
El Mirage, AZ 85335

Telephone: (623) 972-8116  
Fax: (623) 876-4605  
www.elmirageaz.gov

# City of El Mirage

## Plans and Bid Documents

Solicitation Number: **EM17-ST01**

Solicitation Description: **Butler Drive Improvements**

Release Date: **June 14, 2018**

Advertisement Date: **June 14 & 15, 2018**  
**June 21 & 22, 2018**

Final Date for Inquiries: **July 11, 2018**

**(Mandatory) Bidders' Conference: June 27, 2018 1:00 p.m., Arizona time**

Location: *10000 N. El Mirage Road Cinnabar Conference  
El Mirage, Arizona 85335 Room, City Hall*

**Bid Due Date: July 18, 2018 1:00 p.m., Arizona time**

Location: *10000 N. El Mirage Road Cinnabar Conference  
El Mirage, Arizona 85335 Room, City Hall*

Plans and Specifications may be downloaded at no cost from the City's website  
<http://az-elmirage4.civicplus.com/1681/Bid-and-Contract-Opportunities>

In accordance with the City of El Mirage Procurement Code, competitive sealed Bids for the services specified herein will be received by the City Clerk at the City Clerk's Office at the above-referenced location until the date and time referenced above (the "Bid Deadline"). Bids received by the Bid Deadline shall be publicly opened and the Bid Price read. Bids shall be in the actual possession of the City Clerk on, or prior to, the Bid Deadline date. Late Bids shall not be considered except as provided in the City Purchasing Code. Bids shall be submitted in a sealed envelope with the Solicitation Number and the Bidder's name and address clearly indicated on the front of the envelope.

**\* The City of El Mirage reserves the right to amend the solicitation schedule as necessary.**



# City of El Mirage, Arizona

## Notice of Invitation to Bid



Invitation to Bid No: **EM17-ST01**

Bid Due Date: **July 18, 2018**

Materials and/or Services: **Butler Drive Improvements**

Time: 1:00 p.m., Arizona time

Contact: Bryce Christo

Bid Location: **City Hall**  
**10000 N. El Mirage Road**  
**El Mirage, Arizona 85335**

Email: [bchristo@elmirageaz.gov](mailto:bchristo@elmirageaz.gov)

In accordance with City of El Mirage Procurement Code competitive sealed bids for the material or services specified will be received by the City of El Mirage DCS - Engineering at the specified location until the date and time cited above. Bids received by the correct date and time shall be publicly opened and the bid price read. Bids shall be in the actual possession of the City of El Mirage DCS - Engineering on or prior to the exact date and time indicated above. Late bids will not be considered, except as provided in the City of El Mirage Procurement Code. ***Bids shall be submitted in a sealed envelope with the Invitation to Bid number and the bidder's name and address clearly indicated on the front of the envelope.*** All bids shall be completed in ink or typewritten. Bidders are strongly encouraged to carefully read the ***entire*** Invitation to Bid Package.

### OFFER

To the City of El Mirage:

The undersigned hereby offers and agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and amendments in the Notice of Invitation to Bid except for any written exceptions in the offer. The signature below also certifies his or her understanding and compliance with paragraph one of The City of El Mirage Standard Terms and Conditions.

Arizona Transaction (Sales) Privilege

Tax License Number: \_\_\_\_\_

For clarification of this offer contact:

Name: \_\_\_\_\_

Federal Employer Identification

Number: \_\_\_\_\_

Telephone: \_\_\_\_\_

Company Name

Authorized Signature for Offer

Address

Printed Name

City

State

Zip Code

Title

### ACCEPTANCE OF OFFER AND CONTRACT AWARD (For City of El Mirage Use Only)

Your offer is hereby accepted. The Contractor is now bound to sell the materials and/or services listed by the attached award notice based upon the solicitation, including all terms conditions, specifications, amendments, etc., and the Contractor's offer as accepted by the City. The Contractor is hereby cautioned not to commence any billable work or provide any material, service or construction under this contract until Contractor receives an executed ***Purchase Order***.

Attested by:

Sharon Antes, City Clerk

City Seal

City of El Mirage, Arizona. Eff. Date: \_\_\_\_\_

Approved as to form:

Justin Pierce, City Attorney

Awarded on \_\_\_\_\_, \_\_\_\_\_.

J. Crystal Dyches, City Manager



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This project is located within the corporate limits of the City of El Mirage in Maricopa County, Arizona. This project will consist of the reconstruction of approximately 2,400 linear feet of Butler Drive including the removal and replacement of the existing roadway and widening from approximately 28 to 36 feet. Additional work includes replacing driveways, replacing water service lines, relocating meter boxes and hydrants, adjusting valves and installing signage.

#### 1. PREPARATION OF BID:

- a. All bids shall be submitted on the forms provided in this *Invitation to Bid* package. It is permissible to copy these forms if required. Telegraphic (facsimile), electronic or mailgram bids will not be considered. Please return the following forms within the Bid Submittal and tab the required documents:
  - i. Notice of Invitation to Bid, page 2
  - ii. Questionnaire, pages 26 & 27
  - iii. Bid Bond, page 28
  - iv. List of Subcontractors, page 29
  - v. Bid Schedule, pages 34-37
- b. The Offer and Contract Award document shall be submitted with an original ink signature by a person authorized to sign the Offer.
- c. Erasures, interlineations, or other modifications in the bid shall be initialed in original ink by the authorized person signing the Offer.
- d. If price is a consideration and in case of error in the extension of prices in the bid, the unit price shall govern. No bid shall be altered, amended, or withdrawn after the specified bid due date and time.
- e. Periods of time, stated as a number of days, shall be calendar days.
- f. Bid due date and time is stated as local Arizona time.
- g. It is the responsibility of all Offerors to examine the entire *Invitation to Bid* package and seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a bid. Negligence in preparing a Bid confers no right of withdrawal after bid due date and time.
- h. The following documents are due ten (10) days after the Notice of Award:
  - i. Performance Bond, page 30
  - ii. Payment Bond, page 31
  - iii. Consent of Surety, page 32
- i. The following document is due after completion of the project and before final payment:
  - i. Affidavit for Settlement of Claims, page 33

2. **INQUIRIES:** Any question related to the *Invitation to Bid* shall be directed to the name appearing as the contact on the *Invitation to Bid* (IFB). The Offeror shall not contact or ask questions of the department for which the requirement is being procured. Questions should be submitted in writing when time permits. The contact may require any and all questions be submitted in writing at the City's sole discretion. Any correspondence related to an *Invitation to Bid* should refer to the appropriate *Invitation to Bid* number, page, and paragraph number. Offeror shall identify the envelope as containing questions since such an envelope may be identified as a sealed bid and may not be opened until after the official *Invitation to Bid* due date and time.

3. **PROSPECTIVE BIDDERS' CONFERENCE:** A Prospective Bidders' Conference may be held. If scheduled, the date and time of the Prospective Bidders' Conference will be indicated on the cover page of this IFB. The Prospective Bidders' Conference may be designated as **mandatory or non-mandatory** on the cover of this IFB. Bids shall not be accepted from Bidders who do not attend a mandatory Prospective Bidders' Conference. Bidders are strongly encouraged to attend those Prospective Bidder's Conferences designated as non-mandatory. The purpose of the Prospective Bidders' Conference will be to clarify the contents of the IFB in order to prevent any misunderstanding of the City's requirements. Any doubt as to the requirements of this IFB or any apparent omission or discrepancy should be presented to the City



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at the Prospective Bidders' Conference. The City will then determine if any action is necessary and may issue a written amendment or addendum to the IFB. Oral statements or instructions will not constitute an amendment or addendum to the IFB.

4. **LATE BIDS:** Late Bids will not be considered, except as provided by the **City of El Mirage Procurement Code**. A vendor submitting a late bid shall be so notified.
5. **WITHDRAWAL OF BID:** At any time prior to the specified bid due date and time, a Vendor (or designated representative) may withdraw the bid.
6. **AMENDMENT OF BID:** Receipt of a Solicitation Amendment shall be acknowledged by signing and returning the document with the offer at the specified bid due date and time.
7. **VENDOR REGISTRATION:** After the award of a contract, the successful Vendor shall complete a Vendor Registration Application and submit it to the City of El Mirage Finance Department.
8. **AWARD OF CONTRACT:**
  - a. Unless the Offeror states otherwise, or unless provided within this *Invitation to Bid*, the City reserves the right to award by individual line item, by group of line items, or as a total, whichever is determined by the City Manager to be most advantageous to the City.
  - b. The City of El Mirage reserves the right to award based on the bid that presents the City with the best overall value, which may or may not be the lowest bid.
  - c. § 30.25 DETERMINATION OF LOWEST RESPONSIBLE BIDDER - Unless the Council or purchasing agent shall exercise the right of rejection as provided by § [30.24](#), the purchase or contract shall be made from and with the lowest responsible bidder for the entire purchase or contract or for any part thereof. In determining the lowest responsible bidder, the Council and City Manager shall consider:
    - i. The ability, capacity, and skill of the bidder to perform the contract or provide the service required;
    - ii. Whether the bidder can perform the contract or provide the services promptly or within the specified time, without delay or interference;
    - iii. The quality of performance of previous contracts;
    - iv. The previous and existing compliance by the bidder with laws and ordinances of the city;
    - v. The financial resources and ability of the bidder to perform the contract; and
    - vi. The quality, availability, and adaptability of the supplies or services.
  - d. Notwithstanding any other provision of this *Invitation to Bid*, The City expressly reserves the right to:
    - i. Waive any immaterial defect or informality; or
    - ii. Reject any or all bids, or portions thereof, or
    - iii. Reissue an *Invitation to Bid*.
  - e. A response to an *Invitation to Bid* is an offer to contract with the City based upon the terms, conditions and specifications contained in the City's *Invitation to Bid* and the written amendments thereto, if any. Bids do not become contracts unless and until they are accepted and executed by the **City Manager** and the **City Council**. A contract is formed when written notice of award(s) is provided to the successful Offeror(s). The contract has its inception in the award document, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the procurement contract are contained in the *Invitation to Bid*; unless modified by an Amendment.





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**THE FOLLOWING TERMS AND CONDITIONS ARE AN EXPLICIT PART OF THE SOLICITATION AND ANY RESULTANT CONTRACT.**

1. **CERTIFICATION:** By signature in the Offer section of the Offer and Contract Award page the Contractor certifies:
  - a. The submission of the offer did not involve collusion or other anti-competitive practices.
  - b. The Contractor shall not discriminate against any employee or applicant for employment.
  - c. The Contractor has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor, or service to a public servant in connection with the submitted offer. Failure to sign the offer, or signing it with a false statement, shall void the submitted offer or any resulting contracts, and the vendor may be debarred.
2. **BRIBES AND KICK-BACKS:** The General Contractor shall not by any means:
  - a. Induce any person or entity employed in the construction of the Project to give up any part of the compensation to which that person or entity is entitled;
  - b. Confer on any governmental, public or quasi-public official having any authority or influence over the Project, any payment, loan subscription, advance, deposit of money, services or anything of value, present or promised;
  - c. Offer nor accept any bribes or kick-backs in connection with the Project from or to any individual or entity, including any of its trade contractors, subcontractors, consultants, suppliers or manufacturers of Project goods and materials; or,
  - d. Without the express written permission of the Owner, call for or by exclusion require or recommend the use of any subcontractor, consultant, product, material, equipment, system, process or procedure in which the General Contractor has a direct or indirect proprietary or other pecuniary interest.
3. **APPLICABLE LAW:** In the performance of this agreement, contractors shall abide by and conform to any and all laws of the United States, State of Arizona and City of El Mirage including but not limited to federal and state executive orders providing for equal employment and procurement opportunities, the Federal Occupational Safety and Health Act and any other federal or state laws applicable to this agreement.

This contract shall be governed by the City. City and Contractor shall have all remedies afforded each by the Uniform Commercial Code, as adopted in the State of Arizona, except as otherwise provided in this contract or in statutes pertaining specifically to the City. This contract shall be governed by the laws of the State of Arizona. Any lawsuit pertaining to this contract may be brought only in courts in the State of Arizona.

This contract is subject to the provisions of ARS §38-511; the City may cancel this contract without penalty or further obligations by the City or any of its departments or agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the City or any of its departments or agencies, is at any time while the contract or any extension of the contract is in effect, an employee of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract.
4. **LEGAL REMEDIES:** All claims and controversies shall be subject to resolution according to the terms of the City of El Mirage Procurement Code. In the event either party brings any action for any relief, declaratory or otherwise, arising out of this Contract, or on account of any breach or default hereof, the prevailing party shall be entitled to receive from the other party reasonable attorneys' fees and reasonable costs and expenses, determined by the court sitting without a jury or



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arbitration board, which shall be deemed to have accrued on the commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment or by arbitration award.

As an alternative to filing a law suit to resolve the dispute, the parties may elect to arbitrate the dispute. Each party shall select a competent and impartial arbitrator. The two selected arbitrators shall appoint a third arbitrator. If the two appointed arbitrators cannot agree on a third, they may petition a judge having competent jurisdiction to select the third arbitrator, or they may resign their appointment jointly or individually so that the parties may renew the selection process. The written award of two of the three arbitrators shall bind the parties. The cost of the arbitrators and any expert witnesses shall be borne by the party that hired them. The cost of the third arbitrator and other expenses of the arbitration shall be shared equally by the parties. The arbitration shall take place in the City of El Mirage. State court rules of procedure and evidence shall be governing.

5. **CONTRACT:** The contract between the City and the Contractor shall consist of (1) the Solicitation, including instructions, all terms and conditions, specifications, scopes of work, attachments, price sheet(s) and any amendments thereto, and (2) the offer submitted by the Contractor in response to the solicitation. In the event of a conflict in language between the Solicitation and the Offer, the provisions and requirements in the Solicitation shall govern. However, the City reserves the right to clarify, in writing, any contractual terms with the concurrence of the Contractor, and such written contract shall govern in case of conflict with the applicable requirements stated in the Solicitation or the Vendor's offer. The Solicitation shall govern in all other matters not affected by the written contract.
6. **CONTRACT AMENDMENTS:** This contract may be modified only by a written Contract Amendment signed by persons duly authorized to enter into contracts on behalf of the City and the Contractor.
7. **CONTRACT APPLICABILITY:** The Offeror shall substantially conform to the terms, conditions, specifications and other requirements found within the text of this Solicitation. All previous agreements, contracts, or other documents, which have been executed between the Offeror and the City are not applicable to this Solicitation or any resultant contract.
8. **PROVISIONS REQUIRED BY LAW:** Each and every provision of law and any clause required by law to be in the contract will be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract will forthwith be physically amended to make such insertion or correction.
9. **SEVERABILITY:** The provisions of this contract are severable to the extent that any provision or application held to be invalid shall not affect any other provision or application of the contract, which may remain in effect without the invalid provision, or application.
10. **RELATIONSHIP TO PARTIES:** It is clearly understood that each party will act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.
11. **INTERPRETATION-PAROL EVIDENCE:** This contract represents the entire agreement of the Parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this contract are hereby revoked and superseded by this contract. No representations, warranties, inducements or oral agreements have been made by any of the Parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this contract. This contract may not be changed, modified or rescinded except as provided for herein, absent a written agreement signed by both Parties. Any attempt at oral modification of this contract shall be void and of no effect.



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12. **ASSIGNMENT-DELEGATION:** No right or interest in this contract nor delegation of any duty of Contractor shall be made without prior written permission of the City.
13. **SUBCONTRACTOR / SUPPLIER CONTRACTS:** The Contractor shall enter into written contracts with its subcontractor(s) and supplier(s), if any, and those written contracts shall be consistent with this Contract for Construction. It is the intent of the Owner and the Contractor that the obligations of the Contractor's subcontractor(s) and supplier(s), if any, inure to the benefit of the Owner and the Contractor, and that the Owner be a third-party beneficiary of the Contractor's agreements with its subcontractor(s) and supplier(s).
- a. The Contractor shall make available to each subcontractor and supplier, if any, prior to the execution of written contracts with any of them, a copy of the pertinent portions of this Contract for Construction, including those portions of the Construction documents to which the subcontractor or supplier will be bound, and shall require that each subcontractor and supplier shall similarly make copies of applicable parts of such documents available to its respective subcontractor(s) and supplier(s).
  - b. The Contractor shall engage each of its subcontractor(s) and supplier(s) with written contracts, which preserve and protect the rights of the Owner and include the acknowledgment and agreement of each subcontractor or supplier that the Owner is a third-party beneficiary of the contract. The Contractor's agreements with its subcontractor(s) and supplier(s) shall require that in the event of default under, or termination of, this Contract for Construction, and upon request of the Owner, the Contractor's subcontractor(s) and supplier(s) will perform services for the Owner.
  - c. The Contractor shall include in its agreements with its subcontractor(s) and supplier(s) a provision which contains the acknowledgment and agreement of the subcontractor or supplier that it has received and reviewed the applicable terms, conditions and requirements of this Contract for Construction that are included by reference in its written contract with the Contractor, and that it will abide by those terms, conditions and requirements.
14. **RIGHTS AND REMEDIES:** No provision in this document or in the vendor's offer shall be construed, expressly or by implication, as waiver by the City of any existing or future right and/or remedy available by law in the event of any claim of default or breach of contract. The failure of the City to insist upon the strict performance of any term or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the City's acceptance of and payment for materials or services, shall not release the Contractor from any responsibilities or obligations imposed by this contract or by law, and shall not be deemed a waiver of any right of the City to insist upon the strict performance of the Contract.
15. **INDEMNIFICATION:** To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work or services of the Contractor, its employees, agents, or any tier of subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless and indemnify the City, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work or services in the performance of this Contract including any employee of the Contractor or any tier of subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services the Contractor may be legally liable.

The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

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16. **OVERCHARGES BY ANTITRUST VIOLATIONS:** The City maintains that, in practice, overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, the Contractor hereby assigns to the City any and all claims for such overcharges as to the goods and services used to fulfill the Contract.

17. **FORCE MAJEURE:** Except for payment for sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of force majeure. The term "*force majeure*" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, force majeure includes acts of God: acts of the public enemy; war; riots; strikes; mobilization; labor disputes; civil disorders; fire; floods; lockouts, injunctions-intervention-acts, or failures or refusals to act by government authority; and other similar occurrences beyond the control of the party declaring force majeure which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring force majeure notifies the other party of the existence of the force majeure and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with this Contract.

Force majeure shall not include the following occurrences:

- a. Late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences.
- b. Late performance by a subcontractor unless the delay arises out of a force majeure occurrence in accordance with this Force Majeure term and Condition.

Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused by force majeure. If either party is delayed at any time in the progress of the work by force majeure, then the delayed party shall notify the other party in writing of such delay within forty-eight (48) hours commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be hand delivered or mailed *Certified-Return Receipt* and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing. The time of completion shall be extended by contract modification for a period of time equal to the time that the results or effects of such delay prevent the delayed party from performing in accordance with this contract.

18. **RIGHT TO ASSURANCE:** Whenever one party to this contract in good faith has reason to question the other party's intent to perform he may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

19. **RIGHT TO AUDIT RECORDS:** The City may, at reasonable times and places, audit the books and records of any Contractor as related to any contract held with the City.

20. **WARRANTIES:** Contractor warrants that all material, service or construction delivered under this contract shall conform to the specifications of this contract. Unless otherwise stated in Contractor's response, the City is responsible for selecting items, their use, and the results obtained from any other items used with the items furnished under this contract. Mere receipt of shipment of the material/service specified and any inspection incidental thereto by the City shall not alter or affect the obligations of the Contractor or the rights of the City under the foregoing warranties. Additional warranty requirements may be set forth in the solicitation.



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21. **INSPECTION:** All material and/or services are subject to inspection and acceptance by the City. Materials and/or services failing to conform to the specifications of this Contract will be held at Contractor's risk and may be returned to the Contractor. If so returned, all costs are the responsibility of the Contractor. The City may elect to do any or all of the following:
- Waive the non-conformance.
  - Stop the work immediately.
  - Bring material into compliance.
- This shall be accomplished by a written determination from the City.
22. **TITLE AND RISK OF LOSS:** The title and risk of loss of material and/or service shall not pass to the City until the City actually receives the material or service at the point of delivery, unless otherwise provided within this Contract.
23. **NO REPLACEMENT OF DEFECTIVE TENDER:** Every tender of materials shall fully comply with all provisions of the Contract. If a tender is made which does not fully conform, this shall constitute a breach of the Contract as a whole.
24. **DEFAULT IN ONE INSTALLMENT TO CONSTITUTE TOTAL BREACH:** Contractor shall deliver conforming materials in each installment of lot of this Contract and may not substitute nonconforming materials. Delivery of nonconforming materials or a default of any nature, at the option of the City, shall constitute a breach of the Contract as a whole.
25. **SHIPMENT UNDER RESERVATION PROHIBITED:** Contractor is not authorized to ship materials under reservation and no tender of a bill of lading will operate as a tender of the materials.
26. **LIENS:** All materials, service or construction shall be free of all liens, and if the City requests, a formal release of all liens shall be delivered to the City.
27. **LICENSES:** Contractor shall have at the time of bid submittal, and shall maintain in current status, all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract. The conclusion of the issuing authority in each case is to be deemed conclusive for the purposes of complying with this provision. By submitting a bid for this public contract, you agree that, with respect to the contract, substantial compliance does not meet the minimum requirements of this or any provision hereof, or of any applicable law or other authority, and that strict compliance alone is adequate to meet those requirements, unless the City consents to such substantial compliance in writing at the time of bid submittal. The determination shall be made by the City.
28. **PATENTS AND COPYRIGHTS:** All services, information, computer program elements, reports and other deliverables, which may be patented or copyrighted and created under this contract are the property of the City and shall not be used or released by the Contractor or any other person except with the prior written permission of the City.
29. **PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN CITY PERSONNEL:** All specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing specifications shall receive any direct or indirect benefit from the utilization of specifications, other than fees paid for the preparation of specifications.
30. **COST OF BID/PROPOSAL PREPARATION:** The City shall not reimburse the cost of developing, presenting or providing any response to this solicitation. Offers submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner.



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31. **PUBLIC RECORD:** All offers submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award notification, in accordance with the City's Procurement Code.
32. **ADVERTISING:** Contractor shall not advertise or publish information concerning this Contract, without prior written consent of the City.
33. **DELIVERY ORDERS:** The City shall issue a Purchase Order for the material and/or services covered by this contract. All such documents shall reference the contract number as indicated on the Offer and Contract Award.
34. **FUNDING:** Any contract entered into by the City of El Mirage is subject to funding availability. Fiscal years for the City of El Mirage are July 1 to June 30. The City Council approves all budget requests. If a specific funding request is not approved, the contract shall be terminated.
35. **PAYMENT:** A separate invoice shall be issued for each shipment of material or service performed, and no payment will be issued prior to receipt of material and/or services and correct invoice.
36. **MATERIALS, EQUIPMENT, APPARATUS:** or other products are specified by manufacturer, brand name, type of catalog number, such designation is to establish standards of desired quality and style and shall be the basis of the bid. Should the Contractor propose to furnish materials and equipment other than those specified, as permitted by the "or approved equal" clauses he shall submit a written request as an alternate to the base bid with his proposal for any or all substitutions. Such a request shall be accompanied by complete descriptive literature (manufacturer, brand name, catalog number, etc.) and technical data for all items and shall indicate any addition or deduction to the CONTRACT price. Where such substitutions alter the design or space requirements indicated on the plans the Contractor shall include all items of cost for the revised design and construction including cost of all allied trades involved. Acceptance or rejections of the proposed substitutions will be made on the basis of whether or not the specifications are met and the CITY's best interests are served as determined by the authorized representative and the CITY.
37. **SUBCONTRACTOR'S LIST:** The Contractor shall submit a list of subcontractors and major material suppliers as part of the OFFER. The list needs to include any subcontractor or supplier whose contract is anticipated to be above 5% of the total bid price submitted. The name of any subcontractors or suppliers whose contract is anticipated to be at or below 5% of the total bid price is not required to be provided on the List.
38. **FEDERAL AND STATE EMPLOYMENT IMMIGRATION LAWS.** To the extent applicable under A.R.S. § 41-4401, Contractor warrants its and its subcontractors compliance with all federal immigration laws and regulations that relate to their compliance with the E-verify requirements under A.R.S. § 23-214(A). Contractor's or its subcontractors' breach of the above-mentioned warranty shall be deemed a material breach of the Agreement and may result in the termination of the Agreement by the City of El Mirage. The City of El Mirage retains the legal right to randomly inspect the papers and records of Contractor and its subcontractors to ensure that the Contractor and its subcontractors are complying with the above-mentioned warranty.

The Contractor warrants to keep the papers and records open for random inspection during normal business hours by the City of El Mirage. The Contractor shall cooperate with the City of El Mirage's random inspections including granting the City entry rights to Contractor's property to perform the random inspections and waiving its right to keep such papers and records confidential. The failure of Contractor to comply with this warranty regarding the keeping of papers and records and cooperating with the City's random inspections shall constitute a material breach of the Agreement and the City shall have the right to immediately terminate the Agreement.





## GENERAL TERMS AND CONDITIONS

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

The Contractor further agrees to include the following language in all subcontracts entered into by Contractor with any person or entity to perform work on the Agreement and to terminate the agreement with any subcontractor who violates any of the warranties set forth in said language below.

To the extent applicable under A.R.S. § 41-4401, Subcontractor warrants to Contractor and the City of El Mirage Subcontractor's compliance with all federal immigration laws and regulations that relate to its compliance with the E-verify requirements under A.R.S. § 23-214(A). Subcontractor's breach of the above-mentioned warranty shall be deemed a material breach of the Agreement and may result in the termination of the subcontract by Contractor at the direction of the City of El Mirage. Subcontractor further acknowledges the City of El Mirage's right to randomly inspect the papers and records of Subcontractor to ensure that Subcontractor is complying with the above-mentioned warranty.

Subcontractor warrants to keep the papers and records open for random inspection during normal business hours by City of El Mirage. Subcontractor shall cooperate with City of El Mirage's random inspections including granting the City entry rights to Subcontractor's property to perform the random inspections and waiving their respective rights to keep such papers and records confidential. The failure of Subcontractor to comply with this warranty regarding the keeping of papers and records and failure to cooperate with the City's random inspections shall constitute a material breach of the Agreement and the City shall have the right to immediately require Contractor to terminate the Agreement with Subcontractor.

39. **CONTRACTOR COMPLIANCE WITH A.R.S. § 35-391.06 AND 35-393.06 (SCRUTINIZED BUSINESS RELATIONS WITH SUDAN AND IRAN):** By entering into this Agreement, Contractor certifies it does not have scrutinized business operations in Sudan or Iran. Contractor shall obtain statements from its Subcontractors certifying compliance and shall furnish the statements to the City upon request. These warranties shall remain in effect through the term of this Agreement.

The City may request verification of compliance from any Contractor or Subcontractor performing work under this Agreement. Should the City suspect or find that the Contractor or any of its Subcontractors are not in compliance, the City may pursue any and all remedies allowed by law, including, but not limited to: suspension of work, immediate termination of this Agreement for default, and suspension and/or debarment of the Contractor. All costs necessary to verify compliance are the responsibility of the Contractor.

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## STANDARD TERMS AND CONDITIONS

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116

Fax: (623) 876-4605

1. **DEFINITIONS:** The terms, as used in or pertaining to the contract, are defined as follows:

**CITY:** The word “*City*” shall refer to the City of El Mirage, Arizona.

**CONTRACTOR:** The word “*Contractor*” is defined as the person, firm or corporation with whom the contract is made by the City.

**CONTRACT:** The word “*Contract*” will include the Notice of Invitation to Bid, Instructions to Bidder, Bid, Bid Bond, Performance Bond, Payment Bond, Notice of Award, Notice to Proceed, Change Order, Certificate of Insurance & Schedule A, Certificate of Completion, Contractor’s Affidavit Regarding Settlement of Claims, Standard Terms & Conditions, General Terms & Conditions, Special Terms & Conditions, Special Provisions, Bid Schedule, Plans and Addenda thereto.

**ENGINEER:** The word “*Engineer*” is defined as the person, firm or corporation duly authorized by the City to act as agent in providing professional services including studies, planning, engineering design and construction administration services, inspecting materials and construction, and interpreting plans and specifications.

**MATERIALS:** The word “*Materials*” will include, in addition to materials incorporated in the project, equipment and other material used and/or consumed in the performance of the work.

**SUBCONTRACTOR:** The word “*Subcontractor*” is defined as those persons or groups of persons having a direct contract with the contractor and those who furnish material worked to a special design according to the plans and/or specifications for this work, and includes those who merely furnish materials not so worked.

**WORK:** The word “*Work*” shall include all labor necessary to accomplish the construction required by the Contract and all materials and equipment incorporated or to be incorporated in said construction.

2. **REFERENCE STANDARDS:**

- a. The “Uniform Standard Specifications for Public Works Construction” and the “Uniform Standard Details for Public Works Construction”, latest editions, which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the “*MAG Specifications*,” are hereby adopted as part of these contract documents.
- b. If any contradiction exists between “MAG Specifications” and this solicitation document, the solicitation language shall prevail.

3. **LAWS AND REGULATIONS:** The Contractor shall keep himself fully informed of all existing and future City and County ordinances and regulations and state and federal laws and Occupational Safety and Health Standards (OSHA) in any manner affecting the work herein specified. He shall at all times observe and protect and indemnify the City of El Mirage, Arizona, and its officers and agents against any claim or liability arising from or based on the violation of any such ordinances, regulations or laws. It is the responsibility of the Contractor to obtain any and all information regarding the laws and regulations, which may be referenced in the Specifications.

4. **RIGHTS OF WAY:** The City will provide Rights-of-Way and easements for all work specified in this contract, and the Contractor shall not enter or occupy with men, tools, equipment or materials any private ground outside the property of the City of El Mirage, Maricopa County, Arizona, without the consent of the owner.



## STANDARD TERMS AND CONDITIONS

### DCS – Engineering

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The Contractor, at his own expense, is responsible for the acquisition of any additional easements or rights-of-way that he may desire to complete the work of this contract.

5. **PROPOSAL QUANTITIES:** It is expressly understood and agreed by the parties hereto that the quantities of the various classes of work to be done and the material to be furnished under this Contract, which have been estimated as stated in the Bids, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the bids offered for the work under this Contract. The Contractor further agrees that the City of El Mirage will not be held responsible if any of the quantities shall be found incorrect; and the Contractor will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this Contract or the whole or any part of the work in accordance with the Specifications and Plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of the obligations or liabilities hereunder, or entitle him to any damage or compensation except as may be provided in this contract.
6. **FEDERAL FUNDING:** It is the responsibility of the Contractor to determine on any project if federal wage rates apply. It is also the responsibility of the Contractor to incorporate any necessary amounts in the bid to accommodate for required federal record keeping and necessary pay structures. The Contractor should contact the City of El Mirage regarding any applicable Davis Bacon wage rates.
7. **PAYMENTS TO CONTRACTOR:** Payments will be made on the basis of itemized statements provided by the Contractor in accordance with these Specifications. Three (3) copies of an itemized statement should be submitted to the Office of the City Engineer. After verification, payments will be processed by the Management Services Department. Payments will be mailed by the Engineering Division. The City will make a partial payment to the Contractor on the basis of an estimate prepared by the Contractor, and approved by the City Engineer, for work completed through the last day of preceding pay period. The City will retain ten percent (10%) of each such estimate until acceptance of the project. When required by the City Engineer or his authorized representative for the purposes of determining the equitableness of the Contractor's payment request, the Contractor shall furnish evidence satisfactory to the City Engineer or his authorized representative, of the sums paid by the Contractor for materials, supplies and other items of expense (i.e., lien releases).
8. **LOSSES AND DAMAGES:** All loss or damage arising out of the nature of the work to be done or from the action of the elements or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his own cost and expense.
9. **CHARACTER AND STATUS OF WORKMEN:** Only skilled foremen and workmen shall be employed on work requiring special qualifications.

When required by the City Engineer, the Contractor shall discharge any person who is, in the opinion of the Engineer, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. The Contractor shall keep the City harmless from damages or claims for compensation that may occur in the enforcement of this section.

The Contractor shall be responsible for assuring the legal working status of its employees and its subcontractor's employees.

10. **WORK METHODS:** The methods, equipment and appliances used on the work shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the time limit specified.

Except as is otherwise specified, the Contractor's procedure and methods of construction may, in general, be of his own choosing, provided they follow best general practice and are calculated to secure results which will satisfy the requirements of the specifications and the supervision of the work.



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The work covered by this Contract shall be carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the roads. The Contractor shall exercise caution during the course of this construction work to avoid damage to all known existing or possible unknown existing underground utilities. He shall conduct his construction operations in such a manner as to avoid injury to his personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

11. **PRE-CONSTRUCTION CONFERENCE:** Within 30 days of the issuance of the Notice of Award, the Contractor is required to attend a Pre-construction Conference. The city will contact the Contractor to schedule a specific date, time and location for the Pre-construction conference. The purpose of the meeting is to outline specific construction items and procedures and to address items which require special attention on the part of the Contractor. The Contractor may also present proposed variations in procedures which the Contractor believes may improve constructability of the project, reduce cost, or will reduce inconvenience to the public. Any necessary coordination and procedures for Construction inspection and staking will be addressed during the Pre-construction Conference. The Contractor will be required to provide the following information at the Pre-construction Conference:

- a. Names and emergency telephone numbers of key personnel involved in the project.
- b. Names and telephone numbers of all subcontractors proposed for use on the project.
- c. A construction progress schedule showing the estimated time for start and completion of the major items of work.
- d. A payment schedule showing the estimated dollar volume of work for each calendar month during the life of the project.
- e. A written proposal outlining the intended plans for maintaining continuous access to residences and businesses along the construction site, and traffic control.
- f. An itemized list of all required shop drawings, material and equipment submittals and a schedule indicating the dates each of these items will be transmitted to the City for review.

Each of the above items is subject to the review and approval by the City.

12. **NOTICE TO PROCEED:** Within 45 days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual contract start date, the contract duration and the contract completion date. The time required for the Contractor to obtain permits, licenses and easements shall be included in the contract duration and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the contract duration and shall not be justification for a delay claim by the Contractor.

No work shall be started until after all required permits, licenses, and easements have been obtained.

No work shall be started until all applicable submittals have been submitted and returned approved by the Owner's Representative.

The Contractor shall notify the City of El Mirage's project manager or engineer at least seventy-two (72) hours before the following events:

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### DCS – Engineering

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- a. The start of construction in order to arrange for inspection;
- b. Shutdown of City water, sewer, drainage, irrigation and traffic control facility.
- c. Shutdown of existing water wells and booster pumps. Shutdown shall not exceed seventy-two (72) hours for any installation. Only one installation may be shutdown at any time;
- d. The coordination of all draining and filling of water lines, irrigation laterals and all operations of existing valves or gages with the project manager;
- e. The start-up or testing of any water well or booster pump to be connected to any part of the existing City water system. This includes operation of existing valves necessary to accommodate the water.

13. **TRAFFIC REGULATIONS:** All traffic affected by this construction shall be regulated in accordance with the *City of Phoenix -Traffic Barricade Manual*, latest edition, and the City of Phoenix in the Traffic Barricade Manual shall be referred to as the City of El Mirage City Engineer for interpretation.

At the time of the pre-construction conference, the Contractor shall designate an employee who is well qualified and experienced in construction traffic control and safety to be responsible for implementing, monitoring and altering traffic control measure, as necessary. At the same time the City will designate a representative who will be responsible to see that all traffic control and any alterations are implemented and monitored to the extent that traffic is carried through the work area in an effective manner and that motorist, pedestrians, bicyclists and workers are protected from hazard and accidents.

- a. The following shall be considered major streets: All major Parkway, mile (section line), arterial and collector (mid-section line and quarter section line) streets so classified by the City of El Mirage.
- b. All traffic control devices required for this project shall be the responsibility of the Contractor. The Contractor shall place advance warnings; **REDUCE SPEED, LOOSE GRAVEL, 25 MPH SPEED LIMIT** and **DO NOT PASS** signs in accordance with the Traffic Barricade Manual.
- c. The Contractor shall provide, erect and maintain all necessary flashing arrow boards, barricades, suitable and sufficient warning lights, signals and signs, and shall take all necessary precautions for the protection of the work and safety of the public. The Contractor shall provide, erect and maintain acceptable and adequate detour signs at all closures and along detour routes.
- d. All barricades and obstructions shall be illuminated at night, and all safety lights shall be kept burning from sunset until sunrise. All barricades and signs used by the Contractor shall conform to the standard design, generally accepted for such purposes, and payment for all such services and materials shall be considered as included in the other pay items of the Contract.
- e. The Contractor shall insure that all existing traffic signs are erect, clean and in full view of the intended traffic at all times. Street name signs at major street intersections shall be maintained erect at all times. If these signs should interfere with construction, the Contractor shall notify the Inspector at least forty eight (48) hours in advance for City personnel to temporarily relocate said signs. The City Engineer will re-set all traffic and street name signs to permanent locations when notified by the Engineer that construction is complete unless otherwise stated in the specifications. Payment for this item shall be made at the contract lump sum price for **TRAFFIC CONTROL**.



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- f. When construction activities or traffic hazards at the construction site require the use of flagmen, it shall be the Contractor's responsibility to provide adequate personnel including flagmen to direct traffic safely.
- g. Manual traffic control shall be in conformity with the Traffic Barricade Manual, except the liaison officer shall be contacted at the El Mirage Police Department at telephone number (623) 933-1341.
- h. When traffic hazards at construction sites warrant the use of certified police personnel to direct traffic, arrangement should be made with the liaison officer at the El Mirage Police Department at telephone number (623) 933-1341.
- i. The assembly and turnarounds of the Contractor's equipment shall be accomplished using adjacent local streets when possible.
- j. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Provide a flagman or officer to assist with this operation.
- k. During construction, it may be necessary to alter traffic control. Alterations shall be in accordance with the Traffic Barricade Manual.
- l. No street within this project may be closed to through traffic or to local emergency traffic without prior written approval of the City Engineer of the City of El Mirage at least two weeks prior to the scheduled closure. The Contractor must allow for the notification of the public at least six (6) working days in advance of such closing with VMS signs explaining the closure at all approaches to the project area. Partial closure of streets within the project shall be done in strict conformity with written directions to be obtained from the City Engineer.
- m. Caution should be used when excavating near intersections with traffic signal underground cable. Notify the City Engineer twenty four (24) hours in advance of any work at such intersections. The Contractor shall install and maintain temporary overhead traffic signal cable as specified by the City Engineer when underground conduit is to be severed by excavations at intersections. The Contractor shall provide an off-duty uniformed police officer to direct traffic while the traffic signal is turned off and the wiring is transferred. All damaged or modified traffic signal overhead and underground items shall be repaired and restored to the City Engineer's satisfaction. Magnetic detector loops shall under no circumstances be spliced.
- n. The Contractor shall address how local access to adjacent properties will be handled in accordance with the specification herein.
- o. Where crossings of existing pavements occur, no open trenches shall be permitted overnight, but plating may be permitted if conditions allow as determined by the City Engineer or his authorized representative. If plates cannot be used, crossings shall be back-filled or the Contractor shall provide a detour.

14. **OUTDOOR CONSTRUCTION RESTRICTIONS:** Outdoor construction is restricted as listed below in the following table:

	Construction Type	May 1 – September 30	October 1 – April 30
A	All Construction Work – Monday through Saturday	6:00 a.m. to 7:00 p.m.	7:00 a.m. to 7:00 p.m.
B	All Construction Work - Sunday	8:00 a.m. to 7:00 p.m.	8:00 a.m. to 7:00 p.m.

The above hours must be adhered to under all circumstances unless prior authorization is obtained in writing by the City of El Mirage City Engineer or their designee.

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15. **SURVEY CONTROL POINTS:** Existing survey markers (either brass caps or iron pipes) shall be protected by the Contractor or removed and replaced under direct supervision of the City Engineer or his authorized representatives. Survey monuments shall be constructed to the requirements of MAG Specifications, Section 405, and Standard Details. Lot corners shall not be disturbed without knowledge and consent of the property owner.

The Contractor shall replace benchmarks, monuments, or lot corners moved or destroyed during construction at no expense to the Owner. Contractor and his sureties shall be liable for correct replacement of disturbed survey benchmarks except where the Owner elects to replace survey benchmarks using his own forces.

16. **PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK:** The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until the entire contract is completed and accepted by the City Engineer. The Contractor shall turn over the entire work in full accordance with these Specifications before final settlement shall be made.

17. **STOCKPILE OF MATERIALS:**

- a. The Contractor may, if approved by the City Engineer, place or stockpile materials in the public right-of-way provided they **do not** prevent access to adjacent properties or prevent compliance with traffic regulations.
- b. Traffic shall not be required to travel over stockpiled materials, and proper dust control shall be maintained.

18. **EXCESS MATERIALS:** When excavations are made, resultant loose earth shall be utilized for filling by compacting in place or disposed of off the site.

Excess or unsuitable material, broken asphaltic concrete and broken Portland cement concrete excavated from the right-of-way shall be removed from the project and disposed of by the Contractor. Disposal of material within the El Mirage City Limits or Planning Area must be approved by the City Engineer or his authorized representative.

Waste material shall not be placed on private property without express permission of the property owner.

The Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all equipment, tools and surplus materials, and shall completely clean the premises, removing and disposing of all debris and rubbish, and cleaning all stains, spots, marks, dirt, smears, etc. When work premises are turned over to the City, they shall be thoroughly clean and ready for immediate use.

Clean-up shall include removal of all excess pointing mortar materials within pipes and removal of oversized rocks and boulders left after finish grading. The Contractor shall provide for the legal disposal of all waste products debris, etc., and shall make necessary arrangements for such disposal.

19. **DUST CONTROL AND WATER:** The dust control measures shall be in accordance with the requirements of the “*Maricopa County Health Department Air Pollution Control Regulations*,” namely Regulation II, Rule 21, subparagraph C and Regulation III, Rule 310 shall be rigidly observed and enforced. Water or other approved dust palliative in sufficient quantities shall be applied during all phases of construction involving open earthwork to prevent unnecessary discharge of dust and dirt into the air. The Contractor shall be responsible for compliance with these regulations. A Notice to Proceed will not be issued until the City of El Mirage has received a copy of the Contractor’s Dust Control Permit and Plan.

The Contractor shall be required to obtain the necessary permit and all pertinent information from the Maricopa County Air Quality Department, 1001 North Central Avenue, Suite 125, Phoenix, Arizona, (602) 506-6010.





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The Contractor shall keep suitable equipment on hand at the job site for maintaining dust control on the project streets, and shall employ sufficient labor, materials and equipment for that purpose at all times during the project to the satisfaction of the City Engineer.

Watering shall conform to the provisions of Section 230 of the MAG Standard Specifications. The cost of watering will be included in the price bid for the construction operation to which such watering is incidental or appurtenant.

The Contractor shall obtain a fire hydrant meter for construction and shall contact the El Mirage Customer Service Department at 623-933-1228 to start the process. Installation and removal of fire hydrant meters should be scheduled at least forty-eight (48) hours in advance through the Customer Service Department. Contractors shall not relocate hydrant meters themselves. A deposit and account activation fee is required for each meter. The cost of the water is at the prevailing rate plus a recharge fee of \$1.87 per 1,000 gallons of water.

20. **TEMPORARY SANITARY FACILITIES:** The Contractor shall provide ample toilet facilities with proper enclosures for the use of workmen employed on the work site. Toilet facilities shall be installed and maintained in conformity with all applicable state and local laws, codes, regulations and ordinances. They shall be properly lit and ventilated, and kept clean at all times.

Adequate and satisfactory drinking water shall be provided at all times and under no circumstances and under no conditions will the use of common cups be permitted. The Contractor must supply sanitary drinking cups for the benefit of all employees.


21. **ELECTRIC POWER, WATER AND TELEPHONE:** Unless otherwise specified, the Contractor shall make his own arrangements for electric power, water and telephone. Subject to the convenience of the utility, he may be permitted to connect to existing facilities where available, but he shall meter and bear the cost of such power or water, and installation and disconnect of such power, water and telephone services.


22. **ENERGIZED AERIAL ELECTRICAL POWER LINES:** The utility company may maintain energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measure, including maintaining a minimum ten (10) feet clearance between the lines and all construction equipment and personnel. (see: OSHA Std. 1926.550 (a) 15).


As an additional safety precaution, Contractors should also be instructed to call the utility company to arrange, if possible, to have these lines de-energized or relocated when the work reaches their immediate vicinity. The cost of such temporary arrangements shall be borne by the contractor. The utility company can often respond to such request if two (2) days advance notice is given, but some situations may require up to sixty (60) days lead time for relocation or other arrangements.


Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this project. These power lines represent an extreme hazard of electrical shock to any construction personnel or equipment coming in contact with them. Arizona law requires all parties planning excavations in public rights-of-way to contact all utility firms for locations of their underground facilities. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measure. (see: OSHA Std. 1926-651 (A)).





 <p>City of <b>EL MIRAGE</b> Arizona <small>GRAND HERITAGE, BRIGHT FUTURE!</small></p>	<p align="center"><b>SPECIAL TERMS AND CONDITIONS</b></p>	<p align="center"><b>DCS – Engineering</b></p> <p align="center">10000 N. El Mirage Road El Mirage, AZ 85335</p> <p align="center">Phone: (623) 972-8116 Fax: (623) 876-4605</p>
<p align="center">Solicitation Number: EM17-ST01</p>		
<ol style="list-style-type: none"> <li><b>PURPOSE:</b> Pursuant to provisions of the City Procurement Code, the City of El Mirage, DCS – Engineering Department intends to establish a contract for the <b>Butler Drive Improvements</b> project.</li> <li><b>AUTHORITY:</b> This Solicitation as well as any resultant contract is issued under the authority of the City. No alteration of any resultant contract may be made without the express written approval of the City Materials Manager in the form of an official contract amendment. Any attempt to alter any contract without such approval is a violation of the contract and the City Procurement Code. Any such action is subject to the legal and contractual remedies available to the City inclusive of, but not limited to, contract cancellation, suspension and/or debarment of the contractor.</li> <li><b>PROSPECTIVE BIDDERS CONFERENCE (MANDATORY):</b> Prospective bidders are required to attend a pre-bid conference to be held at the City of El Mirage Municipal Offices: <p align="center"> <b>ADDRESS:</b>     <i>10000 N. El Mirage Road El Mirage, Arizona 85335 City Hall – Cinnabar Conference Room</i> </p> <p align="center"> <b>DATE:</b>             <b>June 27, 2018</b> </p> <p align="center"> <b>TIME:</b>            <b>1:00 p.m., Arizona time</b> </p> <p>The purpose of this conference will be to clarify the contents of this Invitation to Bid in order to prevent any misunderstanding of the City’s position. Any doubt as to the requirements of this Invitation to Bid or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine the appropriate action necessary, if any, and issue a written amendment to the Invitation to Bid. Oral statements or instructions shall not constitute an amendment to the Invitation to Bid. A representative from any prospective bidder must be present at the conference to be eligible for this contract.</p> </li> <li><b>OFFER ACCEPTANCE PERIOD:</b> In order to allow for an adequate evaluation, the City requires an offer in response to this Solicitation to be valid and irrevocable for sixty (60) days after the opening time and date.</li> <li><b>INTERPRETATION OF PLANS, SPECIFICATIONS AND DRAWINGS:</b> If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications or other proposed Contract Documents, or finds discrepancies in, or omissions from the Drawings or Specifications, he may, up to the final date for inquiries shown on the cover sheet of this document, submit to <a href="mailto:bchristo@elmirageaz.gov">bchristo@elmirageaz.gov</a> a written request for an interpretation or correction thereof. Any interpretations or corrections of the proposed documents will be made only by Addendum duly issued and a copy of each such will be emailed or delivered to each person included on the Planholder’s List. The City of El Mirage will not be responsible for any other explanations or interpretations of the proposed documents.</li> <li><b>CONDITIONS OF WORK:</b> Each Bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve the Contractor of his obligation to furnish all material and labor necessary to carry out the provisions of this Contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.</li> <li><b>TIME OF COMPLETION:</b> The Contractor shall commence work under this project on or before the fifth (5) day following the project start date indicated on the “Notice to Proceed” issued by the City of El Mirage and shall fully complete</li> </ol>		


 <p>City of <b>EL MIRAGE</b> Arizona <small>GRAND HERITAGE, BRIGHT FUTURE!</small></p>	<p align="center"><b>SPECIAL TERMS AND CONDITIONS</b></p>	<p align="center"><b>DCS – Engineering</b></p> <p align="center">10000 N. El Mirage Road El Mirage, AZ 85335</p> <p align="center">Phone: (623) 972-8116 Fax: (623) 876-4605</p>
	<p align="center">Solicitation Number: EM17-ST01</p>	
<p>all work under the project within <b><u>60 calendar days</u></b>. The Contractor shall, at all times, during the continuance of the Contract, prosecute the work with such force and equipment as is sufficient to complete all work within the time specified.</p> <p>8. <b>AFFIRMATIVE ACTION REPORT:</b> It is the policy of the City of El Mirage that suppliers of goods or services to the City adhere to a policy of non-discrimination, equal access, equal employment opportunity and demonstrate an affirmative effort to recruit, hire, and promote regardless of race, color, religion, gender, national origin, age or disability.</p> <p>9. <b>APPROVAL OF SUBSTITUTIONS:</b> The materials, products, and equipment described in the Documents and Addenda establish a standard or required function, dimension, appearance, and quality to be met by any proposed substitution. No substitute will be considered unless written request for approval has been received by the City or its representative at least by the final date for inquiries shown on the cover sheet of this document. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including any drawings, cuts, performance, and test data and any other information necessary for evaluation of the substitute. If a substitute is approved, the approval shall be acknowledged in writing. Bidder shall not consider approvals made in any other manner.</p> <p>10. <b>USE OF EQUALS:</b> When the specifications for materials, articles, products, and equipment state “<i>or equal</i>”, Contractor may bid upon, and use materials, articles, products, and equipment which will perform equally the duties imposed by the general design. The City Engineering Division will have the final approval of all materials, articles, products, and equipment proposed to be used as an “equal.” It shall not be purchased or installed without prior written approval from the City or its representative.</p> <p>Approvals for “equals,” before bid opening, may be requested in writing to the City Engineering Division for approval. Requests must be received at least five (5) days prior to the date set for opening of the Bid. The request shall state the name of the material, article, product, or equipment for which the item is sought to be considered and equal and a complete description of the proposed equal including any drawings, cuts, performance specifications, test data and any other information necessary for approval of the equal. All approvals will be issued in writing.</p> <p>11. <b>CITY OF EL MIRAGE PERMIT:</b> The Contractor shall obtain a no fee off-site permit. The Contractor will be responsible for any required Maricopa County permits or other agency permits.</p> <p>12. <b>INDEPENDENT CONTRACTOR:</b></p> <p>a. General</p> <p>i. The Contractor acknowledges that all services provided under this Agreement are being provided by him as an independent contractor, not as an employee or agent of the City of El Mirage.</p> <p>ii. Both parties agree that this Agreement is nonexclusive and that Contractor is not prohibited from entering into other contracts nor prohibited from practicing his profession elsewhere.</p> <p>b. Liability</p> <p>i. The City of El Mirage shall not be liable for any acts of Contractor outside the scope of authority granted under this Agreement or as the result of Contractor’s acts, errors, misconduct, negligence, omissions and intentional acts.</p>		

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<p>ii. To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work or services of the Contractor, its employees, agents, or any tier of subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless and indemnify the City, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work or services in the performance of this Contract including any employee of the Contractor or any tier of subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services the Contractor may be legally liable.</p> <p>The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.</p> <p>c. Other Benefits</p> <p>The Contractor is an independent contractor; therefore, the City will not provide the Contractor with health insurance, life insurance, workmen's compensation, sick leave, vacation leave, or any other fringe benefits. Further, Contractor acknowledges that he is exempt from coverage of the Comprehensive Benefit and Retirement Act (COBRA). Any such fringe benefits shall be the sole responsibility of Contractor.</p> <p>13. <b>KEY PERSONNEL:</b> It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this contract. The Contractor must agree to assign specific individuals to the key positions.</p> <p>a. The Contractor agrees that, once assigned to work under this contract, key personnel shall not be removed or replaced without written notice to the City.</p> <p>b. If key personnel are not available for work under this contract for a continuous period exceeding 30 calendar days, or are expected to devote substantially less effort to the work than initially anticipated, the Contractor shall immediately notify the City, and shall, subject to the concurrence of the City, replace such personnel with personnel of substantially equal ability and qualifications.</p> <p>14. <b>LIQUIDATED DAMAGES:</b> Liquidated Damages shall be assessed for each calendar day of delay. Liquidated damages shall be per MAG Specifications, Section 108.9.</p> <p>a. If the contract is not terminated, the contractor shall continue performance and be liable to the City for the liquidated damages until the products are delivered or services performed.</p> <p>b. In the event the City exercises its right of termination, the contractor shall be liable to the City for any excess costs, and in addition, for liquidated damages until such time the City may reasonably obtain delivery or performance of similar supplies or services.</p>		

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<p>15. <b>WARRANTY:</b> Each offer shall provide a one year warranty/guarantee against defects in materials, faulty workmanship and/or performance for all items required of the specifications.</p> <p>16. <b>INSURANCE REQUIREMENTS:</b> The Contractor, at Contractor’s own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of A-, or approved unlicensed to do business in the State of Arizona with policies and forms satisfactory to the City.</p> <p>All required herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and formally accepted; failure to do so may, at the sole direction of the City, constitute a material breach of this Contract.</p> <p>The Contractor’s insurance shall be primary insurance, and any insurance or self-insurance maintained by the City shall not contribute to it.</p> <p>Any failure to comply with the claim reporting provisions of the policies or any breach of an insurance policy warranty shall not affect coverage afforded under the policy to protect the City.</p> <p>The insurance policies, except Workers’ Compensation, shall contain a waiver of transfer rights of recovery (subrogation) against the City, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor’s work or service.</p> <p>The insurance policies may provide coverage which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for deductible and/or self-insured retention and the City, at its option, may require the Contractor to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.</p> <p>The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the City’s right to insist on, strict fulfillment of Contractor’s obligations under this Contract.</p> <p>The insurance policies, except Workers’ Compensation, required by this Contract shall name the City, its agents, representatives, officers, directors, officials and employees as Additional Insureds.</p> <p>17. <b>REQUIRED INSURANCE COVERAGE:</b></p> <p>a. General Liability</p> <p>Contractor shall maintain Commercial General Liability insurance with a limit of not less than \$1,000,000 for each occurrence with a \$2,000,000 Products and Completed Operations Aggregate and \$2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products/completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract, which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 000211093 or any replacement thereof. The coverage shall not exclude X, C, U.</p>		

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<p>Such policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, nor any provision which would serve to limit third party action over claims.</p> <p>The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.’s, Additional Insured, Form B, CG20101185, and shall include coverage for Contractor’s operations and products and completed operations.</p> <p>Any Contractor subletting any part of the work, services or operations awarded to the Contractor shall purchase and maintain, at all times during prosecution of the work, services or operations under this Contract, an Owner’s and Contractor’s Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the Work or Contractor’s operations under this Contract. Coverage shall be on an occurrence basis with a limit not less than \$1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor’s Commercial General Liability insurance.</p> <p>b. Automobile Liability</p> <p>Contractor shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence with respect to the Contractor’s any owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor’s work. Coverage will be at least as broad as coverage code 1, “any auto”, (Insurance Service Office, Inc. Policy Form CA 00011293, or any replacements thereof). Such insurance shall include coverage for loading and off-loading hazards. If hazardous substances, materials or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.</p> <p>c. Workers’ Compensation</p> <p>The Contractor shall carry Workers’ Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor’s employees engaged in the performance of the work; and, Employer’s Liability insurance of not less than \$100,000 for each accident, \$100,000 disease for each employee, and \$500,000 disease policy limit.</p> <p>In case any work is subcontracted, the Contractor will require the Subcontractor to provide Workers’ Compensation and Employer’s Liability to at least the same extent as required of the Contractor.</p> <p>18. <b>CERTIFICATES OF INSURANCE:</b> Prior to commencing Services under this Contract, Contractor shall furnish the City with Certificates of Insurance (naming the City as additionally insured), or formal endorsements as required by the Contract, issued by Contractor’s insurer(s), as evidence that policies providing the required coverages, conditions and limits required by this Contract are in full force and effect.</p> <p>In the event any insurance policy(ies) required by this contract is(are) written on a “claims made” basis, coverage shall extend for two years past completion and acceptance of the Contractor’s work or services and as evidenced by annual Certificates of Insurance.</p> <p>If a policy does expire during the life of the contract, a renewal certificate must be sent to the City fifteen (15) days prior to the expiration date.</p>		

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<p>All Certificates of Insurance required by this Contract shall be identified with a bid serial number and title. A \$25.00 administrative fee shall be assessed for all Certificates received without the appropriate bid serial number and title.</p> <p>19. <b>CANCELLATION AND EXPIRATION NOTICE:</b> Insurance required herein shall not expire, be canceled, or materially changed without fifteen (15) days prior written notice to the City.</p> <p>20. <b>BID BOND:</b> Non-revocable bid security payable to the City of El Mirage in the amount of <u>10%</u> of the total bid price is required. This security shall be in the form of a bid bond, certified check or cashier's check and must be in the possession of the City of El Mirage, Finance Department by the due date and time cited for this solicitation.</p> <p>The City will hold all bid security during the evaluation process. As soon as is practicable after the completion of the evaluation, the City will:</p> <ul style="list-style-type: none"> <li>a. Issue a contract award notice for those offers accepted by the City;</li> <li>b. Return all checks to those who have not been issued a contract award notice.</li> </ul> <p>All bid security from contractors who have been issued an award notice shall be held until the successful execution of all required contractual documents and bonds (performance bond, insurance, etc.). If the contractor fails to execute the required contractual documents and bonds within the time specified, or ten (10) days after notice of award if no period is specified, the contractor may be found to be in default and the contract terminated by the City. In case of default, the City reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the required work in accordance with the City of El Mirage Procurement Code and to recover any actual excess costs from the contractor. Collection against the bid security shall be one of the measures available toward the recovery of any excess costs.</p> <p>All bid bonds shall be executed on the Bid Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.</p> <p>21. <b>PERFORMANCE BOND:</b> The contractor shall be required to furnish non-revocable security binding the contractor to provide faithful performance of the contract in the amount of <u>100%</u> of the total contract price payable to the City of El Mirage.</p> <p>Performance security shall be in the form of a performance bond, certified check or cashier's check. This security must be in the possession of the City of El Mirage, Finance Department within the time specified or ten (10) days after notice of award if no period is specified. If the contractor fails to execute the security document as required, the contractor may be found in default and the contract terminated by the City. In case of default the City reserves all rights.</p> <p>All performance bonds shall be executed on the Performance Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating</p>		

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<p align="center"><b>Solicitation Number: EM17-ST01</b></p>		
<p>Guide of “A-” or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.</p> <p>22. <b>PAYMENT BOND:</b> The contractor shall be required to furnish non-revocable security for the protection of all persons supplying labor and material to the contractor or any subcontractor for the performance of any work related to the contract. Payment security shall be in the amount of <u>100%</u> of the total contract price and be payable to the City of El Mirage.</p> <p>Payment security shall be in the form of a payment bond, certified check or cashier’s check.</p> <p>All payment bonds shall be executed on the Payment Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best’s Key Rating Guide of “A-” or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.</p> <p>23. <b>TAX FORMULA:</b> Each bidder shall apply the appropriate Transaction Privilege Tax in accordance with the Department of Revenue rules and procedures.</p> <p>24. <b>CONTRACT DEFAULT:</b> The City, by written notice of default to the contractor, may terminate the whole or any part of this contract in any one of the following circumstances:</p> <ul style="list-style-type: none"> <li>a. If the contractor fails to make delivery of the materials/supplies or to perform the services within elements of the project schedule or the time specified; or</li> <li>b. If the contractor fails to perform any of the other provisions of this contract; and fails to remedy the situation within a period of ten (10) days after receipt of notice.</li> </ul> <p align="center">[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]</p>		





## QUESTIONNAIRE

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

**Please list a minimum of three (3) references whom the DCS – Engineering Department may contact:**

1. Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
\_\_\_\_\_
2. Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
\_\_\_\_\_
3. Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
\_\_\_\_\_



## QUESTIONNAIRE

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

☐

**Attach a copy of your Contractor's License to your bid submittal.**



## BID BOND

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_  
\_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_  
\_\_\_\_\_ with its principal office in the City of \_\_\_\_\_  
\_\_\_\_\_, (hereinafter called the Surety), as Surety, are held and firmly  
bound unto the City of El Mirage, (hereinafter called the Obligee) in the penal sum of Ten Percent (10%) of Bid Amount,  
\_\_\_\_\_ (Dollars) (\$\_\_\_\_\_) lawful money of the United States of America, to be paid  
to the order of the City of El Mirage, for the payment whereof, the said Principal and Surety bind themselves, and their heirs,  
administrators, executors, successors and assigns, jointly and severally, firmly by these presents and in conformance with A.R.S.  
Section 34-201.

WHEREAS, the Principal has submitted a bid/proposal for:

NOW THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter into a contract with the Obligee in accordance with the terms of the proposal and give the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the Bonds and Certificates of Insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the Bond, between the amount specified in the bid/proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the bid/proposal, then this obligation is void. Otherwise it remains in full force and effect provided, however, that this Bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Principal

Seal

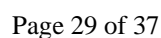
BY: \_\_\_\_\_

Surety

Seal

BY: \_\_\_\_\_

Agency of Record





## PERFORMANCE BOND

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

#### KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_  
\_\_\_\_\_, a corporation organized and existing under the laws of  
the State Of \_\_\_\_\_, with its principal office in the City of,  
\_\_\_\_\_ (hereinafter called the Surety), as Surety, are  
held and firmly bound unto the City of El Mirage (hereinafter called the Obligee) in the amount of  
\_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), for the payment whereof, the said  
Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally,  
firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for the material, service or construction  
described as \_\_\_\_\_  
\_\_\_\_\_ is hereby  
referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall  
faithfully perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the  
original term of said contract and any extension thereof, with or without notice to the Surety and during the life of any  
guaranty required under the contract, and shall also perform and fulfill all the undertakings, covenants, terms, conditions, and  
agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which  
modifications to the surety being hereby waived; then the above obligations shall be void. Otherwise it remains in full force  
and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2,  
Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34,  
Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as  
may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Agency of Record      PERFORMANCE BOND



## PAYMENT BOND

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_,  
a corporation organized and existing under the laws  
of the State Of \_\_\_\_\_, with its principal office in the City of,  
\_\_\_\_\_ (hereinafter called the Surety), as Surety, are held and  
firmly bound unto the City of El Mirage (hereinafter called the Oblige) in the amount of  
\_\_\_\_\_ (Dollars) (\$ \_\_\_\_\_), for the payment whereof, the said  
Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally,  
firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Oblige, dated the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, for the material, service or construction  
described as \_\_\_\_\_ which contract  
is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall  
promptly pay all monies due to all persons supplying labor or materials to him or his subcontractors in the prosecution of the  
work provided for in said contract, then this obligation shall be void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2,  
Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34,  
Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as  
may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

\_\_\_\_\_  
Principal Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Surety Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Agency of Record PAYMENT BOND



## CONSENT OF SURETY

Solicitation Number: EM17-ST01

### DCS – Engineering

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

## CONSENT OF SURETY

**DATE:** \_\_\_\_\_

**TO:** City of El Mirage

Gentlemen:

The Contractor, \_\_\_\_\_, for City of El Mirage Contract Number: **EM17-ST01, Butler Drive Improvements**, in Maricopa County, whose performance we have guaranteed by our Bond Number \_\_\_\_\_, has requested that we give our consent to the payment, at your option, of all monies due on his final estimate according to the provisions of his contract.

We hereby give our consent to the payment of the final estimate and agree that such action on your part will not operate to qualify or invalidate the Bond.

Sincerely,

\_\_\_\_\_

By: \_\_\_\_\_

Seal of Surety

The Consent of Surety should be prepared on the surety's official stationery and it must be signed by a general officer of the corporation or by an attorney-in-fact. If signed by an attorney-in-fact, a power of attorney must be attached giving the attorney-in-fact specific authority to write Consent authorizing the release of monies and it must also bear the corporate seal.





## AFFIDAVIT FOR SETTLEMENT OF CLAIMS

Solicitation Number: EM17-ST01

**DCS – Engineering**

10000 N. El Mirage Road  
El Mirage, AZ 85335

Phone: (623) 972-8116  
Fax: (623) 876-4605

### CONTRACTOR'S AFFIDAVIT SETTLEMENT OF CLAIMS

**DATE:** \_\_\_\_\_

**PROJECT NO: EM17-ST01**

**NAME: Butler Drive Improvements**

**TO:** City of El Mirage

Gentlemen:

This is to certify that all lawful claims for materials, rental of equipment, and labor used in connection with the construction of the above, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the consideration of \$\_\_\_\_\_, as set forth in the final pay estimate, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of this project. The undersigned further agrees to indemnify and hold harmless \_\_\_\_\_ against any and all liens, claims of liens, suits, actions, damages, charges and expenses whatsoever, which \_\_\_\_\_ may suffer arising out of the failure of the undersigned to pay for all labor performance and materials furnished for the performance of said project.

Signed at \_\_\_\_\_, this \_\_\_\_ day of \_\_\_\_\_, 2018.

\_\_\_\_\_  
(CONTRACTOR)

BY: \_\_\_\_\_

STATE OF ARIZONA     )  
                                      )§  
COUNTY OF MARICOPA )

The foregoing instrument was subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2018.

\_\_\_\_\_  
Notary Public  
My Commission Expires: \_\_\_\_\_

## **BID SCHEDULE**

### **City of El Mirage**

#### **Butler Drive Improvements (Project No. EM17-ST01)**

Pursuant to request for bids to be opened on July 18, 2018 at 1:00 p.m., Arizona Time, at the City of El Mirage City Hall, 10000 N. El Mirage Road, El Mirage, AZ, for the above project, the Contractor proposes to complete work, including furnishing all labor and materials, per the Specifications and Plans at the following prices.

This Schedule of Items and Prices shall be completed in ink or typed by the Bidding Contractor. In case of discrepancy between the unit cost and extended amount, the unit cost shall control and a new extended amount shall be determined. Corrections to the unit price or extended amount made prior to submitting the bid are acceptable provided the amount to be replaced is struck through and the replacement value clearly written and initialed; except that Allowance Items shall not be adjusted.

Prices must be entered for each item and the appropriate subtotal and total blank shall be filled out.


Bidder agrees to perform all of the necessary work to complete the **Butler Drive Improvements (Project No. EM17-ST01)**.

Bid Schedule of unit price(s) for items of work are included on the following pages. The unit prices shall include the cost of insurance, bonds, permits, taxes, and other necessary fees to perform this work.

Please review all provided information, fill in the Bid Schedules and sign the final sheet.

	<b>BASE BID SCHEDULE</b>	<b>DCS - Engineering Department</b> 10000 N. El Mirage Road El Mirage, AZ 85335 Phone: (623) 876-2974 Fax: (623) 876-4605	Due: July 18, 2018
	<b>BUTLER DRIVE IMPROVEMENTS</b> Solicitation Number: EM17-ST01		1:00 PM, Arizona Time

ITEM No.		ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST IN WRITING	UNIT COST IN FIGURES	TOTAL
1	105.01	CONSTRUCTION STAKES, LINES AND GRADES	LUMP SUM	1			
2	109.01	MOBILIZATION / DEMOBILIZATION	LUMP SUM	1			
3	301.01	SUBGRADE PREPARATION	SQ. YD.	10,219			
4	321.01	ASPHALT CONCRETE PAVEMENT (CITY OF PHOENIX C-3/4")	TON	4,398			
5	340.01	CONCRETE RIBBON CURB, MAG STD DTL 220-1, TYPE B (1' WIDE)	L.FT.	64			
6	340.02	CONCRETE SINGLE CURB TERMINATION, MAG STD DTL 222	EACH	3			
7	340.03	CONCRETE DRIVEWAY/PAD (9" THICK)	SF	623			
8	340.04	CONCRETE CUT-OFF WALL PER MAG STD DTL 552 (2')	LF	58			
9	345.01	ADJUST WATER VALVE BOX AND COVER, MAG STD DTL 391-1, TYPE 'A'	EACH	16			
10	350.01	SAWCUT AND REMOVE EXISTING ASPHALT CONCRETE PAVEMENT	SQ. YD.	6,192			
11	350.02	SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK / DRIVEWAY / CORNER RAMP	SQ. FT.	881			
12	350.03	SAWCUT AND REMOVE EXISTING CONCRETE SINGLE CURB	L.FT.	37			
13	350.04	SAWCUT AND REMOVE EXISTING CONCRETE RIBBON CURB	L.FT.	44			
14	350.05	REMOVE EXISTING WATER SERVICE	EACH	12			
15	350.06	REMOVE EXISTING WATER METER LID	EACH	7			
16	350.07	REMOVE EXISTING WATER METER BOX AND LID, BACKFILL AND COMPACT	EACH	6			
17	350.08	REMOVE EXISTING SIGN, POST, AND FOUNDATION	EACH	1			
18	401.01	TRAFFIC CONTROL	LUMP SUM	1			
19	401.02	UNIFORMED OFF-DUTY OFFICER (CONTINGENCY ITEM)	HOURL	80			
20	401.03	TRAFFIC BARRICADE PER MAG STD DTL 130, TYPE "B"	EACH	3			

		<b>BASE BID SCHEDULE</b>		<b>DCS - Engineering Department</b> 10000 N. El Mirage Road El Mirage, AZ 85335 Phone: (623) 876-2974 Fax: (623) 876-4605		Due: July 18, 2018	
		<b>BUTLER DRIVE IMPROVEMENTS</b> Solicitation Number: EM17-ST01				1:00 PM, Arizona Time	
<b>ITEM No.</b>		<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>UNIT COST IN WRITING</b>	<b>UNIT COST IN FIGURES</b>	<b>TOTAL</b>
21	405.01	RESET TYPE B SURVEY MARKER PER MAG STD DTL 120, TYPE B	EACH	1			
22	431.01	LANDSCAPE AND IRRIGATION RESTORATION	LUMP SUM	1			
23	463.01	RAISED PAVEMENT MARKER FOR FIRE HYDRANT, BLUE, PER MAG STD DTL 122	EACH	4			
24	471.01	SIGN POST AND ANCHORS, COEM STD DTL 132-1 & 132-2	EACH	3			
25	471.02	SIGN PANELS (NEW SIGNS)	SQ. FT.	23			
26	610.01	1" WATER SERVICE PER COEM STD DTL 325	EACH	2			
27	610.02	1 1/2" WATER SERVICE PER COEM STD DTL 325	EACH	2			
28	610.03	2" WATER SERVICE PER COEM STD DTL 325	EACH	8			
29	610.04	WATER METER BOX PER COEM STD DTL 325	EACH	6			
30	610.05	WATER METER LID PER COEM STD DTL 325	EACH	13			
31	610.06	WATER SERVICE CONNECTION PER COEM STD DTL 325	EACH	12			
32	610.07	PROVIDE NEW WATER CONNECTION FROM NEW METER TO EXISTING SERVICE LINE, COPPER TO MATCH SIZE (CUSTOMER SIDE)	EACH	6			
33	610.08	RELOCATE EXISTING FIRE HYDRANT PER MAG STD DTLS 122 & 362 AND COEM STD DTL 360	EACH	3			
34	610.09	PAINT EXISTING FIRE HYDRANT PER COEM STD DTL 360	EACH	5			
35	COX1	RELOCATE PEDESTAL	LUMP SUM	1			
<b>Contractor's Name:</b>					<b>TOTAL BID</b>		<b>\$</b>

The unit prices for the **Butler Drive Improvements (Project No. EM17-S01)** shall include all labor, materials, permits, water disposal, bailing, shoring, removal, disposal, overhead, profit, insurance, bonds, taxes, and all other related costs and work to cover the finished work and provide a finished product.

RESPECTFULLY SUBMITTED BY:

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

FIRM: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE: \_\_\_\_\_

# CITY OF EL MIRAGE

## ENGINEERING DEPARTMENT



### BUTLER DRIVE IMPROVEMENTS 127<sup>TH</sup> AVENUE TO EL MIRAGE ROAD

CITY PROJECT No.: EM17-ST01

## PROJECT SPECIAL PROVISIONS



Prepared By:  
NFra, Inc.  
77 E. Thomas Road, Suite 200  
Phoenix, Arizona 85012  
602-277-0967



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**LOCATION OF THE WORK:** This project is located within the city limits of the City of El Mirage in Maricopa County, Arizona. The specific local collector road designated for reconstruction is Butler Drive from 127<sup>th</sup> Avenue east for 0.45 miles to El Mirage Road.

**AVAILABLE INFORMATION:** All construction shall comply with the following:

- ▶ City of El Mirage Supplement to Maricopa Association of Governments Uniform Standard Details, with revisions through February 2018
- ▶ Maricopa Association of Government (MAG) 2015 Uniform Standard Specifications for Public Works Construction and Uniform Standard Details for Public Works Construction with revisions through 2018
- ▶ City of El Mirage General Notes and Details
- ▶ City of Peoria Infrastructure Design Guidelines
- ▶ BMP's per the Flood Control District of Maricopa County's "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control"
- ▶ Arizona Department of Transportation 2008 *Standard Specifications for Road and Bridge Construction* for pavement markings and signing
- ▶ City of Phoenix Traffic Barricade Manual for work zone temporary traffic controls
- ▶ City of Phoenix for asphalt mix designs
- ▶ Project plans and these special provisions
- ▶ All other related bidding documents
- ▶ Signed contract

#### **GEOTECHNICAL REPORT:**

A copy of the geotechnical engineering report is provided in Appendix B of the Technical Specifications. The soils report was prepared by Ricker, Atkinson, McBee, Morman & Associates, Inc. on November 16, 2017 as part of this project. It is the Contractor's responsibility to review this document during preparation of their bidding documents to be cognizant of existing soil and proposed trench conditions discovered at those locations. The Contractor shall also make any other arrangements they deem necessary to become familiar with underground soils conditions prior to bidding. After an award of contract by the City of El Mirage, the Contractor shall assume all responsibility for extra work due to the discovery of changed soil conditions.

Due to potential existence of earth fissures, should evidence be encountered at the time of construction or at any time following construction at the site, a licensed engineer or geologist experienced with earth fissures should be contacted without delay, to determine the extent of the fissuring and to provide appropriate recommendations for remediation.

#### **POTHOLE REPORT:**

A copy of the pothole investigation report is provided in Appendix C. The report was prepared by AZTEC Engineering in March of 2018. It is the Contractor's responsibility to

review this document during preparation of their bid documents and be cognizant of some existing underground utility locations.

**CONTRACT TIME:** The Contractor will be expected to complete all construction and clean-up work within sixty (60) calendar days of notice to proceed.

**The following information is provided in the appendices:**

**Appendix A - Materials Acceptance Sampling and Testing Table**

**Appendix B - Geotechnical and Pavement Design Report**

**Appendix C - Pothole Report**

**Appendix D - Service Interruption Notice**

**Standard MAG information is hereby modified in the following manner to become applicable for this project:**

## **PART 100 GENERAL CONDITIONS**

### **SECTION 104 SCOPE OF WORK**

**Section 104.1 Work To Be Done:** is modified to add:

The primary project work consists of:

- a) Sawcut and removal of existing asphalt pavement
- b) Sawcut and removal of existing concrete driveways
- c) Removal of existing aggregate base material and subgrade
- d) Regrade, scarify and compaction of subgrade to a depth of 10-inches
- e) Place new asphaltic concrete pavement (COP C-  $\frac{3}{4}$ " )
- f) Place pavement markers – fire hydrant
- g) Remove concrete ribbon curb
- h) Remove concrete single curb
- i) Adjust utility boxes, rings and covers to grade
- j) Relocate fire hydrants
- k) Remove and replace water services
- l) Restoration of existing landscaping and irrigation system

**Section 104.1.1 General:** is modified to add at the end of the second paragraph:

- Applicable City of Phoenix standard details.
- Applicable ADOT standard specifications.

### **SECTION 105 CONTROL OF WORK**

**Section 105.2 Plans and Shop Drawings:** is modified to add:

The items of work or product data for which the Contractor is responsible for submitting the required drawings shall include, but not be limited to:

- a. Traffic Control Plan (TCP)
- b. Asphalt mix designs
- c. Water material shop drawings
- d. Record drawings

**Section 105.6 Cooperation with Utilities:** is modified to add:

The locations of underground and overhead utilities shown on the plans are based on the best available information obtained from utility companies and supplemented by aerial photography and field measurements. The Contractor shall not assume that this represents an exact location of existing utilities nor identifies all active or abandoned utilities. The design engineer does not guarantee the accuracy of the locations shown on the plans. Any pothole information provided with these specifications is only representative at those specific locations. The Contractor shall call for Blue Stake markings and conduct spot excavations to determine for themselves the exact location and size of all utilities.

The Contractor is responsible for supporting all exposed utilities and maintaining uninterrupted customer service. All crossings within an open trench shall be protected to the satisfaction of its respective utility. Any damage to the existing utilities within the construction area shall be repaired by the Contractor to the satisfaction of each utility at no additional cost to its Owner or City.

The following utilities are expected to be located within the limits of this project:

<u>Type</u>	<u>Owner</u>	<u>Contact</u>
Sanitary Sewer / Water	City of El Mirage	Shane Swartwout 623-876-4251
Electric	Arizona Public Service	Ron Gandara 602-371-7546
Telephone	CenturyLink (Terra Technologies LLC)	Michael Vespucci 602-630-1429 Kevin Wagner 815-245-9640
Gas	Southwest Gas	Tyler Richards 602-484-5347
Cable TV	Cox Communications	Jeffrey Palen 623-328-3554

**ADD Section 105.6.3 Southwest Gas (SWG) Facilities:**

Prior to excavating, contractor shall contact Blue Stake at 602-263-1100 so the existing gas lines can be accurately located and marked in the field. Contractor shall hand dig carefully at these marked locations until the gas pipe has been found and exposed. Once mechanical trench excavation has begun, the Contractor shall not attempt to mechanically trench within two (2) feet of any gas main or service line or other SWG structures such as manhole covers, valves, etc. This trench excavation shall be done by hand to prevent damage to such lines. Care shall be taken to insure the electrical tracer wire, which may be buried with the pipe, is not damaged or severed. In the event that the Contractor "hooks" or otherwise displaces or strains any SWG facility while excavating, the Contractor shall cease all operations and immediately contact SWG emergency officials at 602-271-GASS (4277).

Even though there may not be any apparent damage, the strain may have damaged the wrap or a portion of the buried pipe or fittings at other locations causing a leak in the surrounding area. Also, if a steel facility is exposed and the pipe coating is found to be in need of repair, please contact SWG at 602-271-4277 so a crew can be dispatched to rewrap the pipe. This is a service provided by SWG at no cost to the Contractor or City so SWG can monitor their steel facilities and minimize the possibility of corrosion.

Protection and support (both temporary and permanent) of existing SWG facilities shall be performed in accordance with MAG Section 601.3, Protection of Existing Utilities, except as modified herein.

- (A) All trench excavations exceeding three (3) feet in width require gas lines be supported in such a manner that damage does not occur to the existing pipes or its protective wrapping. The Contractor shall submit drawings to SWG (call 602-484-5342) for approval of all support methods used on this project.
- (B) Face-to-face clearance at points of crossing shall be no less than 12".

Backfill and compaction around exposed SWG lines shall be performed in accordance with MAG Section 601.4, Foundation, Bedding, Haunching, Backfilling and Compaction, except as modified herein.

- (A) Sand backfill material free of rocks and able to pass 100% through a 3/8-inch sieve shall be placed around each exposed gas line – six (6) inches as bedding below the pipe and six (6) inches as shading above the pipe. Avoid dropping backfill directly onto the exposed gas pipe when backfilling.
- (B) Extra care shall be taken when compacting backfill directly over a gas lines to avoid any damage to the line.

**ADD Section 105.6.4 CenturyLink Facilities:**

Blue Stake locations of CenturyLink facilities must be completed prior to the start of any construction. When crossing CenturyLink facilities, Contractor will be required to pothole to determine the actual depth. Potholing existing utilities is considered incidental and included in the cost of other bid items. New facilities must maintain a minimum of 12" vertical and horizontal clear separation from CenturyLink facilities. Support and protection is required for all CenturyLink facilities during construction to avoid damage.

One existing communications pedestal at Butler Drive Sta 55+26, 19' left, needs to be relocated outside of the proposed roadway improvements. Contractor will be required to schedule and coordinate the CenturyLink work as part of their construction sequencing.

Contractor shall notify Terra Technologies LLC and CenturyLink of Preconstruction Meeting date so a representative can be in attendance.



As previously mentioned, In accordance with state law, Blue Staking for location of CenturyLink facilities must be completed prior to any construction. When crossing CenturyLink facilities you will be required to pothole to determine depth and maintain a minimum of 12 inch vertical and horizontal separation from facilities. Potholing existing utilities is considered incidental and included in the cost of other bid items.

Pursuant to state law, support and protection is required for all CenturyLink facilities during construction. Should the Contractor locate or expose an unknown CenturyLink facility, please contact CenturyLink as soon as possible.

Acquisition of required public Rights-of-Way, and removal of encumbrances from those Rights-of-Way, is the responsibility of the municipality or their agent prior to CenturyLink excavation in, or relocation to, the newly acquired Rights-of-Way. In the event CenturyLink facilities need to be removed or relocated, some or all cost may be at the expense of the sponsoring agency.

**ADD Section 105.6.5 Arizona Public Service (APS) Facilities:**

Existing overhead and underground facilities exist within the project limits. It is the Contractor's responsibility to maintain minimum OSHA clearances from APS overhead and underground facilities. No equipment, spoil piles, or material stock piles shall be placed or stored beneath overhead lines. Contractor shall maintain a minimum horizontal clearance from existing poles, pole grounds, and down guys of approximately one foot horizontal for every one foot of vertical trenching (i.e. 4 foot horizontal clearance for a 4 foot deep trench) or as requested by APS. If this minimum distance cannot be maintained then pole bracing will be required and provided by APS. Blue Stake and potholing is required to verify that no conflict is present. Potholing existing utilities is considered incidental and included in the cost of other bid items. All cost associated with power outages are the Contractor's responsibility.

One existing power pole needs to be removed or relocated outside of the proposed roadway improvements. Contractor will be required to schedule and coordinate the APS work as part of their construction sequencing if pole has not been removed or relocated prior to construction.

APS will remove or relocate existing power pole and conductors and will install the new power pole, conductors, and terminations.

**ADD Section 105.6.6 Cox Communication Facilities:**

Blue Stake locations of Cox facilities must be completed prior to the start of any construction. When crossing Cox Communications facilities the contractor shall pothole to determine depth and maintain a minimum of 12 inches of vertical and horizontal separation from the proposed facility. Potholing existing utilities is considered incidental and included in the cost of other bid items. Support and protect all Cox Communications facilities during construction. Cox Communications does not maintain installation records

of customer drops that may conflict with this project. Notify Cox Communications Engineering Department of all utility coordination meetings, pre-construction meetings and construction schedules including the anticipated construction start date.

**Section 105.8 Construction Stakes, Lines and Grades:** is deleted in its entirety and replaced with the following:

**Resetting Monuments:**

The Contractor shall be responsible for maintaining existing monumentation, including section line, right-of-way, and roadway monuments. All monuments disturbed during construction shall be re-established by the Contractor, and recorded at the appropriate county recorder's office, at no additional cost to the City. Prior to removal of any monument, it shall be tied to a minimum of three existing features that will not be disturbed by construction and logged in a field book with copies to the City.

Section corner, quarter corner, and property corner monuments shall be re-established following procedures in the Manual of Surveying Instructions 1973, published by the U.S. Department of the Interior, Bureau of Land Management, and all applicable statutes and requirements specified in the current Arizona State Board of Technical Registration's "Arizona Boundary Survey Minimum Standards".

Section Line, right-of-way, and roadway monuments that are re-established by the Contractor shall bear the registration number of the Land Surveyor who is in responsible charge of the location. Roadway monumentation shall be stamped in accordance with the requirements of the appropriate municipal jurisdiction.

Monuments that are re-established shall be recorded at the appropriate county recorder's office and a copy of the Corner Recordation documentation shall be submitted to the City within five workings days of recordation.

**Add Section 105.8.1 Description:** Contractor shall furnish sufficient construction stakes, lines and grades to accomplish the work as indicated on the plans. All alterations from the plans must be approved by the Engineer prior to the work being done and subsequently documented on Record Drawing plans.

**Add Section 105.8.2 Construction Staking:** Staking to be placed shall include but not be limited to:

- a. Verifying existing horizontal/vertical controls and establishing secondary points for construction use.
- b. Establishing site benchmarks.
- c. Marking sawcuts for driveway and pavement removal.
- d. Proposed improvements.

The Contractor shall carefully preserve all construction stakes, reference points and other survey points, and in the case of their loss or destruction, shall replace them at the direction of the Engineer. Wooden lath or stakes used during construction shall be removed as part the project's final clean-up.

**Add Section 105.8.3 Measurement and Payment:** Measurement for construction stakes, lines and grades will be made on a Lump Sum basis. This lump sum measurement shall include all materials, tools, equipment and labor necessary to facilitate adequate construction staking to satisfactorily complete the work in accordance with the plans and specifications. Payment shall be made at the unit price designated in the Contractor's Bid Schedule for **Construction Stakes, Lines and Grades**.

**Section 105.12 Maintenance During Construction:** is modified to add:

The contractor shall maintain commercial delivery truck, postal delivery, local and emergency access to all residences and businesses within the project area, throughout the duration of the project.

No separate measurement or payment will be made for work under this description. The cost thereof shall be included in the unit price bid for the construction or installation of items to which maintenance is appurtenant.

**Add Section 105.16 Record Drawings**

Contractor shall provide Record Drawings that shall clearly show all differences between the contract work as shown in the plans and as installed for all work, as well as work added to the contract that is not shown on the Contract Drawings.

The Contractor shall maintain one set of Record Drawings at the job site. These shall be kept legible and shall be available for inspection at all times by the City. All changes in the contract work, or work added, on these Record Drawings shall be shown in a contrasting color (e.g., red), including work changed by Addendum or Approved Change Order.

The City shall review the Record Drawings and shall be the sole judge of the acceptability of these drawings. Updated Record Drawings showing all as-built construction shall accompany each progress payment submittal.

Upon completion of the project, the Contractor shall submit final Record Drawings to the City for final review. Upon receiving approval by the City of the Record Drawings, the Contractor shall deliver them together with one set of prints to the City's project manager. Final acceptance of the project will not be given until all such information is submitted.

No separate measurement or payment will be made for work under this description. The cost thereof shall be included in the unit price bid for the construction or installation of items to which record drawings are appurtenant.

## SECTION 106 CONTROL OF MATERIALS

**Section 106.2 Samples and Tests of Materials:** is modified to delete the first sentence of the second paragraph.

**Section 106.2 Samples and Tests of Materials:** is modified to add:

Contractor is required to perform materials sampling and testing for acceptance. Sampling and testing shall be performed by qualified laboratories with qualified sampling and testing personnel and shall be approved by the Engineer. The Contractor shall notify the Engineer no less than two (2) working days and no more than four (4) working days prior to commencing the construction for which testing is required.

All materials shall be randomly sampled at prescribed frequencies in MAG Standard Specifications and **Appendix A, Materials Acceptance Sampling and Testing Table**.

The Engineer may direct acceptance sampling and testing less than the required minimum in particular cases. Conversely, the Engineer may direct acceptance testing greater than the required minimum be performed when results are questionable or they fail. Sampling and testing for materials acceptance will not be measured for payment, the cost being considered incidental to the cost of each related item.

## SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

### Section 107.2 Permits:

#### **ADD Section 107.2.1 Arizona Pollutant Discharge Elimination System (AZPDES):**

This project is subject to AZPDES requirements under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) program as administered by the Arizona Department of Environmental Quality (ADEQ). Under the provisions of a permit, the Contractor shall be designated as co-permittee (with the City of El Mirage), and shall be responsible for providing necessary materials; taking appropriate measures to ensure removal of additional sediment generated in storm water runoff from the project (relative to pre-project sediment levels); and completing the following documents:

- Storm Water Pollution Prevention Plan (SWPPP) for the project, including a certification-of-compliance form
- Notice of Intent (NOI) to be covered under AZPDES, including certification of signature
- Notice of Termination (NOT) of coverage under AZPDES (upon project completion)

All Subcontractors must comply with AZPDES requirements under the supervision of the Contractor, and shall submit a completed, signed subcontractor certification form, thereby designating themselves as co-permittees. The SWPPP shall be subject to approval by the

City prior to implementation. The SWPPP shall be kept at the project site at all times, and the final SWPPP shall be retained by the Contractor for three (3) years following project completion and final acceptance.

The Contractor shall submit a completed, signed NOI form (including signed subcontractor certification forms) to the City's Engineering Department, no later than the Pre-Construction meeting. The City will attach these forms to its own completed NOI form, and submit the package to ADEQ at least 48 hours prior to the proposed Notice to Proceed date. The City will send copies of the final submittal for distribution to the Contractor, the Engineering Department, and the Arizona Department of Environmental Quality (ADEQ) Storm Water Coordinator.

Failure by the Contractor (or any applicable subcontractors) to submit the NOI form and certification in time for the Pre-Construction meeting, or to promptly make revisions to those forms as requested by the City, which leads to delays in attaining ADEQ requirements, will result in postponing the start of construction. The Contractor will not be entitled to any additional compensation for costs or extension in contract time resulting from such delay.

The NOI shall be posted at the construction site along with the SWPPP. No construction activities shall begin until all applicable storm water pollution control devices are in place. Any additional work caused by the Contractor's (or subcontractor's) failure to properly implement the SWPPP will not be compensated. In addition, the Contractor shall keep a copy of the STORM WATER BASELINE CONSTRUCTION GENERAL PERMIT COVERAGE NOTICE received from ADEQ (after submittal of the NOI) at the job site at all times.

All SWPPP reports required under this contract shall be available to the public in accordance with requirements of the Clean Water Act—Section 308(b). The Contractor shall make plans available to the public after a request from either EPA or ADEQ.

No conditions of the AZPDES or the SWPPP shall release the Contractor from any responsibilities or requirements under other environmental statutes or regulations. Asphalt plant and concrete plants (including mobile plants) require separate AZPDES industrial permits.

Upon completion and acceptance of the work performed by a co-permittee, either the Contractor or other subcontractors shall absolve such subcontractor of any involvement in, or responsibility for, subsequent AZPDES violations on the project. Upon total project completion, acceptance, and de-mobilization, the Contractor shall submit a completed, signed NOT form to the City. The City will attach its NOT form, and submit the final package to EPA, ADEQ, and other City departments, thereby terminating all AZPDES permit coverage for the project. Necessary forms for the NOI, NOT and the draft SWPPP are available through the City.

As a minimum, the Contractor shall inspect all storm water pollution control devices on the project on a monthly basis and following each rainfall of 0.50" or more (as measured at the nearest Flood Control District of Maricopa County rain gauge, or approved on-site rain gauge). The Contractor is also encouraged to inspect devices following rainfalls of less than 0.50", as it is the Contractor's responsibility to ensure the proper operation of each device. The Contractor shall maintain a record of each inspection. No other separate measurements or payments will be made relative to SWPPP items.

#### **Section 107.2.1.1 Best Management Practices:**

Implementation of "Best Management Practices" (BMP's) to reduce storm water pollution shall be undertaken by the Contractor on a multi-tiered, most cost-effective approach. The Contractor shall utilize the lowest-cost acceptable BMP available to address each type of potential storm water pollution situation encountered on the project. Should this prove ineffective in resolving a storm water pollution problem, additional, higher-cost BMPs may need to be practiced, upon approval by the City. Multi-tiered BMP approaches to construction operations might include:

##### **(A) ROADWAY SUBGRADE EXCAVATION:**

1. Tier I - The excavated area may create a temporary area that retains storm water runoff. This may provide adequate control of runoff preventing sediment from leaving the site. Draining the excavation area by pumping or other methods shall utilize filter fabric or other filtering methods 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 shall be exercised to ensure that Tier II BMPs do not result in flooding adjacent properties.

##### **(B) OPEN PIPELINE TRENCHES**

1. Tier I - An open trench itself may act as a temporary retention area. The Contractor shall provide a low-cost, readily-installed/removable temporary device on the open end of the pipe to prevent sediment-laden storm water 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 storm water to enter the pipe. Care must be taken to prevent damming of runoff waters 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 storm water 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 preferred alternates, due to ease of installation and removal. Care must be taken to ensure that runoff is not blocked causing adjacent properties to flood.

**(C) BACKFILLED PIPELINE TRENCHES:**

1. Tier I - As with roadway subgrading, pipeline trenches which have been backfilled but not yet paved may be several inches lower than adjacent paved areas, and may 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 edges 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. Care must be taken to ensure that extra storm water runoff is not diverted onto adjacent properties.

An acceptable storm water control method will limit the amount of area disrupted and therefore reduce sediment-laden storm water runoff at any one time. Should such project phasing prove necessary due to the failure of other BMP's, the Contractor shall revise his construction activities accordingly, at no additional cost to the City.

Standards for installing and operating the above BMP's are provided in the Flood Control District of Maricopa County "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control".

**Section 107.2.1.2 Measurement and Payment:**

No separate measurement or payment will be made for AZPDES. The cost thereof shall be included in the unit prices bid for the construction of items to which said permit is incidental.

**Section 107.7 Barricades and Warning Signs**

Replace the words "...the Traffic Barricade Manual prepared or adopted by the Contracting Agency's Traffic Engineering Department..." in the last sentence of the second paragraph with "the latest editions of the City of Phoenix Traffic Barricade Manual and MUTCD".

**ADD Section 107.15 Community Relations Support:**

**Section 107.15.1 Description:**

The Contractor shall provide a community relations program for this project. This will include, but not be limited to:

- a. Providing telephone "Hot Line" 24-hour service.



- b. Documenting existing property conditions prior to starting Construction.
- c. Project signs.

The Contractor shall use these or other means to inform the local citizens, businesses, and officials of the City of El Mirage of necessary operations which create high noise levels, street closures, detour locations, haul route and material delivery routes, hours of construction, disruption of bus routes, mail routers and other deliver/pick-up routes and emergency vehicle access.

Disruption to utility services shall be avoided or adequately scheduled with advanced notification. Anticipated utility disruption shall be kept to a minimum and proper 2-day advanced notification provided. Safety is the principal concern at all times.

#### **Section 107.15.2 Existing Site Conditions:**

After the pre-construction meeting, City staff, the Engineer and representatives of the Contractor shall walk the project with plans-in-hand. Items or concerns from all parties shall be recorded in writing by the Engineer.

Prior to the Notice to Proceed date, the Contractor shall document existing property conditions. Acceptable forms of documentation shall be a video-recorded tape, supplemented with digital photographs transferred to DVD. The videotape shall not be made from a moving vehicle. One (1) copy of the documentation package shall be given to the City prior to the start of construction.

#### **Section 107.15.3 Public Notification:**

Prior to mobilization onto the project, the Contractor shall notify, by postal letter, the City Manager and all businesses, property owners, and residents within the limits of the project. This letter shall have the following information:

- a. Contractor's company name and phone number (daytime and evening)
- b. Name of Contractor's Project Manager
- c. Name of Contractor's Project Superintendent
- d. Brief description of the project
- e. Construction schedule, including anticipated work hours
- f. Lane or traffic restrictions or street closures (if City approved)
- g. Name of the Design Engineer and Construction Manager
- h. Name of the City's designated Engineer with phone number (daytime)

The Contractor shall coordinate with the Project Engineer and the City of El Mirage a distribution list for this letter and shall provide a copy of the letter sent, including the distribution list, to the Engineer and the City of El Mirage.

#### **Section 107.15.3.2 24-Hour Construction Hotline:**

The Contractor shall be required to order a private telephone line to receive incoming calls from local citizens with questions or complaints concerning construction operations or

procedures. The Contractor shall publish this telephone number and maintain a 24-hour answering service. The answering service shall be manned by Contractor personnel during hours that there is any work being performed on the project. The Contractor shall maintain a log of incoming calls by date and time, complaint, person lodging such complaint, initial response and subsequent actions taken, which will be submitted to the Engineer weekly or on request.

### **Section 107.15.3.3 Signage:**

The Contractor shall furnish one 4' by 5' project sign for the project. The Contractor will be required to install the sign at the location specified by the City. The Contractor shall be responsible for maintaining the sign as necessary and updating the information as directed by the Engineer. The Contractor shall remove and salvage the sign to the City yard after the project is completed.

The 4' by 5' sign shall be mounted four feet above the ground level and anchored three feet into the ground with concrete backfill around the posts. The cost for the sign, installation, maintenance, and all labor and materials shall be a non-pay item and shall be considered incidental to other items.



### **Add Section 107.15.4 Measurement and Payment:**

No separate measurement or payment will be made for Community Relations Support. The cost thereof shall be included in the unit prices bid for other contract items.

## **SECTION 108 COMMENCEMENT, PROSECUTION AND PROGRESS:**

### **Section 108.4 Contractor's Construction Schedule:** is modified to add:

The Contractor is responsible for confining work and obtaining site access within right-of-way.

Prior to commencement of the work, the Contractor shall prepare and submit to the City, a written phasing plan and work schedule for the project. Schedules shall be prepared in the form of a horizontal bar chart (Microsoft Project or approved equal). This plan and work schedule shall be submitted at the Preconstruction Conference for review. This plan and work schedule shall be updated and submitted to the Engineer every two (2) weeks until all work is complete.

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

No work shall be done between 3:00 PM Friday to 6:00 a.m. Monday morning or all day on legal holidays without written permission of the City. Emergency work may be done without prior permission. Additional scheduling constraints are identified in Section 401.5 of these specifications.

Temporary night work by the Contractor may be established with written permission of the Engineer. Such permission may be revoked at any time.

**Section 108.4.1 Weekly Progress Meetings:** The Contractor shall schedule and administer weekly progress meetings, construction foreman meetings, and specially called meetings throughout the duration of work. The Contractor shall:

Prepare agenda for meetings.

1. Distribute written notice of specially called meetings a minimum of 5 working day(s) in advance of meeting date.
2. Make logistical arrangements for meetings.
3. Preside at meetings.
4. Record minutes; include significant proceedings and decisions.
5. Prepare formal minutes and distribute copies within 3 working days after each meeting to meeting participants, City of El Mirage, Engineer and parties affected by decisions made at such meetings.

Representatives of the City, Contractor, Subcontractors, and Suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

### **Section 108.5 Limitation of Operations:** add

Construction work hours within the City of El Mirage shall comply with the following:

Construction Type	May 1 - September 30	October 1 - April 30
All Construction Work - Monday through Saturday	6:00 a.m. to 7:00 p.m.	7:00 a.m. to 7:00 p.m.
All Construction Work - Sundays	8:00 a.m. to 7:00 p.m.	8:00 a.m. to 7:00 p.m.

Replace the words ...or adopted by the Contracting Agency's... in the second paragraph with "by the City of Phoenix".

## **SECTION 109 MEASUREMENTS AND PAYMENTS**

**Section 109.2 Scope of Payment:** is modified to add:

No separate payments shall be made for any of the following items or any other work considered incidental thereto.

Section 104.1.3 Cleanup and Dust Control

Section 104.1.4 Final Cleanup

Section 105.2 Plans and Shop Drawings

Section 105.6 Cooperation with Utilities

Section 105.11 Removal of Unacceptable and Unauthorized Work

Section 105.12 Maintenance during Construction

Section 106.2 Samples and Tests of Materials

Section 106.5 Storage of Materials

Section 107.2 Permits

Section 107.5 Safety, Health and Sanitation Provisions

Section 107.6.1 Contractor's Marshaling Yard

Section 107.15 Community Relations Support

Section 108.8 Guarantee and Warrantee Provisions

Section 205 Roadway Excavation (Incidental to Subgrade Preparation)

Section 225 Watering

Section 230 Dust Palliative Application

Section 321.4 Application of Tack Coat

Section 321.5.5 Preservative Seal

Section 329 Tack Coat, Fog Coat, and Blotter Material

Saw Cutting

Temporary Plating

Preparation of Record Drawings

The cost of this work shall be included in other items of work for which payment is provided.

Measurement and payment for all pay items in the proposal shall be as indicated in the applicable MAG Standard Specification, unless otherwise specified herein or listed on the Bid Schedule.

**Section 109.10 Payment for Mobilization/Demobilization:** the first two paragraphs are revised to read:

Mobilization/Demobilization will be measured for payment by the Lump Sum as a single complete unit of work. Payment for mobilization/demobilization will be made at the contract lump sum price and shall be compensation in full for all related items and all incidental work not specifically covered in other pay items.

The City shall compensate the Contractor for a one time, round trip mobilization/demobilization of the contractor's personnel, equipment, supplies and incidentals, establishment of offices, buildings and other facilities, required for the performance of the work on the project, as well as preparatory work and operations prior to the commencement of the work on the project site. Payment shall be made in two equal portions. The first payment shall be paid with the CONTRACTOR'S initial billing and shall be made for  $\frac{1}{2}$  of the total line item price. The final payment shall be paid as part of the final payment due the CONTRACTOR once the project has been accepted as complete by the City.

# PART 200 EARTHWORK

## SECTION 230 DUST PALLIATIVE APPLICATION

**Section 230.11 Measurement:** is deleted and replaced by the following:

No measurement will be made for dust palliative application. Such materials, equipment and labor considered incidental to trenching or subgrade preparation.

**Section 230.12 Payment:** is deleted and replaced by the following:

No separate compensation will be made for dust palliative materials or application.

# PART 300 STREETS AND RELATED WORK

## SECTION 329 TACK COAT

**Section 329.6 Measurement:** is revised to read:  
Bituminous emulsion will not be measured for payment:

**Section 329.7 Payment:** is revised to read:  
Payment for emulsified bituminous tack coat is considered incidental to Asphalt Concrete Pavement.

## SECTION 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT

**Section 336.2.2 Pavement to be Removed:** delete the word “tunnel” in second and third paragraphs. NO tunneling will be allowed.

### **ADD Section 336.2.5 Trench Plating:**

Temporary plating may be used when traffic is required over the trench and pipe installations cannot be completed or open trenches backfilled by the end of a work day. Trench plating shall comply with City of El Mirage Standard Detail 149.

**Section 336.5 Payment:** is modified to add:  
Payment for temporary plating shall be included in the cost of the pipe or work items requiring plating.

## SECTION 345 ADJUSTING FRAMES, COVERS, VALVE BOXES AND WATER METER BOXES

**Section 345.3 Adjusting Frames:** third paragraph is revised to read:  
Adjustment of manhole frames, covers, clean outs, valve boxes to finished grade shall be done AFTER placement of the final asphalt surface course.

**Section 345.3 Adjusting Frames:** fourth paragraph is revised to read:  
After removal of final asphalt surface course in the area of adjustment, and prior to placement of the concrete collar ring around the frame or valve box (shown on MAG Detail 391-1 (A) and 422), the asphalt pavement in proximity of the adjustment shall be rolled with a self propelled, steel wheel roller spanning the entire opening.

### **ADD Section 345.3.1 Adjusting Non-City Utilities:**

The utility companies may utilize the Contractor to adjust frames, covers and valve boxes for this project. The Contractor shall coordinate with the Engineer and the various



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

## **SECTION 350 REMOVAL OF EXISTING IMPROVEMENTS**

**ADD Section 350.3.1 Driveways:** add the following paragraphs:

Removal of concrete driveway shall be to the nearest expansion or tooled joints where possible. Selected tooled joints shall then be saw cut. If adjacent driveway has previously been cracked or damaged by no fault of the Contractor, and with direction of the Engineer, additional sections may be removed and replaced at unit prices established in the Bid Schedule. Sawcutting is considered incidental to concrete and pavement removal and will not be measured for payment.

Contractor will be required to remain within the City's right-of-way for the construction of all new improvements.

**ADD Section 350.3.2 Removal of Existing Features:**

Items and materials of salvage value, as determined by the Engineer, unless incorporated into the new work, shall remain the property of the City and shall be stored in adjacent areas as directed by the Engineer. Such items and materials shall be carefully removed and in such a manner as to permit reuse.

Under this project, the following items are considered salvageable:

1. Project Sign

Items listed as salvageable shall be delivered to the City's yard at 10355 N. 121<sup>st</sup> Avenue in the City of El Mirage. Contact Wayne Smith at 480-208-8026.

Removal of existing water services shall include closing the existing corp stop and removal of the existing service line up to the existing corp stop. Existing service line shall be completely removed from trench and disconnected from water meter prior to placement of new service line. New service line may be installed in the same trench as the existing service line and shall be connected to the existing corp stop. All voids shall be filled and compacted per MAG standard specifications.

## **ADD SECTION 351: RELOCATION AND ADJUSTMENT OF EXISTING IMPROVEMENTS:**

### **Add Section 351.1 Description:**

The work shall consist of the movement of existing improvements and specialty items to accommodate project construction. Relocation is the horizontal change in location of an existing item to an improved location, as shown or described on the project plans. Adjustment is a change in the vertical position of an existing improvement or item, typically required to accommodate a change in grade at the location of the existing improvement. The term mailbox shall be used to describe the mailbox, supporting post and any footing. The term sign shall be used to describe the sign, supporting post, new post and foundations. The term water meter shall be used to describe the water meter, box, lid and necessary piping materials.

### **Add Section 351.2 Materials:**

All relocations and adjustments requiring reseating, replacement, or the use of additional materials shall be accomplished using materials of the same or better quality than found in the existing improvements, as approved by the Engineer.

For water service replacement, the Contractor shall supply the necessary piping and fittings to connect the new water service from the existing water main to the existing meter. If existing material is damaged as a result of reconnecting new service to the existing meter, materials shall be replaced at Contractors expense. Materials shall be of the same or better quality than found in the existing services.

### **Add Section 351.3 Construction:**

The work shall include the removal of the existing water service lines, meter boxes, meter box lids, filling and compacting all holes left by such removals, and excavating for connection to existing water mains, new or existing meter boxes, and existing water services on the owner side of the meter. The City will be responsible for removing and reinstalling the existing water meters. The Contractor shall coordinate with the City to schedule removal and relocation of the existing water meters.

Improvements shall be moved in such a manner that the moved elements and all remaining unmoved portions of previously attached improvements are not damaged. All portions of moved and remaining unmoved improvements that are damaged during the relocation and adjustment of the improvements shall be repaired, or shall be replaced in kind by the Contractor, as approved by the Engineer, at the Contractor's expense.

All relocated and adjusted improvements shall exhibit the same quality and integrity, function, and appearance as the improvements did prior to relocation and adjustment. New, connecting improvements between the relocated and adjusted improvements and the unmoved portion of the improvement shall be of the same type, quality, and strength as the existing improvement prior to relocation and adjustment.

# **Part 400 RIGHT-OF-WAY AND TRAFFIC CONTROL**

## **SECTION 401 TRAFFIC CONTROL**

is deleted in its entirety and replaced with the following:

### **Section 401.1 Description:**

Traffic control shall consist of traffic control devices and flagmen or pilot cars. Barricades must be continually maintained throughout the duration of the project.

All traffic control devices on this project shall be provided, maintained and controlled as specified in the City of Phoenix Traffic Barricade Manual Ninth Edition and MUTCD. The Contractor shall submit a traffic control plan per the Phoenix Traffic Barricade Manual.

References to City of Phoenix shall be deleted. References to Street Transportation Department shall mean City of El Mirage Public Works Department.

Permission to restrict or close City streets, sidewalks and alleys (street closure permits) shall be requested as specified in Chapter 3 of the Phoenix Traffic Barricade Manual.

Unless otherwise provided for in these specifications, Section 401.5.1, Special Traffic Regulations, all traffic on this project shall be regulated as specified in Chapter 4 of the Phoenix Traffic Barricade Manual.

No deviation from these regulations will be allowed or implemented unless submitted to the Engineer for review and approval two (2) weeks prior to proposed work.

City Engineer must approve all requests to use officers prior to officers being scheduled.

### **Section 401.2 Traffic Control Devices:**

The Contractor shall provide and maintain all necessary traffic controls to protect and guide traffic for all work in the construction area.

Traffic control devices shall consist of providing, erecting, and maintaining necessary and adequate devices for the protection of the work, the workers and the traveling public.

- (A) Temporary traffic control devices shall be used to guide traffic through construction areas. They include, but are not limited to, traffic cones to channelize traffic, portable barricades for warning, vertical panel channelizing devices to divert traffic, and lighting devices between the hours of sunset and sunrise.
- (B) Advance warning devices shall be used to alert the motorist of an obstruction in the roadway. They include diamond-shaped signs, flags, and flasher-type high level warning devices mounted 8 feet above the roadway.

- (C) The Contractor shall notify, in all cases, the Engineer at the same time as other required notices in this section are made. Notification shall be through the Engineer when so required.

**Section 401.3 Flaggers and Pilot Cars:**

Flagging of traffic or pilot cars shall consist of providing sufficient flaggers (with proper signing), uniformed off-duty law enforcement officers or pilot cars to expedite the safe passage of traffic. Off-duty law enforcement officers shall be used when flagging two or more traffic lanes in each direction.

**Section 401.4 Traffic Control Measures:**

The application of all traffic control measures shall be based primarily upon the conditions existing at the time that such measures are deemed necessary. Prior to the start of any work that would interrupt the normal flow of traffic, sufficient and adequate devices and measures shall be provided and erected as required for compliance with the stipulations. The Engineer reserves the right to require additional traffic control measures in any specific instance. These devices shall be immediately removed when no longer needed.

**Section 401.5 General Traffic Regulations:**

Requests for partial street closure permits shall be directed to the City Engineer. No complete closures will be allowed for this road. An advance notice of 48 hours is required from the Contractor. A traffic lane shall be a minimum of 12 feet of clear width with a safe motor vehicle operating speed of at least 25 miles per hour. An intersection shall be all of the area within the right-of-way of intersecting streets plus 300 feet beyond the edge of the intersected right-of-way on all legs of the intersection.

The following are minimum traffic control requirements for all traffic restrictions, unless otherwise provided for in these specifications Section 401.5.1 Special Traffic Regulations, approved by the Engineer, or during emergency conditions:

- (A) 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, TRAFFIC RESTRICTIONS ARE NOT PERMITTED.
- (B) A traffic lane shall not be considered as satisfactorily open to traffic unless it is paved with hot mix or cold mix asphalt.
- (C) Local access should be maintained to all properties on all streets. When local access cannot be maintained, the Contractor shall notify the affected property owner, resident, or tenant, in writing, a minimum of 48 hours in advance and restore access as soon as possible. Unless specifically authorized by the Engineer, access to businesses will not be closed during business hours.

(D) All Contractors doing work in the right-of-way shall promptly remove traffic control devices when the closure or lane restrictions are no longer in effect. When no construction work is being done, a temporary construction control sign shall be turned so that it is not readable by drivers. Signs may be temporarily stored at the existing right-of-way line for short periods.

**Section 401.5.1 Special Traffic Regulations:** The Contractor shall submit any proposed changes to these regulations, in writing, to the Engineer a minimum of two (2) weeks prior to the date the Contractor would like these changes to take effect.

The Engineer must review and approve all deviations from these regulations before they may be implemented in the field.

**(A) Police Officer Requirements:**

If any part of the traffic control plan falls within 300' of a signalized intersection, the Contractor shall provide one (1) off-duty police officer and vehicle, as defined in the City of Phoenix Traffic Barricade Manual, at the affected intersections from 6:00 AM to 7:00 PM weekdays, regardless of the Contractor's scheduled work hours.

The Contractor is required to request in writing, from the Engineer, the use of any off duty police officers.

If the Contractor schedules work to be performed overnight or during the weekend, a minimum of one (1) off-duty police officer and vehicle will be required to be on-site while construction is in progress.

When construction activities do not restrict traffic through the intersection, police officer's hours may be reduced or suspended with the approval of the Engineer.

**(B) Local Access Requirements:**

Local access shall be maintained to all properties on all streets (Major, Collector and Local) at all possible times. If the primary access cannot be restored in a timely manner, the Contractor shall provide an alternative, which shall be pre-determined with the residents prior to imposing any restrictions.

**(C) Business Access Requirements:**

Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties having more than one point of access shall not have more than one access restricted for more than fourteen (14) calendar days at any given time. Access to adjacent driveways shall be provided during all non-working hours. Any business restrictions shall be coordinated with the affected business, in writing, at least seven (7) days prior to imposing any restrictions.

**(D) Pedestrian Access Requirements:**

The Contractor shall ensure that all sidewalks on this project remain open and safely usable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used.

**(E) Sanitation Pick-Up:**

The Contractor shall provide sanitation pick-up for affected businesses and residents by relocating trash containers, or by providing alternative measures acceptable to the City.

**(F) Flagging of Traffic:**

No flagging of traffic will be permitted during the peak traffic hours of 6:00 AM to 8:30 AM and 4:00 PM to 7:00 PM weekdays. If construction requires, intermittent flagging will be allowed from 8:30 AM to 4:00 PM to facilitate access for heavy construction equipment.

**(G) Traffic Control Plan:**

The Contractor shall submit a Traffic Control Plan (TCP) to the City for approval. The plan shall show the placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, and other features that may conflict with the placement of temporary signage. This plan shall be submitted to the City at the Pre-Construction meeting.

An accepted TCP will be stamped and a copy returned to the Contractor. A copy of the accepted plan must remain on the job site at all times.

**(H) Traffic Signs:**

The Contractor shall maintain all existing STOP, YIELD and street name signs, verifying they are erect, clean and in full view of the intended traffic at all times. If these signs interfere with construction, the Contractor shall temporarily relocate the signs to permit construction, but the devices must be kept in full view of the intended traffic. Portable signs shall be used to supplement the relocated permanent signs.

Other signs still applicable shall also be maintained erect, clean and in full view of the intended traffic by the Contractor at all times. Existing signs, not applicable, shall be removed by the Contractor, without damage, and salvaged. The City shall be notified of all removals.

**(I) Pavement Markings:**

Existing pavement markings that conflict with the vehicle path indicated by barricades and channelization and cause driver confusion shall be removed or obliterated by the Contractor when directed by the Engineer.

Removal or obliteration of existing pavement markings may be required at any location when visual inspection and/or accident history shows driver confusion caused by existing pavement markings.

Proper pavement marking removal or obliteration leaves a minimum of pavement scars and completely removes or covers existing markings. Slurry Seal (MAG Specification, Section 332) may be used to obliterate existing markings. When used, Slurry Seal shall be applied in strips at least 24 inches wide over existing markings. Markings that subsequently become exposed shall be recovered with Slurry Seal. Painting over existing markings with black paint or asphalt material is not acceptable except in emergency conditions awaiting more permanent removal to follow within 24 hours.

If the Contractor fails to provide adequate maintenance of traffic, the City will have the work accomplished by other sources. The cost of having this work accomplished by other sources will be computed in accordance with Section 109.5.4.2.

**Section 401.6 Measurement:**

Measurement for Traffic Control shall be made on a Lump Sum basis. This lump sum measurement shall include all materials, equipment and labor necessary to facilitate traffic control per the contract documents. Items of Traffic Control include but are not limited to the obliteration of existing and temporary pavement markings, pilot cars, flagmen, barricades, sign panels, sign stands, warning lights, and related temporary pavements and steel plates.

No direct measurement of individual traffic control elements or devices will be made. All traffic control devices, unless otherwise noted, shall be considered as included in the lump sum measurement for Traffic Control bid item.

No direct measurement for temporary pavements or removal of such will be made. All sawcutting, grading, asphaltic concrete pavement, labor, and equipment for temporary pavements shall be considered as included in the lump sum measurement for this bid item.

Uniformed Off-duty Law Enforcement Officers including vehicle and equipment will be measured by the hour for each hour required to perform traffic control duties. When an officer is used less than 3 hours, a minimum of 3 hours can be charged. Time over 3 hours will be measured by the hour.

Measurement for payment of the Uniformed Off-duty Law Enforcement Officers will be the actual number of man-hours used. As part of the payment request for Uniformed Off-Duty Law Enforcement Officers, the Contractor shall provide the Engineer with copies of all request forms and invoices as backup information showing the actual hours worked.

**Section 401.7 Payment:**

Payment for Traffic Control other than Uniformed Off-duty Law Enforcement Officers shall not exceed the lump sum price established in the Bid Schedule. The City will allow monthly equal payments to be distributed over the entire duration of the project based upon the total project schedule provided by the contractor at the pre-construction conference. Payment for Traffic Control shall be full compensation for all labor, pilot cars flagmen, materials, traffic control devices, and miscellaneous incidental items necessary to complete the work.

Payment for Uniformed Off-duty Law Enforcement Officer will be made at the contract unit price established in the Bid Schedule. If an officer is utilized in excess of 8 hours in any calendar day or in excess of 40 hours in any calendar work week, payment shall be at the rate of 1½ times the unit price for all hours worked in excess of either time period stated above.

**ADD SECTION 431 LANDSCAPE AND IRRIGATION RESTORATION****Add Section 431.1 General:**

Contractor shall verify exact limits of disturbance with Engineer in all areas designated on the plans as Landscape and Irrigation Restoration Areas. All work shall be in accordance with these specifications and Standard MAG Sections 430 and 440.

Contractor shall remove, salvage and replace existing decomposed granite in all disturbed areas. Contractor shall match color and gradation of any decomposed granite in these Landscape and Irrigation Restoration Areas, and supply granite as necessary to bring disturbed areas back to original condition. Contractor shall contact Engineer for review and approval of Landscape and Irrigation Restoration materials.

Contractor shall repair lighting and electrical components that are disturbed during construction. All electrical work shall be in conformance with MAG, NEC latest standards, and these Special Conditions.

All replacement or repair materials shall match the existing damaged materials. Irrigation materials and components shall be from the same manufacturer as originally installed. Emitters shall have the same volume output as original. PVC pipe may be from a different manufacturer but the grade shall be the same as originally installed.

**Add Section 431.2 Construction Requirements:****Add Section 431.2.1 Protection of Existing Vegetation:**

The work shall include the protection of all existing plant material. Contractor shall take great care to protect in place all existing plant material. Contractor shall replace in like kind and size any existing plant material removed, damaged, or destroyed as a result of



construction as approved by the Engineer. The Contractor shall identify and the Engineer review existing plant materials within the disturbance areas. Salvage and relocate or replace all plant material in conflict with the proposed improvements as designated in Landscape and Irrigation Restoration Areas in like kind and size per the direction of the Engineer.

**Add Section 431.2.2 Verification of Conditions:**

Prior to the start of construction, conduct on-site inspections of plants and vegetation with the Engineer, and identify and inventory the plants and vegetation that are to remain in place during this area tour. Field measure and stake project improvements as needed for establishing the location and limits of disturbance. Plant material that needs to be removed shall be agreed upon between the Contractor and Engineer prior to construction activities beginning.

**Add Section 431.2.3 Protecting or Restoring Irrigation System:**

The work under this item shall consist of testing, reconstructing or modifying the existing irrigation systems that are damaged by the proposed improvements. All work to restore existing irrigation system shall be in accordance with MAG Standard Subsection 440.4. The underground location of the irrigation facilities is unknown. Contractor shall take care to minimize disturbance to these areas.

**Add Section 431.2.4 Repairing Damaged Plants:**

Where damage to vegetation has occurred, prune plants in accordance with Tree Care Industry Association (TCIA) standards to remove branches from the work area, and where needed to maintain the health of the plant. Remove material in a manner that yields minimal impact and is approved by the Engineer.

**Add Section 431.2.5 Replacing Damaged Plants:**

Remove plants that were identified by the Engineer to remain in place, but were damaged during the course of the work to an extent that they cannot be repaired; and replace the damaged plants with new plants of the same type and value. Remove and replace damaged plants as directed by the Engineer. Base the value of plants that are to be replaced on the criteria found in the Council of Tree and Landscape Appraisers' "Guide for Plant Appraisal", as evaluated by the Engineer. Plants shall be replaced at the following sizes or as directed by the Engineer.

Existing Plant Material Size

Replacement Size

Trees:

2" Caliper

24" Box

4" Caliper

36" Box

6" Caliper

54" Box

Shrubs:

All Existing Shrubs

5 Gallon

**Add Section 431.3 Measurement and Basis of Payment:**

Measurement and Payment for the landscape and irrigation restoration areas will be at the contract lump sum price bid which includes all costs, materials, equipment, labor, and operations necessary for full restoration of all decomposed granite, irrigation systems, plant material, and other miscellaneous items to the satisfaction of the Engineer.

**ADD SECTION 463 RAISED PAVEMENT MARKERS:****Add Section 463.1 Description:**

The work under this section shall consist of furnishing materials, labor, equipment, tools, transportation and supplies to install blue two-way retroreflective raised pavement markers. The blue raised pavement markers shall be placed in the center of the travel lane perpendicular to all fire hydrant locations shown on the plans per MAG Standard Detail 122.

**Add Section 463.2 Materials:**

Raised pavement markers shall be in accordance with ADOT Standard Specification Section 706-2 to include two-way retroreflective blue markers, ADOT Type BB.

**Add Section 463.3 Construction Methods:**

Construction methods shall be in accordance with ADOT Standard Specification Section 706-3. Raised pavement markers shall be installed in the roadway perpendicular to the fire hydrant location as shown on MAG Standard Detail 122.

**Add Section 463.4 Measurement:**

Markers shall be measured on a basis of each.

**Add Section 463.5 Payment:**

Payment for each marker shall include cleaning of pavement, bituminous adhesive, materials, labor and equipment.

**ADD SECTION 471 SIGNS, POSTS and ANCHORS:****Add Section 471.1 Description:**

The work under this section shall consist of furnishing materials, labor, equipment, tools, transportation and supplies to install all types of traffic signs at the locations shown on the plans in accordance with COEM Details 132-1 and 132-2.

**Add Section 471.2 Materials:**

Sign panels shall be fabricated in one piece from 0.125" thick flat sheet 5052-H38 or 6061-T6 Aluminum Alloy conforming to the requirements of ASTM B 209.

Retroreflective Type II sheeting colors shall visually match FHWA's Highway Color Tolerance Charts and meet the requirements of AASHTO M 268 and ADOT specification Sections 608 and 1007 including the use of products listed on an Approved Product List. Adhesive backing shall be Class 2.

Posts shall be 0.105" galvanized steel, 1.75" square, perforated.

Anchors shall be 0.105" galvanized steel, 2.00" square, 30" long, perforated.

Corner mounting bolts shall be 5/16" diameter with self locking nut.

**Add Section 471.3 Construction Methods:**

Construction methods shall be in accordance with ADOT Standard Specification Section 706-3 for sign posts and anchors.

Construction methods shall be in accordance with ADOT Standard Specification Section 608-3 for sign panels.

**Add Section 471.4 Measurement:**

Sign post and anchors shall be measured on a basis of each. Sign panels shall be measured on the basis per square foot.

**Add Section 471.5 Payment:**

Sign post and anchors shall be paid for each installation including all materials, labor, and equipment. Sign panels shall be paid by the square footage of sign installed on the sign post.

# PART 600 WATER AND SEWER

## SECTION 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION

**Section 601.2.3 Trench Grade:** Delete first paragraph.

**Section 601.2.10 Open Trench:** revise the length of open trench in the first paragraph from 1320' to one lateral water service line. Add the following: Any trench left open at the end of a work day must also be secured around its perimeter with 42" high orange plastic fence fabric and all driveways bridged with steel plating. All unfilled trenches deeper than 2' from existing ground elevation must also be secured by the contractor by a method acceptable to the Engineer, such as panels of chain link fence laid horizontally or additional steel plating.

**Section 601.4.7 Water Consolidation:**

Add the following: Water to be used for dust control, compaction and filling of lines can be obtained through a City issued hydrant meter. Fees include a \$50 nonrefundable setup and \$2,500 deposit for each meter reserved. Water usage will be billed to the contractor at current industrial user consumption rates. Contractor shall be responsible for verifying the fees prior to placing bid.

Contractor shall contact the El Mirage Customer Service Department at 623-933-1228 to obtain a fire hydrant meter for construction. The construction meter will need to include a backflow preventer that will need to be certified. Installation and removal of fire hydrant meters should be scheduled at least forty-eight (48) hours in advance through the customer service department. Contractor shall not relocate hydrant meters themselves.

## SECTION 610 WATER LINE CONSTRUCTION

**Section 610.4 Construction Methods:** revise the following:

- (A) from 36" to 48".
- (B) from 48" to 60".

The contractor shall be responsible for protecting the existing water lines at all times during construction. The waterline may be shut down and the pressure relieved in segments for short periods during construction. Water line shut down may be required to be at night or weekends.

If a fire emergency develops that will require the water line to be placed back in service, the Contractor shall be responsible for backfilling or shoring the trench as necessary to allow re-pressurizing the water line.

## **SHUTDOWN PROCEDURE:**

- 1) Contractor will request a scheduled water main shutdown through a City Inspector
- 2) The City Inspector will email the Public Works Department Head and Water Division Supervisor a request for a water main shutdown. The request should include; project name, contractor, project inspector, purpose for shutdown and area location
- 3) The Water Division Supervisor acknowledges the request and discusses shutdown with staff within a 24 hour time frame. (Day 1)
- 4) The Water Distribution Foreman will contact the City Inspector to schedule a field visit and to create a shutdown map. (Day 2)
- 5) Water Distribution Foreman performs a field visit, valve inspection and if needed, a test shutdown is practiced. Once approved, the requested shutdown may be scheduled. (Day 3) Inspector to notify the Water Division Supervisor of affected fire hydrants by their designated hydrant tag number
- 6) The City Inspector and contractor will coordinate the scheduling of the shutdown by having the contractor hand out the City of El Mirages 48 hour water service interruption notice to the affected properties in both English and Spanish (See Appendix D). (Day 4 & 5)
- 7) The City Inspector must be present during the duration of the water main shutdown.
- 8) Shutdowns shall be performed between 9:00 AM – 3:00 PM, Monday – Thursday.
- 9) Once the shutdown is complete, the Water Operations staff will flush air and sediment from area hydrants before restoring water services.
- 10) Water Operations staff will verify all valves are placed back to their original position.
- 11) The Contractor must notify customers that water service has been restored.
- 12) The City Inspector will be responsible for reporting all water loss amounts to the Water Supervisor.

### **\*\*\*Shutdowns are performed 5 -7 working days after receiving a shutdown request\*\*\***

Example: Request is received on Tuesday evening. The shutdown could be performed the following week on Wednesday morning at 9:00 AM.

Note: The Contractor is responsible for supplying bottled water to those residents affected by shutdowns going beyond the 6 hour time frame and for those residents with special needs.

### **Section 610.5.1 General:** add the following:

All ductile iron pipe, fittings and valves shall be polywrapped.

**Section 610.13 Meter Service Connections:** change “Contracting Agency” to Contractor in the first paragraph and delete everything thereafter in the first paragraph.

Last paragraph, second sentence – change “Contracting Agency” to Contractor and delete third and fourth sentences.

Add the following: New water meter service connections shall be installed in accordance with City of El Mirage Standard Detail 325. Provide new piping and fittings from existing

corp stop on existing water main to existing water meter. Existing service lines shall remain operational until new service line has been installed and ready to be connected to the existing meter.

At water meter service locations requiring existing meter to be removed and relocated to a new location, the service connection shall be installed in accordance with City of El Mirage Standard Detail 325. Provide new piping and fittings from existing corp stop on existing water main to new water meter box. Existing service lines shall remain operational until new service line and new meter box have been installed and ready to be connected to the existing service line. The Contractor shall contact the City to relocate the existing meter and make the connection to the new service line. Existing water meter and box shall be removed and existing service line from customer side shall be connected to new meter. The connection from the meter on the customer's side shall be copper and match the size of the existing line. A compression fitting will be required on the customer side of the meter.

The locations of the existing service taps shall be identified in the field by the Contractor as approved by the Engineer and documented on Record Drawing plans. Contractor shall provide advanced notification of shutdown to affected businesses a minimum of 48 hours in advance and provide durations that service will be disrupted in both English and Spanish (See Appendix D).

#### **Section 610.16 Measurement and Payment:**

(B) Service Line Connection: is revised to read:

Measurement shall be of the number of water service lines replaced as called for in the bid. Each bid item unit shall consist of the connection to the existing water main and to the existing or new meter, as may be required in the plan details. Payment will be made at the contract unit price for each water service connection and shall be compensation in full for labor materials (including pipe), equipment, tapping, replacing existing meter lids with new poly lids, and all necessary incidentals. Polyethylene locator tape shall be installed with all services lines.

(G) Fire Hydrants: The last sentence is revised to read:

No separate measurement or payment shall be made for the 6" pipe, fittings, valve, valve box, thrust blocks, rock trench, fire hydrant barrel extensions, adjustment to grade and concrete collars, the cost of these items shall be considered incidental to the cost of relocated or new fire hydrants.

(I) Polywrap: This section is added:

Polywrap is specifically called for herein for all ductile iron pipes in accordance with Section 610.5. No separate measurement or payment will be made, the cost of related materials and labor shall be considered incidental to the installation of pipe.

(K) Locator Tape and Tracing Wire: This section is added:

An approved locator tape and tracing wire shall be installed with all water lines and service lines (linear and nonlinear), and attached to valve boxes per City of El Mirage Water Note 19. No separate measurement or payment will be made, the cost of related materials and labor shall be considered incidental to the installation of pipe.

# PART 700 MATERIALS

## SECTION 756 FIRE HYDRANTS

**Section 756.3 Hydrants:** first paragraph is modified to add: Fire hydrants shall be Mueller Centurion, Waterous Pacer, Kennedy, Clow, or East Jordan.

Add the following: Raised pavement markers for fire hydrants shall be installed per MAG Standard Detail 122.



# Appendix A

## Materials Acceptance Sampling and Testing Table



## **City of El Mirage Engineering Department**

10000 N El Mirage Road

El Mirage, AZ 85335

Phone: 623.933.8318

Fax: 623.933.8418

### **MATERIALS TESTING GUIDELINES**

The following are practical guidelines for some required materials testing. This listing is not all-inclusive. Additional testing may be required, or different procedures called for by the Engineering Inspector, Engineering Project Manager, City Engineer or their representative. This includes test locations and test frequencies.

#### **Sand-cone correlations**

Sand-cone correlations are required whenever a nuclear compaction-testing device is used. These correlations shall be provided for every tenth nuclear compaction test. The correlation test shall be performed on the City of El Mirage project being tested at the time of the nuclear density testing. All correlation test results shall reference the serial number of the comparative nuclear device and the technician performing the test. Correlation test results shall be submitted with the related compaction test results on an approved form.

#### **Rock correction procedures**

A rock correction procedure (per MAG Standard Detail 190) shall be required unless:

- 1) Either ASTM D-1557 method C or ASTM D-698 methods C are used.
- 2) Tests are waived by the Engineering Project Manager or City Engineer in writing.

An assumed value of 2.62 shall be used for the bulk specific gravity of rock, unless a different value has been determined by the testing agency.

#### **Test results**

Written results (field copies) shall be submitted to the Engineering Inspector in a timely manner. Verbal results are not acceptable. All field and laboratory test results will be submitted to the Engineering Inspector for their review prior to commencing the next phase of construction. All final testing reports shall be signed and stamped by a Civil Engineer.

#### **Trench bedding (compaction testing)**

In addition to normally required density testing, density tests may be performed at the bottom of the trench (prior to AB placement) at the discretion of the inspector.

#### **Material testing prior to paving**

The following tests shall be performed and written results submitted to the Engineering Inspector prior to paving.

- 1) Plasticity indexes on AB from sampling obtained on grade.
- 2) Gradations on AB from sampling obtained on grade.
- 3) All density testing results of sub-grade and AB grade.

#### **Asphalt mix design**

Unless otherwise specified, the mix design for all asphaltic concrete shall be City of Phoenix Standard C-3/4 inch mix. Copies of the mix designs and product codes are available in the Engineering office.

**Materials Acceptance, Sampling and Testing Frequencies Table**

TYPE OF MATERIALS	MAG SPEC SECTION	TYPE OF TEST REQUIRED	SAMPLING / TESTING LOCATIONS	MINIMUM SAMPLING / TESTING FREQUENCY
Sub-grade	301	Proctor / Optimum Moisture Content Moisture Content +/- 3% Optimum Field Compaction 95 % minimum	On-site / Stockpile In-place In-place	One every Material Type One every 1000-feet per Lane One every 1000-feet per Lane
Aggregate Base Course	702	Gradations / PI > 5% Proctor / Optimum Moisture Content Fracture Course Aggregate Particles Field Compaction 100% minimum  L.A. Abrasions < 10% after 100 rev. < 40% after 500 rev.	From Grade On-site / Stockpile On-site / Stockpile In-place  On-site / Stockpile	One every 1000 Ton One per Source or Material One per Source or Material Each 8-inch Lift every 1000-feet per Lane One per Source or Material
Trench Backfill with Native or Borrow Material	601	Proctor / Optimum Moisture Content Moisture Content +/- 3% Optimum Field Compaction (see MAG 601)	On-site / Stockpile In-place In-place	One per Source or Material One per Lift or 300-feet, not less than 2 per day of placements
Trench Backfill with ABC	601	Proctor / Optimum Moisture Content Moisture Content +/- 3% Optimum Field Compaction (see MAG 601)	On-site / Stockpile In-place In-place	One per Source or Material One per Lift or 300-feet, not less than 2 per day of placements
Asphaltic Concrete Various Mix Types	710	Extractions / Gradations Marshall / Rice Field Compaction 95 % minimum Asphalt Core Samples	From Grade From Grade From Grade From Grade	One every 1000 Ton One every 1000 Ton One per lift every 500-feet / Lane Only upon request from City
Asphaltic Cement Content	710	No testing required the City will hire a Testing Agency for quality assurance.		
Portland Cement Concrete Various Mix Types	725	Field Sampling, Slump, Time, Temp.  Compressive Strength (per MAG)	Placement Location  From field samples	One set of 4, 4 X 8 Cylinders every 50-yards or each placement per mix per day At Testing Lab
Curb / Gutter Sidewalk Sub-grade	340	Field Compaction 90 % minimum Moisture Content +/- 3% Optimum Conc. Const. Joints Every 5-feet Conc. Exp. Joints Every 50-feet	Below Curb / Gutter Sidewalk	One per every 300-feet, not less than 2 per day each direction

(Lift size not to exceed 8-inches for fill placements)

# **Appendix B**

## **Geotechnical and Pavement Design Report**

**Geotechnical Engineering Report  
Butler Drive Reconstruction  
STA 36+50 to 60+12, West of El Mirage Road  
El Mirage, Arizona  
RAMM Project No. G24379**



*Expires 3/30/2019*

For:  
NFra, Inc.  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012



By:  
Ricker • Atkinson • McBee • Morman & Associates, Inc.  
2105 South Hardy Drive, Suite 13  
Tempe, Arizona 85282



**R·A·M·M**

**RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.**  
**Geotechnical Engineering • Construction Materials Testing**

NFra, Inc.  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012

November 16, 2017

Attention: Randy Weyrauch, P.E.

Subject: Geotechnical Engineering Report  
Butler Drive Reconstruction  
STA 36+50 to 60+12, West of El Mirage Road  
El Mirage, Arizona

RAMM Project No. G24379

Attached to this letter is the Geotechnical Engineering Report for the proposed Butler Drive Reconstruction from about 210 feet west of El Mirage Road to about 2360 feet west of El Mirage Road at the future alignment of 127<sup>th</sup> Avenue, located in El Mirage, Arizona.

The proposed project includes reconstruction the existing road with a new 36-foot wide two lane road. Butler Drive is classified as a collector street. However, a majority of the traffic on the road consists of full and empty concrete trucks, gravel trucks and other large trucks carrying heavy loads in both directions. The project will have thickened outside edges with dirt shoulders. An approximate 72-foot long section of road at the east end has a vertical curb and a sidewalk on the south side of the road. At the west end of the project from STA 36+50 to 41+33.40 the existing road is unpaved. The results of our field explorations; laboratory testing; and geotechnical engineering recommendations are presented in the attached report.

The attached report was prepared based on project and site data available at this time and was prepared in a manner and to the standards of local geotechnical engineering practice. Our services did not include evaluations for the presence of hazardous materials, area subsidence resulting from groundwater withdrawal or other geologic hazards.

If you have any questions, please do not hesitate to call.

Respectfully submitted,

**RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.**



Expires - 3/30/2019

By: Kenneth L. Ricker, P.E.

/dh

Copies to: Addressee ([rweyrauch@nfrainc.us](mailto:rweyrauch@nfrainc.us))

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Expires 3/31/2019

# REPORT



R·A·M·M



## **INTRODUCTION**

This report presents the results of our geotechnical engineering services for the proposed Butler Drive Reconstruction extending east from the west end at STA 36+50 east to STA 60+11.65 (about 210 feet west of El Mirage Road), in El Mirage, Arizona. The scope of our services included performing a field exploration program, laboratory analysis and geotechnical engineering evaluation, analysis and recommendations. The geotechnical recommendations presented herein include widening the existing road and reconstruction of the existing paved and unpaved roads, site development and material use and requirements. We would be pleased to discuss with you any additional recommendations you may require. In addition, we are available to review project specifications and plans for conformance with our recommendations at no charge to you.

This firm should be notified for additional evaluation and recommendations if the project design parameters (locations, depths, alignments, etc.) are changed, and/or where site use or conditions encountered during construction differ from those presented herein.

## **PROPOSED CONSTRUCTION**

The proposed project includes reconstruction the existing road with a new 36-foot wide two lane road. Butler Drive is classified as a collector street. However, a majority of the traffic on the road consists of full and empty concrete trucks, gravel trucks and other large trucks carrying heavy loads in both directions. The project will have thickened outside edges with dirt shoulders. An approximate 72-foot long section of road at the east end has a vertical curb and a sidewalk on the south side of the road. At the west end of the project from STA 36+50 to 41+33.40 the existing road is unpaved.

## **SITE CONDITIONS**

At the west end of the project (STA 36+50.00 to STA 41+35.40) is a poorly defined dirt/gravel road with poorly defined dirt shoulders. From STA 41+33.40 to STA 59+39.30, the two narrow travel lanes have old pavements with surface raveling and moderate to heavy block cracking with numerous areas of alligator cracking. The existing old two-lane pavement from STA 59+39.30 to 60+4.56 (east end of the project) has an outside curb/gutter/sidewalk on the south side and has moderate block cracks with zones of alligator cracking. Numerous existing driveways connect to both sides of Butler Drive. The end of the project is about 210 feet west of the west side of El Mirage Road.

The thickness of the existing pavement section was measured with a Roto-hammer hand drill using a small diameter bit at several locations near the outside edge of the pavement. Drilling was slow and difficult due to the size and hardness of the gravel used in the asphalt concrete. The thickness of the asphalt concrete ranged from 2¼ to 3½ inches and the underlying aggregate base ranging in thickness from 2¼ to 2½ inches.

## FIELD EXPLORATIONS

Subsurface conditions were explored by drilling Test Borings 1 to 4 to depths of 11.0 feet in the existing shoulders of Butler Drive, at the locations shown on the attached Site Plan in Appendix A. The test borings were drilled with a CME 75 drill rig using seven-inch diameter, hollow-stem augers. The drilling equipment and crew were provided by Wildcat Drilling, Inc. The test boring locations were determined in the field by our field technician. During the field explorations representative undisturbed and disturbed samples were obtained, the field explorations logged and soils field-classified by our field technician, who also directed the drill crew. The relatively undisturbed samples (ring samples) were obtained by driving a 3-inch diameter, ring-lined, open-end sampler. The sampler was driven into the soil with a 140-pound hammer dropping 30 inches. The results of our field explorations are presented in the Test Boring Logs in Appendix A.

## LABORATORY ANALYSIS

Representative samples obtained during the field explorations were subjected to the following tests in our laboratory.

<u>Type of Test</u>	<u>Type of Sample</u>	<u>Number of Samples Tested</u>
Minus No. 200 Sieve & Plasticity Index	Representative	6
Swell	Remolded	2
Maximum Density – Optimum Moisture	Representative	1
Moisture Content/Dry Density *	Undisturbed	12

\* Reported in the test boring logs

The results of the laboratory analysis are presented in Appendix B.

The results of the laboratory testing on the representative samples obtained from the surface soils in Test Borings 1 to 4 are tabulated below:

<b>Pavement Subgrade</b>				
<u>Test Boring</u>	<u>Depth (feet)</u>	<u>Plasticity Index PI</u>	<u>Percent Retaining No. 4 Sieve</u>	<u>Percent Passing No. 200 Sieve</u>
1	0-5	8	9	50
2	0-5	NP	9	44
3	0-5	11	21	39
4	0-5	12	19	42

NP = No Plasticity

## **EARTH FISSURE EVALUATION**

Since the project site is in a known subsidence/earth fissure zone, we performed a field reconnaissance of the site and reviewed previously identified fissures within approximately ¼ mile of the site. We have also reviewed publicly available aerial photographs and a published earth fissure map of the area. Our review of the most recent information regarding earth fissures and ground subsidence published by the Arizona Geological Survey (AZGS) (Earth Fissure Map of the Luke Study Area: Maricopa County, Arizona, Earth Fissure Map 8, DM-EF-8 version 3, dated January 2016) (in Appendix C, Page C1-1), and the results of our field reconnaissance of the site (in Appendix C, Page C1-2), indicates that earth fissures have been identified within the area of the project site. One unconfirmed but previously recorded northeast trending earth fissure crosses Butler Drive at approximately 1085 feet west of El Mirage Road centerline and one confirmed surveyed continuous and discontinuous north-northwest trending earth fissure is located approximately 390 feet west of 125<sup>th</sup> Avenue and approximately 115 feet south of the site. A grouping of continuous, discontinuous, and confirmed but un-surveyed earth fissures, trending north-northwest is located approximately 700 feet south of the west end of the site. These earth fissures are part of a fissure system that extends further south and west and are related to the Luke Salt Deposit.

Earth fissures typically occur initially along the edges of the zone of subsidence (often along the edges of mountain ranges or salt domes) resulting from significant groundwater withdrawal. Initially an earth fissure is relatively narrow at the ground surface and extends down to the bedrock or groundwater table. The earth fissure acts like a sink for any surface water entering the crack. As water enters the earth fissure the water begins to erode and increase the side of the earth fissure. The more surface drainage into the earth fissure, the faster the erosion and the larger the surface expansion of the earth fissure. Typically, as the earth fissure matures, the main earth fissure enlarges and/or propagates and parallel secondary earth fissures develop.

Based on the above referenced Earth Fissure Map and our field reconnaissance of the area, no surficial evidence of earth fissure activity was identified. The lack of surficial expression does not infer absence of earth fissures: recently formed, previously buried, and developing fissures may be present beneath the overlying soils and any fills. As such, while no earth fissures were directly observed within the area of proposed construction, no guarantee can be provided that earth fissures may not develop in this area at a later date.

Since earth fissures act as surface runoff sink holes, the area around the roadway improvements should be sloped away from the roadway and paved for a horizontal distance of at least 10 feet as measured perpendicular to the earth fissure alignment. No water should be allowed to pond within 20 feet of the edge of pavement. Should evidence of earth fissures be encountered at the time of construction or at any time following construction at the site, a licensed engineer or geologist experienced with earth fissures should be contacted without delay, to determine the extent of the fissuring and to provide appropriate recommendations for remediation.

#### **SURFACE AND SUBSURFACE CONDITIONS**

The results of Test Borings 1 to 4 are presented in Appendix A in the Test Boring Logs. Along the alignment of Butler Drive, the subsurface profile had some variations. In Test Borings 1, 3 and 4 the surface soils to depths of 5.0 feet consisted of medium dense, clayey sand, some gravel with medium plasticity fines. In Test Boring 2 the surface soils to depths of 5.0 feet consisted of dense silty sand, some gravel with non-plastic fines. The surface soils were underlain by medium plasticity, stiff to very stiff, medium dense sandy clay/clayey sand, some to with gravel which extended for the remaining depth of exploration (11 feet). Soil moisture contents were described as nearly dry to damp in the surface soils to slightly damp to nearly dry in the underlying soils. No groundwater was observed in the test borings during the field exploration. In Test Borings 1 to 4, the adjacent pavement section was determined by hand digging at the edge of the pavement. The following pavement sections were measured.

<u>Existing Pavement Section near Test Borings 1 to 4</u>		
Thickness (inches)		
<u>Test Boring</u>	<u>Asphalt Concrete</u>	<u>Aggregate Base</u>
1	2¾-3	2½
2	2½-3¼	2½
3	2¼-2¾	2¼
4	3-3½	2½

## PAVEMENT DESIGN

Butler Drive is classified as a collector street. However, a majority of the traffic on the road consists of full and empty concrete trucks, gravel trucks and other large trucks carrying heavy loads in both the eastbound lane and westbound lane. The design of the pavement section was based on the anticipated heavier traffic loads observed on Butler Drive. The pavement section we recommend is based on the City of El Mirage Criteria is thicker than the collector street section (4 inches AC on 8 inches AB) and thinner than the major arterial sections (5 inches AC on 12 inches AB) (Figure 3-4 (a) & (b)). Pages 3-25 and 3-26 required that “the mix design for all asphaltic concrete shall be City of Phoenix Standard C-¾ inch mix”. We recommend that the pavement section consist of a 2.0-inch thick asphalt concrete (C-¾ inch mix) on a 3.0-inch thick asphalt concrete (C-¾ inch mix) a 10-inch compacted layer of aggregate base on a 10-inch thick compacted zone of subgrade. The design is based on the percent passing No. 200 sieve and plasticity index of the site subgrade soils. An equivalent asphalt concrete section would consist of 2.0 inches of C-¾ inch mix on 3.0 inches of C-¾ inch mix on 3.0 inches of C-¾ inch mix on 10 inches of compacted subgrade. Any material imported to the site subgrade and placed in pavement areas should have support characteristics the same as or better than the site soils. Appendix D contains the typical Butler Drive cross-section (Page D1) and the pavement structural sections (Page D2).

## SITE DEVELOPMENT RECOMMENDATIONS

### Surface Drainage:

A majority of the site subgrade soils adjacent to the existing pavement sections exhibit moisture content near optimum and subgrade soils below the pavement may be unstable during compaction. The degree of instability will depend on the type of soil, swell potential, natural soils structure or degree of compaction (if a fill). These volume changes could result in movements in overlying pavements. Therefore, good site and surface drainage on the pavement surface and away from pavement edges is required. In addition, water should not be allowed to pond within 5 feet of the pavement edges.

### Excavatability:

The excavatability of site materials is difficult to evaluate based only on the exploration equipment used during this design report. Therefore, we recommend that the contractor evaluate the excavatability of site materials by performing test excavations with the size and type of

equipment the contractor plans on using at the site. For design purposes, the following paragraph presents our best analysis as to the excavatability of site soils.

The near surface soils to depths of at least 5 feet can be removed with conventional excavating equipment. OSHA requires all excavations over five feet in depth, in which personnel are to enter, be either braced or sloped in accordance with OSHA regulations.

Workability:

Site soils are at moisture contents at or above optimum which will probably result in some soil pumping under dynamic loadings such as heavy construction equipment driving over the area.

Earthwork Factors:

Earthwork losses due to ground height losses and shrinkage were estimated based on past experience in the area and the laboratory test data. The materials encountered at the site were variably medium dense and firm to stiff. The estimated ground height losses due to subgrade compaction are as follows for previously ungraded areas:

<u>Existing Dirt Shoulder Area</u>	<u>Existing Paved Areas</u>
2" to 3"	1/2" to 1"

- \* Based on compaction to 95 percent of laboratory determined maximum dry density (ASTM D698), dry densities obtained from samples, and achieving a 10-inch deep compacted zone without stripping natural surface zones.

The estimated shrinkage losses from cut to fill zones are as follows for naturally occurring soils.

<u>Existing Dirt Shoulder Area</u>	<u>Existing Paved Areas</u>
10% to 15%	5% to 10%

- \* Based on compaction to 95 percent of laboratory determined maximum dry density (ASTM D698), dry densities obtained from samples of natural undisturbed soils from the near surface zone and local experience.

These estimates do not include compaction to greater depths than assumed, losses due to wind or wastage, overexcavation, etc.

## **MATERIALS SUITABILITY AND REQUIREMENTS**

### Site Materials:

The near surface soils and base material may be used as fill and backfills in pavement areas, provided these soils are free of organic materials, debris, rubble and material greater than 4 inches in size.

### Imported Soils:

Fill required beyond that available from site sources for use as backfills, should be imported soils meeting the following requirements:

Maximum Particle Size -----4 inches

Maximum Swell Potential -----1.5%\*

\* Based on a sample which is remolded to 95% of the ASTM D698 maximum dry density at a moisture content of 2 percent below optimum, placed under a surcharge load of 100 psf and wetted.

### Base Material:

Base material used below pavement should conform to the requirements of Maricopa Association of Governments (MAG) Specifications for aggregate base (Section 702).

### Asphalt Concrete Pavement:

Asphalt concrete pavement materials should conform to the requirements of City of Phoenix Standard C-¾ inch mix.

## **SITE PREPARATION AND GRADING PROCEDURES**

### Pavement Areas:

Recommendations presented in the previous sections of this report are based upon the following site preparation and grading procedures. Therefore, all earthwork should be accomplished with observation and testing by a qualified technician under the direction of a registered geotechnical/materials engineer. The following apply in pavement areas.

1. Clear and grub the site by removing and disposing of all vegetation, any trash and debris, and any rubble and remnants of former developments.
2. Strip the site of all existing fill zones and unstable soils. During stripping observe the surface for evidence of buried debris, vegetation or disturbed materials which will require

additional removal. Areas steeper than 5H to IV should be benched and any depressions widened to accommodate compaction equipment.

3. Prepare the ground surface in fill areas and in areas cut to grade by scarifying, moisture conditioning and compacting the exposed surface soils to a depth of 10 inches.
4. Moisture condition and place all fill and backfill materials required to achieve specified grades. Fill materials should be moisture conditioned, placed and compacted in horizontal lifts of thicknesses compatible with the compaction equipment being used.
5. Compact subgrade, fill, backfill, subbase fill or base material to the following minimum percent compaction of the ASTM D698 maximum dry density in each lift:

<u>Material</u>	<u>Minimum Percent Compaction</u>
Soil:	
Below pavement sections .....	95
Base Material:	
Below pavement sections .....	100

6. Moisture content of backfill at the time of compaction should be:

<u>Type</u>	<u>Area of Use</u>	<u>Moisture content</u>
On-site or Import	Pavements	2% below optimum or lower
Base Material	Pavements	Optimum plus or minus 3%

7. Place asphalt concrete in accordance with MAG Specification Section 310 and 702, as applicable.

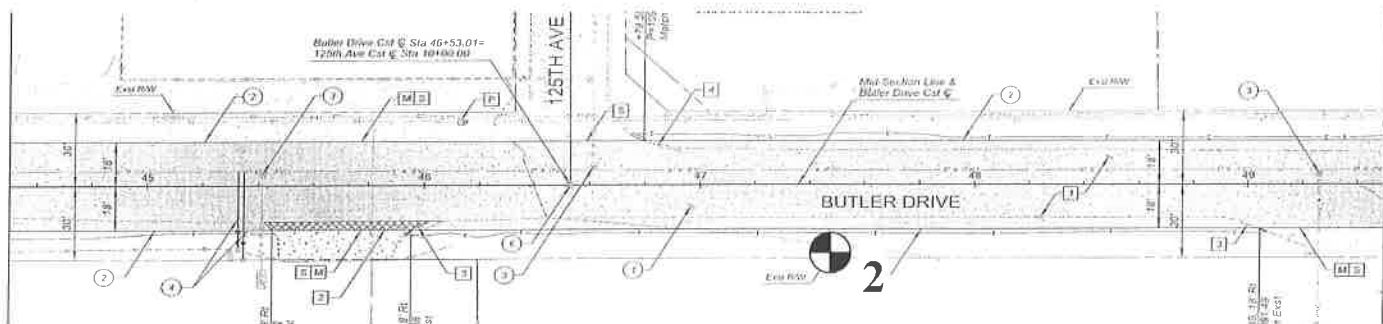


# **APPENDIX A**

## **FIELD EXPLORATIONS**



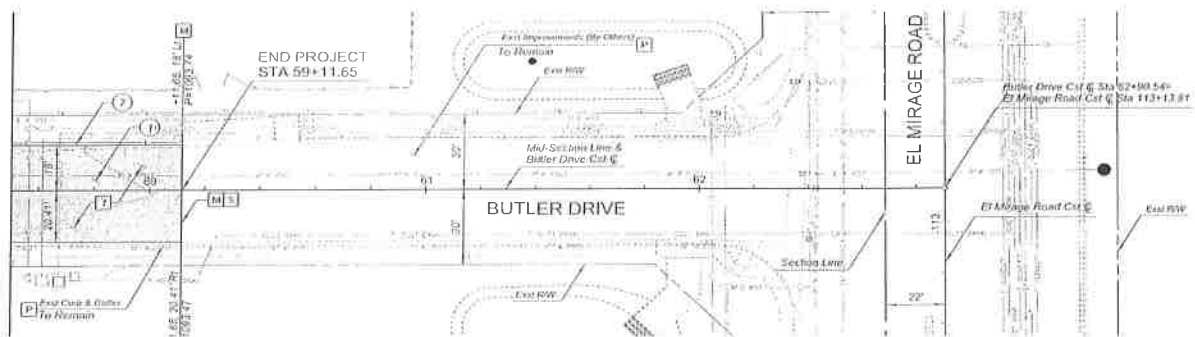
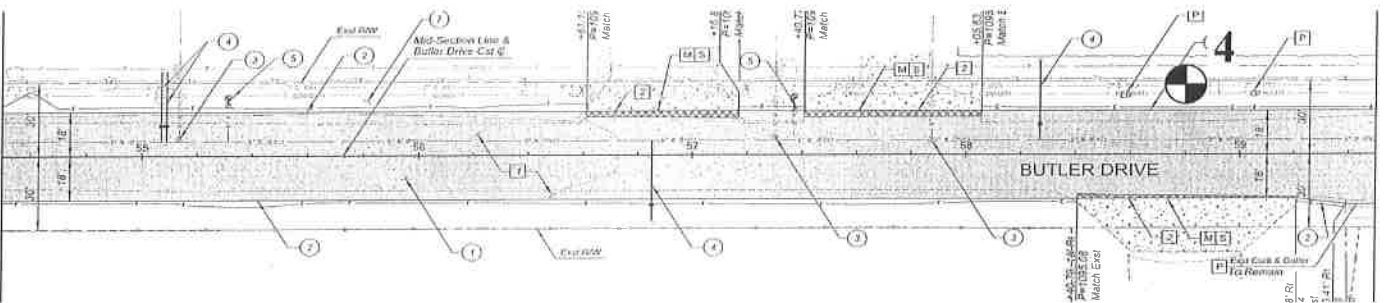
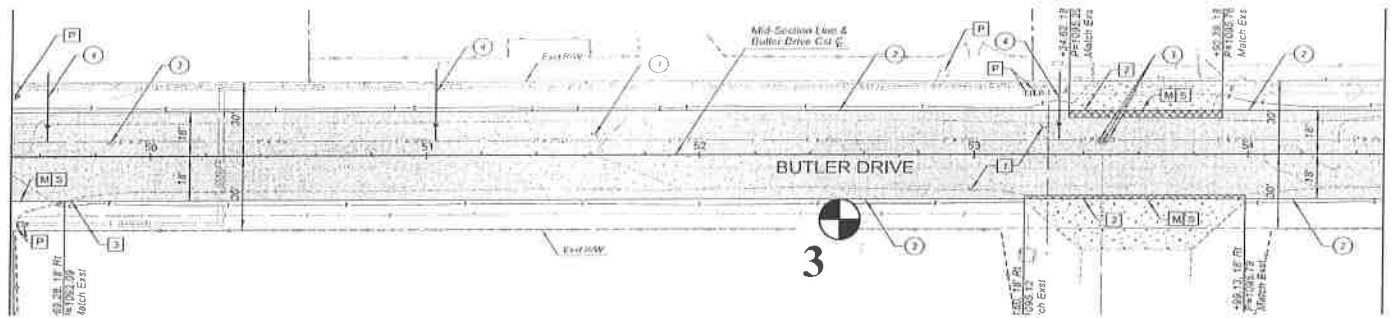
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### Test Boring Location

*Not To Scale*

## SITE PLAN



Test Boring Location

Not To Scale

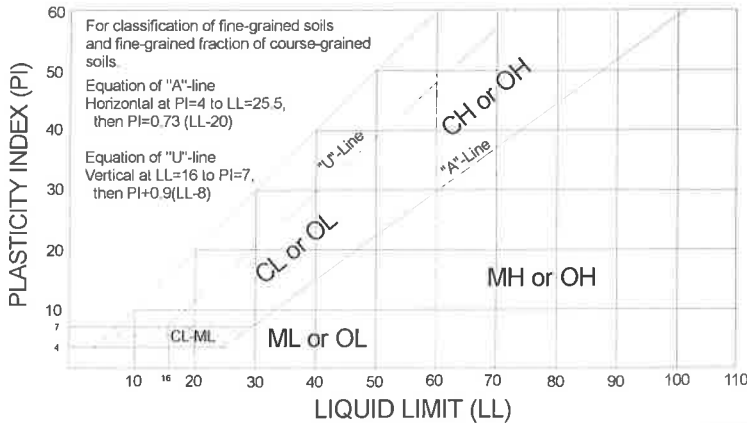
SITE PLAN

# LEGEND

ASTM Designation: D2487-11  
(Based on Unified Soil Classification System)

## CLASSIFICATION OF SOILS

				Soil Classification		
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				Group Symbol	Name	
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	$Cu > 4$ and $1 < Cc < 3$	GW	Well graded gravel	
			$Cu < 4$ and/or $1 > Cc > 3$	GP	Poorly graded gravel	
		Gravels with Fines More than 12% fines	Fines classify as ML or MH	GM	Silty gravel	
			Fines classify as CL or CH	GC	Clayey gravel	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	$Cu > 6$ and $1 < Cc < 3$	SW	Well-graded sand	
			$Cu < 6$ and/or $1 > Cc > 3$	SP	Poorly graded sand	
		Sands with Fines More than 12% fines	Fines classify as ML or MH	SM	Silty sand	
			Fines classify as CL or CH	SC	Clayey sand	
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	CL	Lean clay	
			$PI < 4$ or plots below "A" line	ML	Silt	
		Organic	Liquid Limit - oven dried Liquid limit - not dried	$< 0.75$	OL	Organic clay Organic silt
	Silts and Clays Liquid limit 50 or more	Inorganic	$PI$ plots on or above "A" line	CH	Fat clay	
			$PI$ plots below "A" line	MH	Elastic silt Organic clay	
		Organic	Liquid limit - oven dried Liquid limit - not dried	$< 0.75$	OH	Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat	



## TEST BORING LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description
	C	N/R				

C = Continuous Penetration Resistance (2 inch diameter rod)

N = Standard Penetration Resistance (ASTM D1586)

R = Penetration Resistance (3 inch diameter ring line sampler)

SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY		SAND			GRAVEL		COBBLES	BOULDERS
		FINE	MEDIUM	COARSE	FINE	COARSE		
MOISTURE CONDITION (INCREASING MOISTURE → )								
DRY	SLIGHTLY DAMP	DAMP	MOIST (Plastic Limit)	VERY MOIST	WET (SATURATED)			(Liquid Limit)
CONSISTENCY CORRELATION				RELATIVE DENSITY CORRELATION				
CLAYS & SILTS		BLOWS/FOOT*		SANDS & GRAVELS		BLOWS/FOOT*		
VERY SOFT		0-2		VERY LOOSE		0-4		
SOFT		2-4		LOOSE		4-10		
FIRM		4-8		MEDIUM DENSE		10-30		
STIFF		8-16		DENSE		30-50		
VERY STIFF		16-32		VERY DENSE		OVER 50		
HARD		OVER 32						

\*Number of blows of 140 lb hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).

# TEST BORING LOG

**Project:** Butler Drive Reconstruction – El Mirage, Arizona

**Test Boring:** 1

**Elevation:** Not Determined

**Datum:** ---

**Date:** 10-6-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		19	R	108	5	SC	Clayey Sand, Some Gravel; brown, nearly dry, medium dense, medium plasticity fines.
10		11	R	99	16	CL/ SC	Sandy Clay/Clayey Sand, Some to With Gravel; brown, slightly damp to nearly dry, stiff to very stiff, medium dense, medium plasticity.
15		27	R	79	6		Stopped drilling at 11 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

# TEST BORING LOG

**Project:** Butler Drive Reconstruction – El Mirage, Arizona

**Test Boring:** 2

**Elevation:** Not Determined

**Datum:** ---

**Date:** 10-6-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		49	R	98	14	SM	Silty Sand, Some Gravel; brown, damp, dense, non-plastic fines.
10		8	R	90	14	CL/ SC	Sandy Clay/Clayey Sand, Some to With Gravel; brown, slightly damp to nearly dry, stiff to very stiff, medium dense, medium plasticity.
15		21	R	78	11		Stopped drilling at 5 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

# TEST BORING LOG

**Project:** Butler Drive Reconstruction – El Mirage, Arizona

**Test Boring:** 3

**Elevation:** Not Determined

**Datum:** ---

**Date:** 10-6-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		23	R	110	9	SC	Clayey Sand, Some Gravel; brown, nearly dry, medium dense, medium plasticity fines.
10		23	R	110	9	SM	Silty Sand, Some Gravel; brown, damp, dense, non-plastic fines.
15		23	R	110	9		Stopped drilling at 5 feet. No groundwater observed.
20						CL/ SC	Sandy Clay/Clayey Sand, Some to With Gravel; brown, slightly damp to nearly dry, stiff to very stiff, medium dense, medium plasticity.
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

## TEST BORING LOG

**Project:** Butler Drive Reconstruction – El Mirage, Arizona

**Test Boring:** 4

**Elevation:** Not Determined

**Datum:** ---

**Date:** 10-6-17

Depth, feet	Blows/Foot		Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	C	N/R					
5		25	R	105	9	SC	Clayey Sand, Some Gravel; brown, nearly dry, medium dense, medium plasticity fines.
10		47	R	104	11	CL/ SC	Sandy Clay/Clayey Sand, Some to With Gravel; brown, slightly damp to nearly dry, stiff to very stiff, medium dense, medium plasticity.
15		12	R	98	6		Stopped drilling at 5 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.



## **APPENDIX B**

### **LABORATORY ANALYSIS**



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## LABORATORY TEST RESULTS

Date: 17-Nov-17

SAMPLE SOURCE: As noted below

TESTING PERFORMED: Percent Passing No. 200 Sieve, Atterberg Limits, Percent Expansion  
(ASTM D1140, D4318, D4546)

SAMPLED BY: RAMM/Durot

### RESULTS:

<u>Sample Source</u>	<u>Percent Retained No. 4 Sieve</u>	<u>Percent Passing No. 200 Sieve</u>	<u>Liquid Limit</u>	<u>Plasticity Index</u>	<u>Percent Expansion*</u>	<u>Remolded Dry Density (pcf)</u>	<u>Remolded Moisture Content (%)</u>
1 @ 0'-5'	9	50	24	8			
1 @ 5'-10'	9	58	37	20			
2 @ 0'-5'	9	44	N/A	NP			
3 @ 0'-5'	21	39	29	11	0.7	108	12
4 @ 0'-5'	19	42	29	12	0.8	108	13
4 @ 5'-10'	21	41	36	19			

\* Based upon sample remolded to 95% of the estimated maximum dry density at 2% below the estimated optimum moisture content, with a surcharge pressure of 100 psf.

## LABORATORY TEST RESULTS

Date: 19-Oct-17

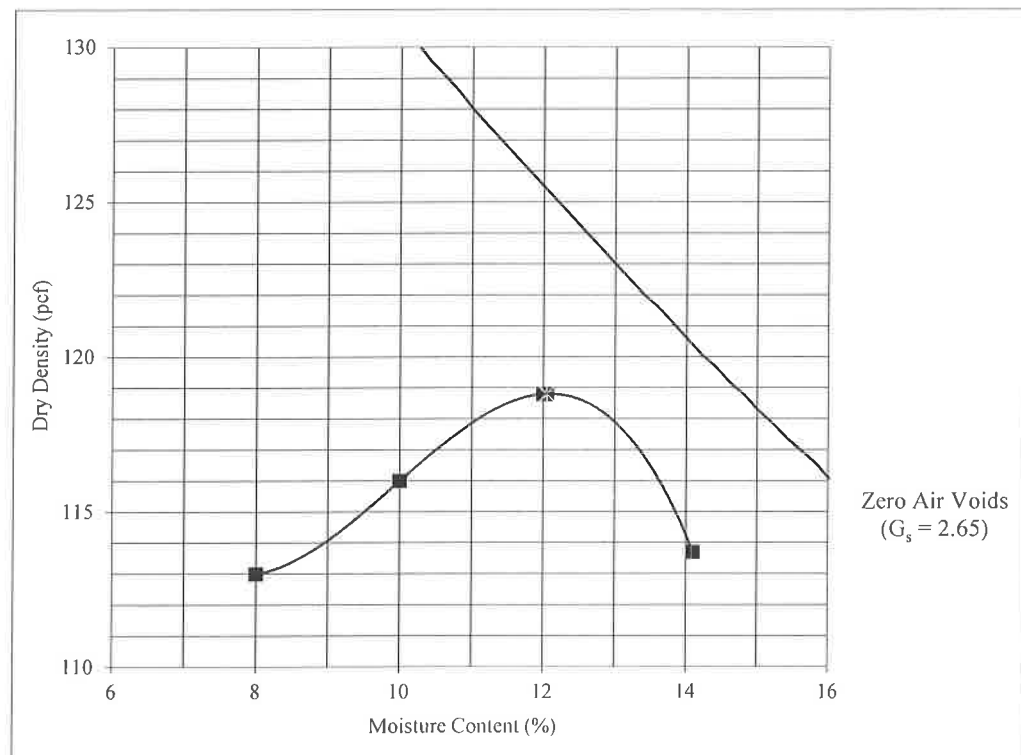
SAMPLE SOURCE: 2 @ 0'-5'

TESTING PERFORMED Maximum Density-Optimum Moisture Determination (ASTM D698 Method A)

SAMPLED BY: RAMM/Durot

### RESULTS:

Maximum Density (pcf) = 118.8      Optimum Moisture (%) = 12.1



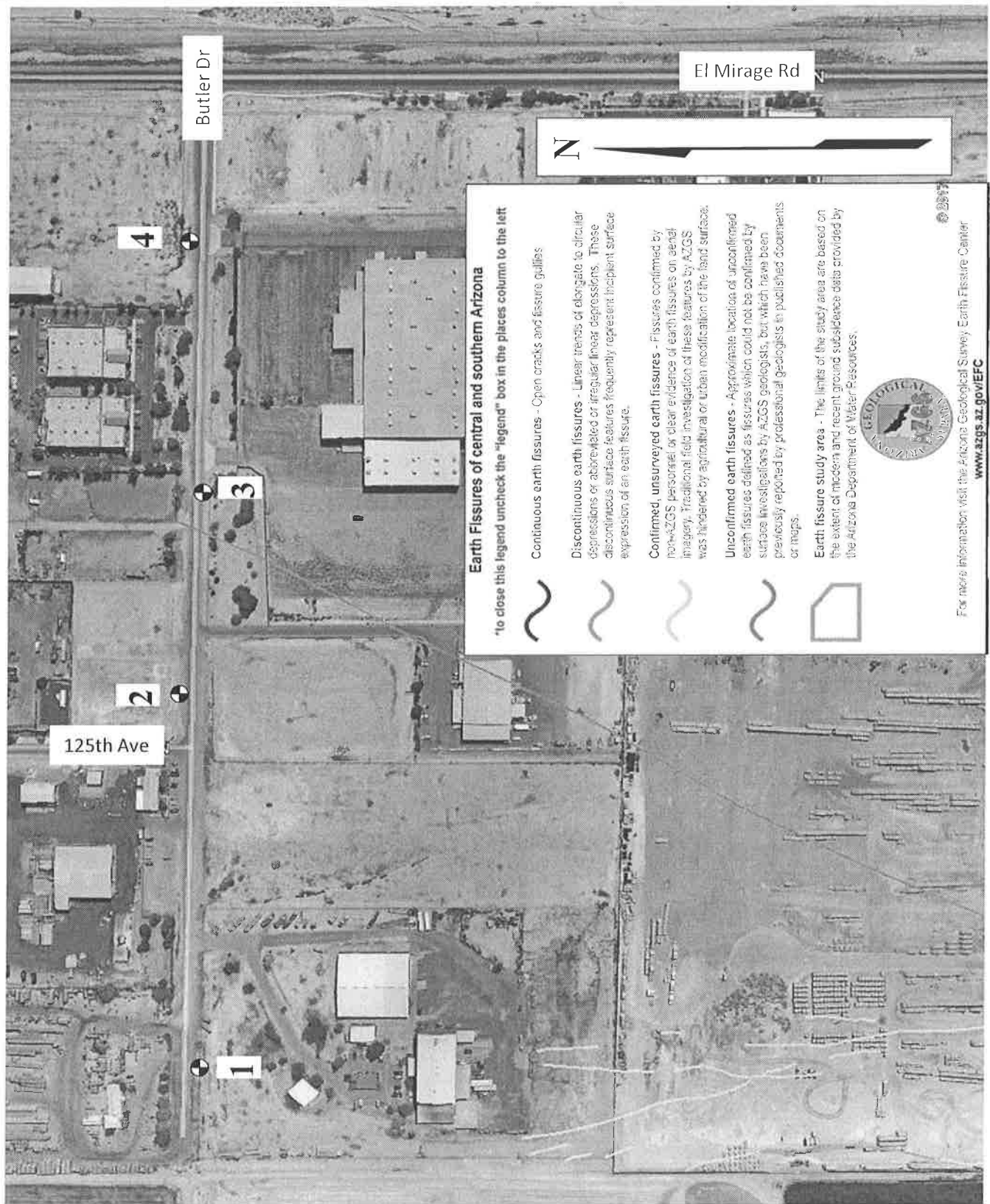
**APPENDIX C**  
**SITE FISSURE MAP**



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Journal of Interpersonal Violence 28(12)





Test Boring Location

Not To Scale

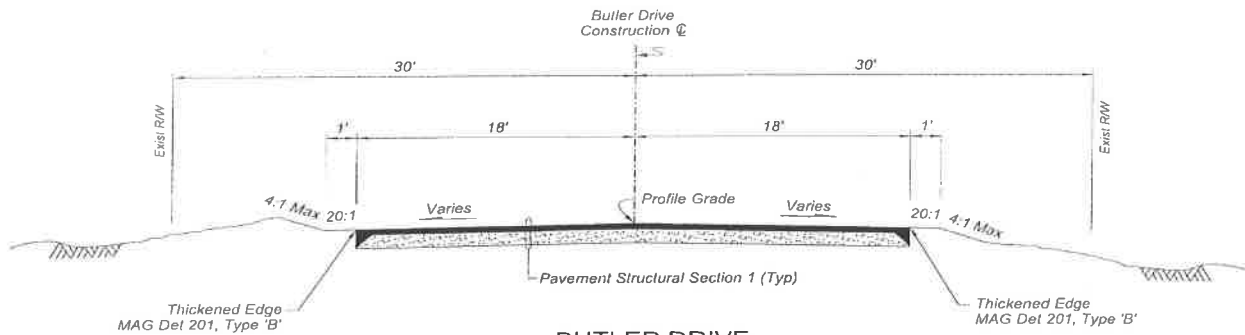
SITE FISSURE  
MAP

# **APPENDIX D**

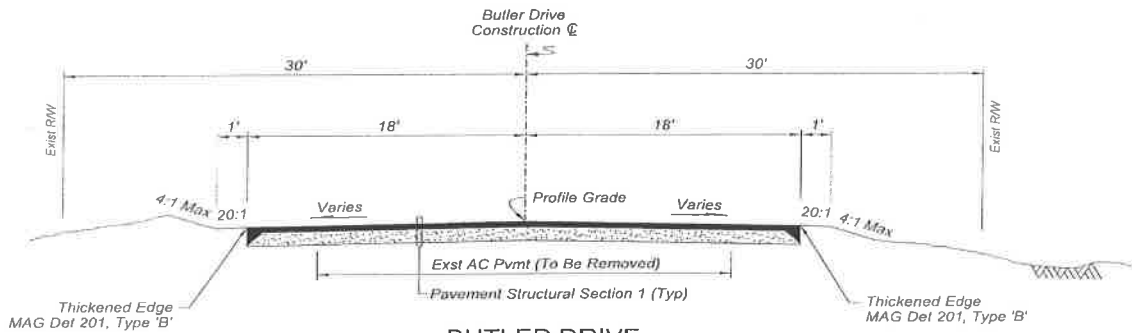
## **PAVEMENT SECTION**



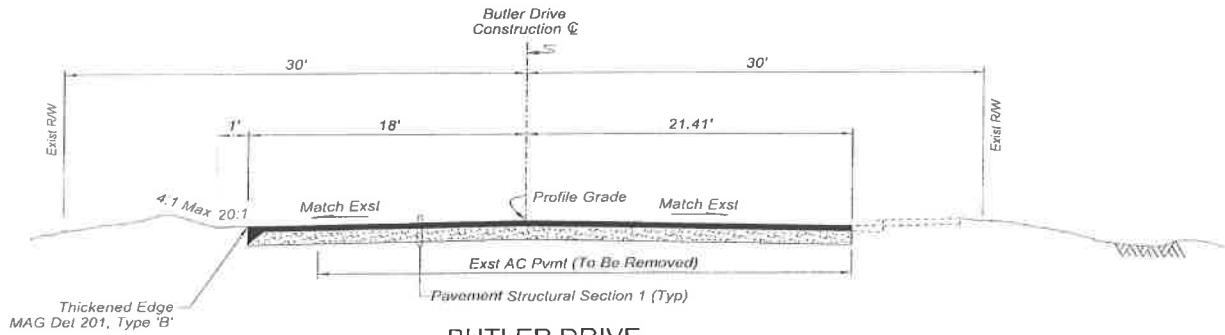
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BUTLER DRIVE  
Sta 36+50.00 to Sta 41+33.40  
NTS



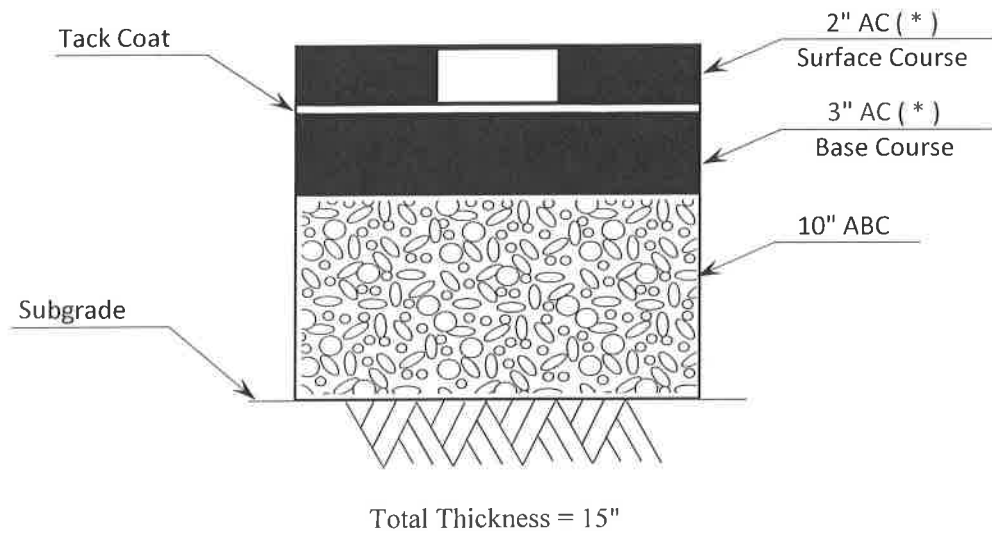
BUTLER DRIVE  
Sta 41+33.40 to Sta 59+39.30  
NTS



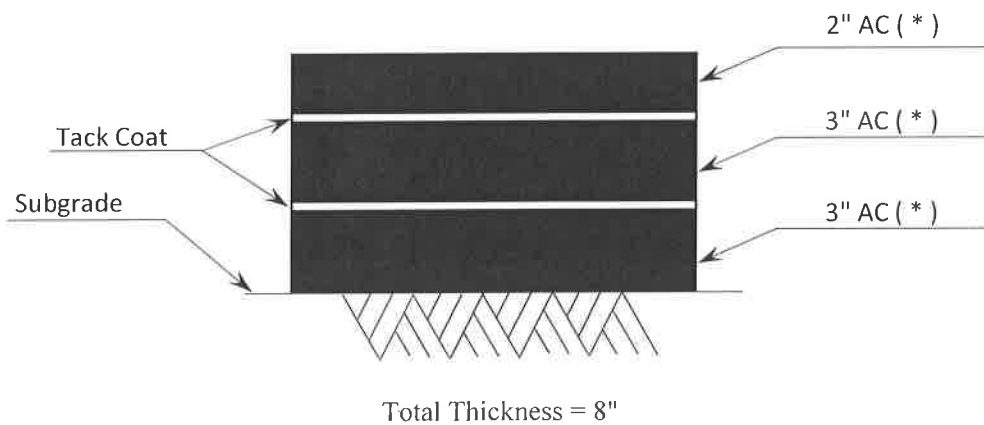
BUTLER DRIVE  
Sta 59+39.30 to Sta 60+11.65  
NTS

TYPICAL  
SECTIONS





**PAVEMENT STRUCTURAL SECTION NO. 1**



**ALTERNATE PAVEMENT STRUCTURAL SECTION**

\* ALL ASPHALT CONCRETE MIX DESIGN SHALL BE  
CITY OF PHOENIX C-3/4 INCH MIX

PAVEMENT  
STRUCTURAL  
SECTIONS

# Appendix C

## Pothole Report



## Testhole Data Summary

Date: 3/6/2018  
Project Number: AZSVY1717  
Project Name: El Mirage & Butler Dr



EXPIRES 09/30/2018

TH #	Location	Date of Excavation	Utility Owner	Utility Size	Utility Description	Coordinates		Stationing		Ground Elevation	Top Elevation	Bottom Elevation	Depth of Cover	Comments
						Northing	Easting	Stationing	Offset					
2	Butler Dr and 853' West of 125th Ave	3/1/2018	Southwest Gas	2"	PE	931068.50	573382.26	None	None	1086.95	1082.97	1082.77	3.98	PH#1 not dug
3	Butler Dr and 553' West of 125th Ave	3/1/2018	Century Link	NA	NA	931064.33	573690.43	None	None	1087.27	1087.27	1081.27	0.00	Dug to 6', no utility found.
4	Butler Dr and 553' West of 125th Ave	3/1/2018	Southwest Gas	2"	PE	931062.01	573690.78	None	None	1087.25	1083.81	1083.61	3.44	Dug to 6', no utility found.
5	Butler Dr and 253' West of 125th Ave	3/1/2018	Century Link	NA	NA	931055.16	573987.57	None	None	1087.81	1087.81	1081.81	0.00	Dug to 6', no utility found.
6	Butler Dr and 253' West of 125th Ave	3/1/2018	Southwest Gas	2"	PE	931058.29	573987.73	None	None	1087.83	1084.29	1084.09	3.54	
7	Butler Dr and East of 125th Ave	2/28/2018	Century Link	0.75"	Cable	931052.94	574355.64	None	None	1090.45	1086.19	1086.10	4.26	
8	Butler Dr and East of 125th Ave	2/28/2018	Southwest Gas	2"	PE	931056.27	574355.40	None	None	1090.63	1086.91	1086.71	3.72	Dug to 6', no utility found.
9	Butler Dr and 387' East of 125th Ave	3/1/2018	Century Link	NA	NA	931052.27	574634.10	None	None	1094.15	1094.15	1088.15	0.00	
10	12545 W Butler Dr	2/28/2018	Southwest Gas	2"	PE	931054.96	574634.82	None	None	1094.41	1089.77	1089.57	4.64	

# TEST HOLE DATA REPORT

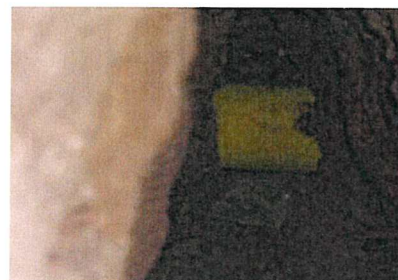
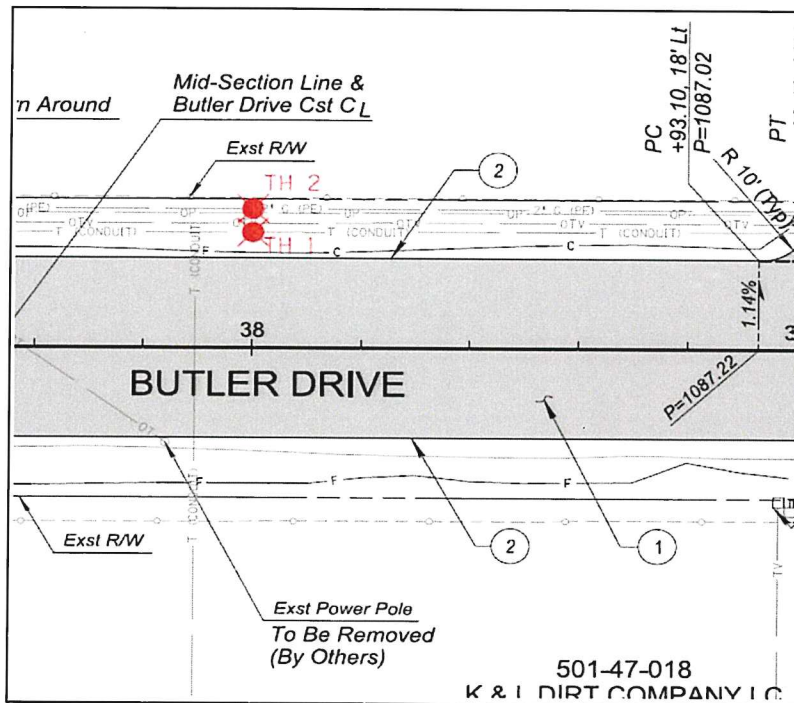
Test Hole # 2  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 853' West of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

SITE BENCHMARK		CROSS SECTION - NOT TO SCALE			
BM = Control Point #101, Rebar Elev = 1095.01		FACING <u>East</u>			
		SURFACE ELEVATION	1086.95	<div>← WIDTH/O.D. 2.38" →</div> <div>○</div>	<div>3.98 TOP DEPTH (FEET)</div> <div>4.18 BOTTOM (FEET)</div>
		TOP ELEVATION	1082.97		
		BOTTOM ELEVATION	1082.77		
RIBBON COLOR	Yellow				

COORDINATES: NORTHING 931068.50 EASTING 573382.26  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS 2" PAVING TYPE PE SOIL CONDITION Dirt  
 SIZE 2" TYPE PE FACILITY OWNER Southwest Gas

### COMMENTS:

PH#1 not dug.

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# TEST HOLE DATA REPORT

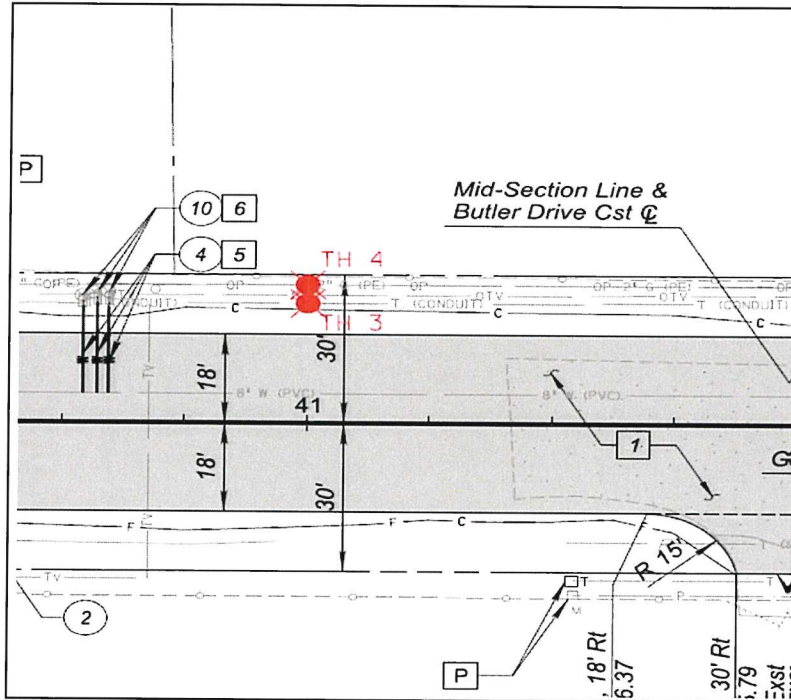
Test Hole # 3  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 553' West of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

<b>SITE BENCHMARK</b> BM = Control Point #101, Rebar Elev = 1095.01		<b>CROSS SECTION - NOT TO SCALE</b> FACING <u>NA</u> SURFACE ELEVATION <u>1087.27</u> TOP ELEVATION <u>1087.27</u> BOTTOM ELEVATION <u>1081.27</u> WIDTH/O.D. <u>NA</u> DRY TOP DEPTH (FEET) <u>6.00</u> BOTTOM (FEET) <u>6.00</u>	
RIBBON COLOR <u>Pink</u>			

COORDINATES: NORTHING 931064.33 EASTING 573690.43  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS None PAVING TYPE None SOIL CONDITION Dirt  
 SIZE NA TYPE NA FACILITY OWNER Century Link

### COMMENTS:

Dug to 6', no utility found.

PREPARED BY: B. Elder

CHECKED BY: D. Harmon



# TEST HOLE DATA REPORT

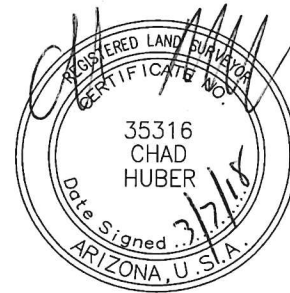
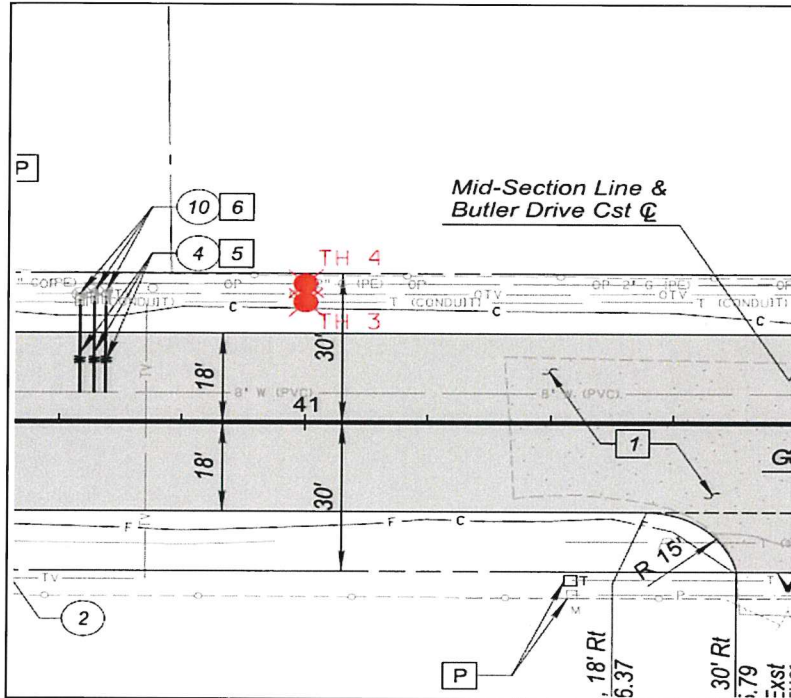
Test Hole # 4  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 553' West of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
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SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

SITE BENCHMARK		CROSS SECTION - NOT TO SCALE			
BM = Control Point #101, Rebar Elev = 1095.01		FACING <u>East</u>			
		SURFACE ELEVATION	1087.25	<div> <div>WIDTH/O.D. 2.38"</div> <div> </div> </div>	
		TOP ELEVATION	1083.81		
		BOTTOM ELEVATION	1083.61		
RIBBON COLOR <u>Yellow</u>				3.44	TOP DEPTH (FEET)
				3.64	BOTTOM (FEET)

COORDINATES: NORTHING 931062.01 EASTING 573690.78  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS None PAVING TYPE None SOIL CONDITION Dirt  
 SIZE 2" TYPE PE FACILITY OWNER Southwest Gas

COMMENTS:

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# TEST HOLE DATA REPORT

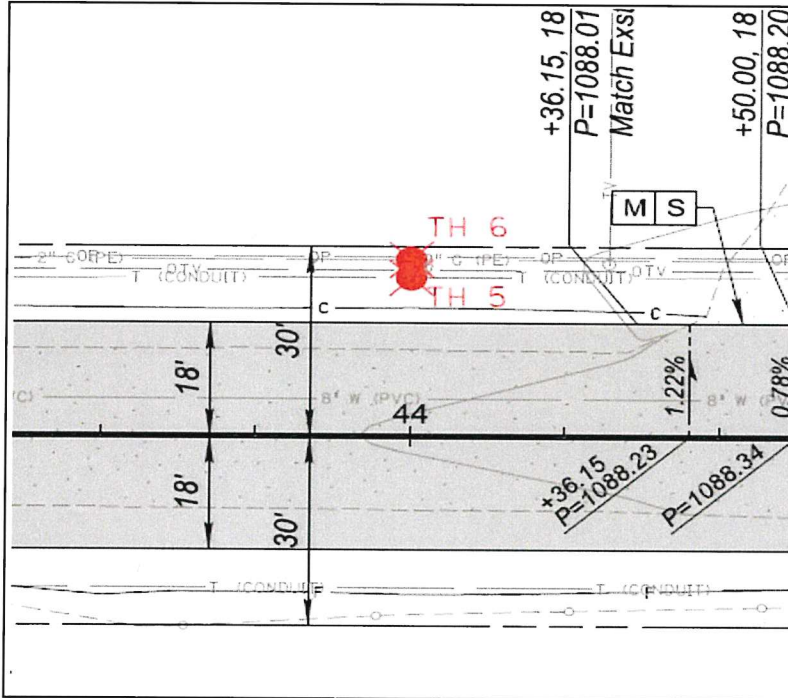
Test Hole # 5  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 253' West of 125th Ave



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SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

SITE BENCHMARK		CROSS SECTION - NOT TO SCALE			
BM = Control Point #101, Rebar Elev = 1095.01		FACING <u>NA</u>			
		SURFACE ELEVATION	<u>1087.81</u>	WIDTH/O.D. <u>NA</u>	TOP DEPTH (FEET)
		TOP ELEVATION	<u>1087.81</u>		
		BOTTOM ELEVATION	<u>1081.81</u>	6.00	BOTTOM (FEET)
		DRY			
RIBBON COLOR <u>Pink</u>					

COORDINATES: NORTHING 931055.16 EASTING 573987.57  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS None PAVING TYPE None SOIL CONDITION Dirt  
 SIZE NA TYPE NA FACILITY OWNER Century Link

### COMMENTS:

Dug to 6', no utility found.

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# TEST HOLE DATA REPORT

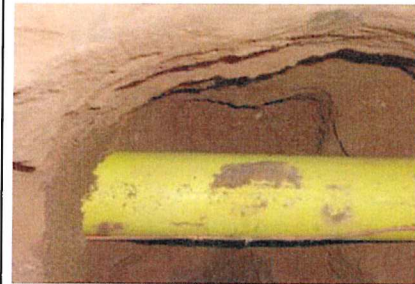
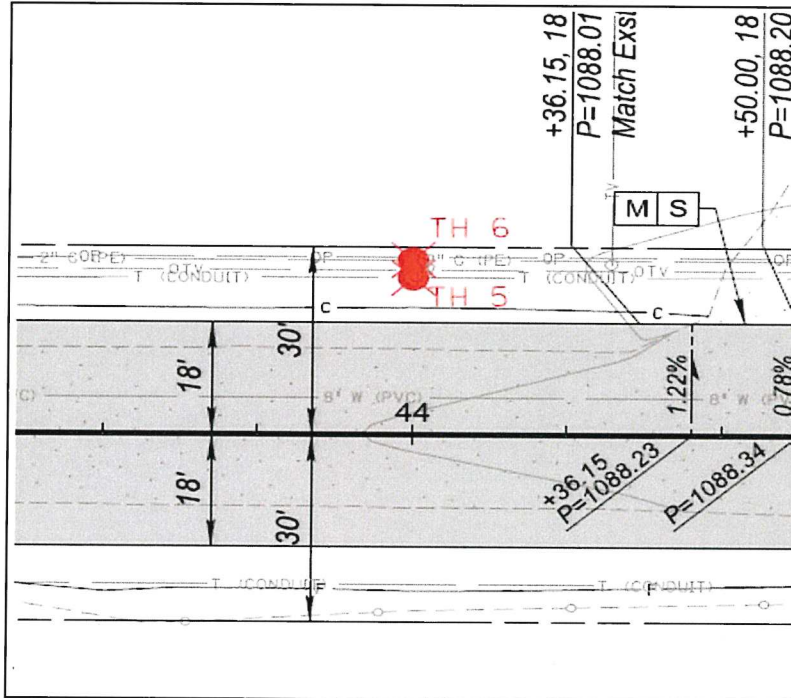
Test Hole # 6  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 253' West of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

### SITE BENCHMARK

BM = Control Point #101, Rebar  
 Elev = 1095.01

### CROSS SECTION - NOT TO SCALE

FACING East

SURFACE ELEVATION	1087.83	WIDTH/O.D.	2.38"	
TOP ELEVATION	1084.29		3.54	TOP DEPTH (FEET)
BOTTOM ELEVATION	1084.09		3.74	BOTTOM (FEET)

RIBBON COLOR Yellow

COORDINATES: NORTHING 931058.29

EASTING 573987.73

STATIONING: STATION None

OFFSET None

PAVING THICKNESS None PAVING TYPE None

SOIL CONDITION Dirt

SIZE 2" TYPE PE

FACILITY OWNER Southwest Gas

COMMENTS:

PREPARED BY: B. Elder

CHECKED BY: D. Harmon



# TEST HOLE DATA REPORT

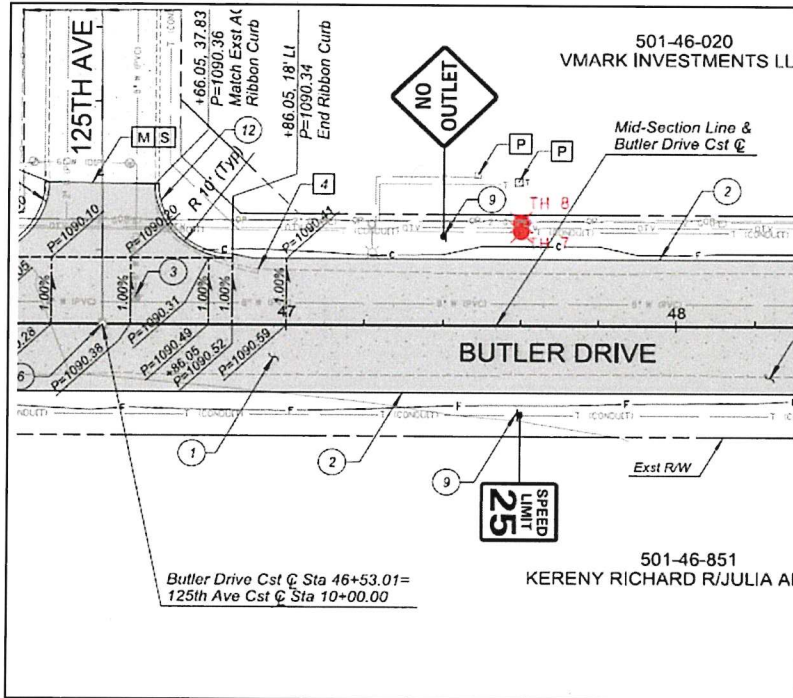
Test Hole # 7  
 Date Dug 2/28/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Bulter Dr and East of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 93  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

<b>SITE BENCHMARK</b> BM = Control Point #101, Rebar Elev = 1095.01		<b>CROSS SECTION - NOT TO SCALE</b> FACING <u>East</u> SURFACE ELEVATION <u>1090.45</u> TOP ELEVATION <u>1086.19</u> BOTTOM ELEVATION <u>1086.10</u> WIDTH/O.D. <u>0.75"</u> TOP DEPTH (FEET) <u>4.26</u> BOTTOM DEPTH (FEET) <u>4.35</u>	
RIBBON COLOR <u>Orange</u>			
COORDINATES: NORTHING <u>931052.94</u> STATIONING: STATION <u>None</u> PAVING THICKNESS <u>None</u> SIZE <u>0.75"</u>	EASTING <u>574355.64</u> OFFSET <u>None</u> PAVING TYPE <u>None</u> TYPE <u>Cable</u>	SOIL CONDITION <u>Dirt</u> FACILITY OWNER <u>Century Link</u>	

COMMENTS:

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# TEST HOLE DATA REPORT

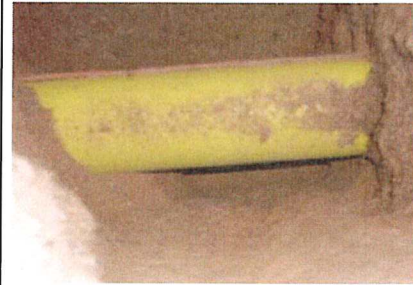
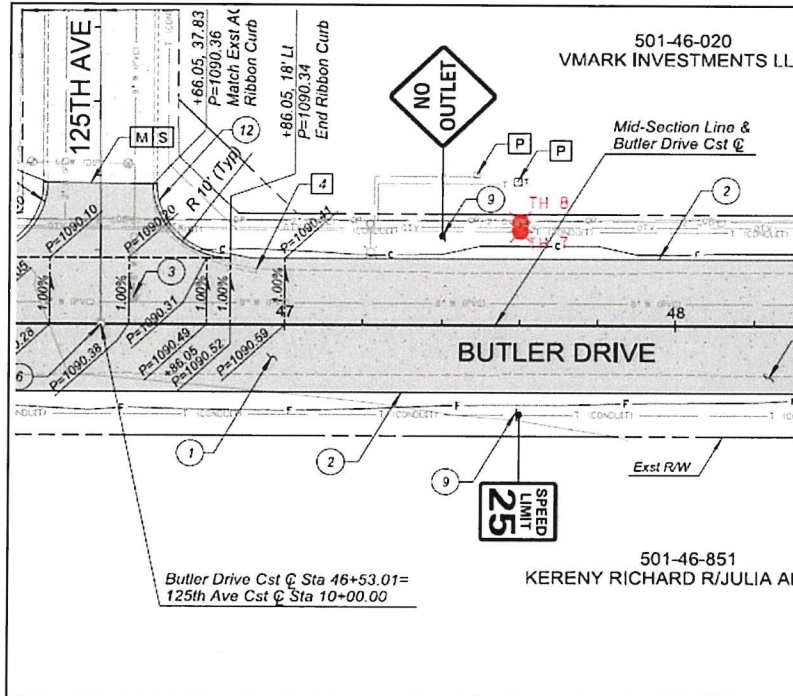
Test Hole # 8  
 Date Dug 2/28/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler dr and East of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 93  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

<b>SITE BENCHMARK</b> BM = Control Point #101, Rebar Elev = 1095.01		<b>CROSS SECTION - NOT TO SCALE</b> FACING <u>East</u>		
		SURFACE ELEVATION <u>1090.63</u>	WIDTH/O.D. <u>2.38"</u>	
		TOP ELEVATION <u>1086.91</u>		TOP DEPTH (FEET) <u>3.72</u>
		BOTTOM ELEVATION <u>1086.71</u>		BOTTOM (FEET) <u>3.92</u>
RIBBON COLOR <u>Yellow</u>				
COORDINATES: NORTHING <u>931056.27</u>		EASTING <u>574355.40</u>		
STATIONING: STATION <u>None</u>		OFFSET <u>None</u>		
PAVING THICKNESS <u>None</u>		PAVING TYPE <u>None</u>		
SIZE <u>2"</u>		TYPE <u>PE</u>		
		FACILITY OWNER <u>Southwest Gas</u>		
COMMENTS:				

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# TEST HOLE DATA REPORT

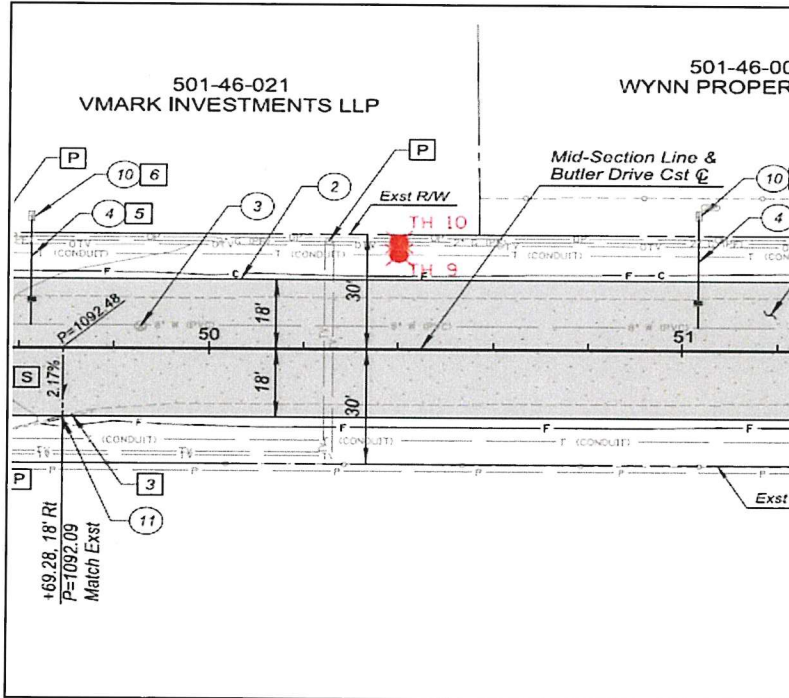
Test Hole # 9  
 Date Dug 3/1/2018  
 Project # AZSVY1717  
 Phase # None  
 Location Butler Dr and 387' East of 125th Ave



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 320  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

<b>SITE BENCHMARK</b> BM = Control Point #101, Rebar Elev = 1095.01		<b>CROSS SECTION - NOT TO SCALE</b> FACING <u>NA</u> SURFACE ELEVATION <u>1094.15</u> TOP ELEVATION <u>1094.15</u> BOTTOM ELEVATION <u>1088.15</u> WIDTH/O.D. <u>NA</u> DRY TOP DEPTH (FEET) <u>6.00</u> BOTTOM (FEET) <u>6.00</u>	
RIBBON COLOR <u>Pink</u>			

COORDINATES: NORTHING 931052.27 EASTING 574634.10  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS None PAVING TYPE None SOIL CONDITION Dirt  
 SIZE NA TYPE NA FACILITY OWNER Century Link

### COMMENTS:

Dug to 6', no utility found.

PREPARED BY: B. Elder

CHECKED BY: D. Harmon



# TEST HOLE DATA REPORT

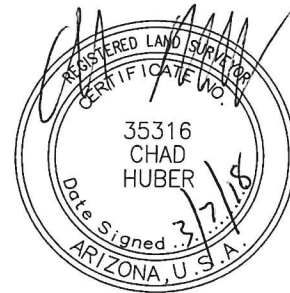
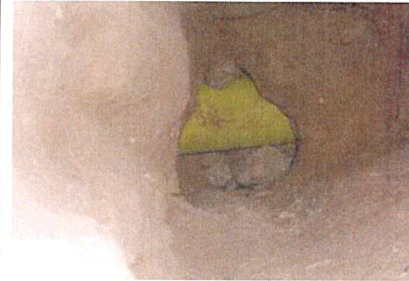
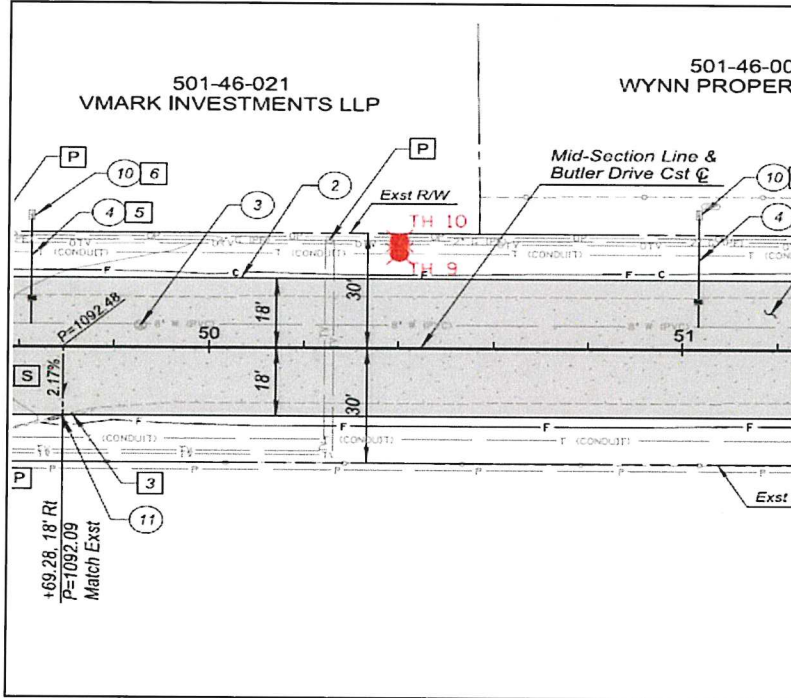
Test Hole # 10  
 Date Dug 2/28/2018  
 Project # AZSVY1717  
 Phase # None  
 Location 12545 W Butler Dr



4561 E. McDowell Rd, Phoenix, AZ 85008  
 Tel. (602) 454-0402 Fax. (602) 454-0403

SUE Crew Pablo - Jorge  
 Truck # 93  
 City El Mirage  
 County Maricopa

## LOCATION PLAN - NOT TO SCALE



Expires 9/30/2018

<b>SITE BENCHMARK</b> BM = Control Point #101, Rebar Elev = 1095.01		<b>CROSS SECTION - NOT TO SCALE</b> FACING <u>East</u> SURFACE ELEVATION <u>1094.41</u> TOP ELEVATION <u>1089.77</u> BOTTOM ELEVATION <u>1089.57</u> WIDTH/O.D. <u>2.38"</u> TOP DEPTH (FEET) <u>4.64</u> BOTTOM DEPTH (FEET) <u>4.84</u>	
RIBBON COLOR <u>Yellow</u>			

COORDINATES: NORTHING 931054.96 EASTING 574634.82  
 STATIONING: STATION None OFFSET None  
 PAVING THICKNESS None PAVING TYPE None SOIL CONDITION Dirt  
 SIZE 2" TYPE PE FACILITY OWNER Southwest Gas

COMMENTS:

PREPARED BY: B. Elder

CHECKED BY: D. Harmon

# Appendix D

## Service Interruption Notice

## **SERVICE INTERRUPTION NOTICE TEMPORARY WATER SHUT-OFF**

Please be informed that the water main that serves your residence must be shut off to allow for the installation of new water infrastructure. Please draw enough water to accommodate your water needs during this temporary shut- off period.

### **WATER IS SCHEDULED TO BE SHUT-OFF IN YOUR AREA ON:**

**DATE:** \_\_\_\_\_ **TIME:** \_\_\_\_\_

*THE WATER MAIN WILL BE CLOSED FOR APPROXIMATELY 6 HOURS.*

This work will be performed by: \_\_\_\_\_

Phone: \_\_\_\_\_

If you have any inquires or concerns regarding the water service interruption contact:

City of El Mirage - Project Inspector: \_\_\_\_\_

Phone: \_\_\_\_\_

The City of El Mirage makes the quality of your drinking water our number one priority. The drinking water we produce meets or exceeds all state and federal standards for safe drinking water. Upgrading and maintaining water quality includes periodic updating of City infrastructure. Through capital projects, the City and partners are working proactively to ensure the quality and safety of your water supply. The City of El Mirage appreciates your patience during these periodic service interruptions.

**Inquiries: Contact Public Works Department**  
M-F 6:30 AM to 3:00 PM (623) 935-6405

---

## **AVISO DE INTERRUPCIÓN DEL SERVICIO CIERRE DE AGUA TEMPORAL**

Por favor, tenga en cuenta que el agua que sirve a su residencia debe ser apagada para permitir la instalación de una nueva infraestructura de agua. Por favor traiga suficiente agua para acomodar sus necesidades de agua durante este período de interrupción temporal.

**EL AGUA ESTÁ PROGRAMADA PARA SER APAGADA EN SU ÁREA EN**

**FECHA:** \_\_\_\_\_ **HORA:** \_\_\_\_\_

*EL PRINCIPAL DE AGUA ESTARÁ CERRADO POR APROXIMADAMENTE 6 HORAS.*

Este trabajo será realizado por: \_\_\_\_\_

Teléfono: \_\_\_\_\_

Si tiene alguna pregunta o preocupación con respecto a la interrupción del servicio de agua, comuníquese con:

Ciudad de El Mirage - Inspector del Proyecto: \_\_\_\_\_

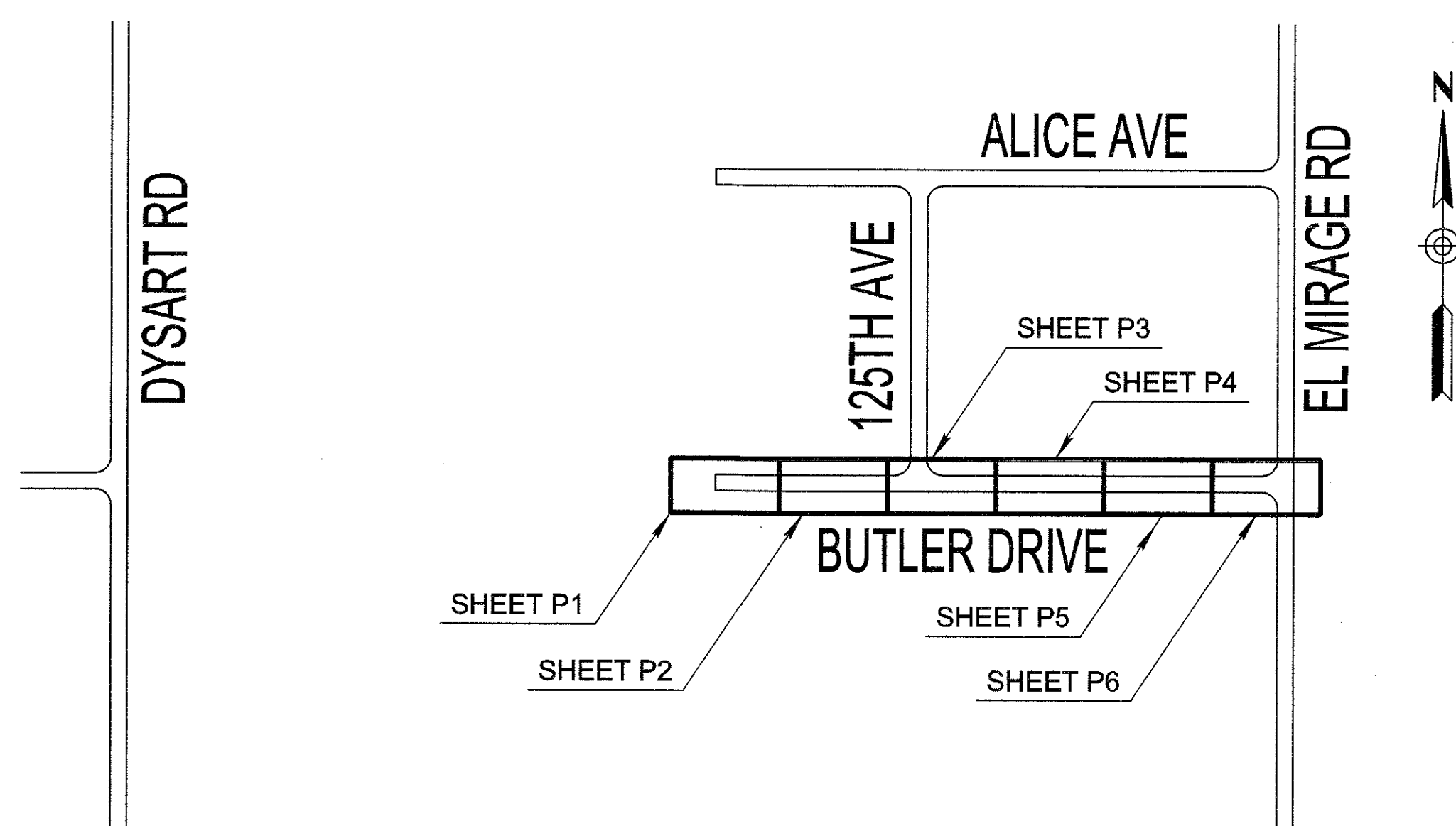
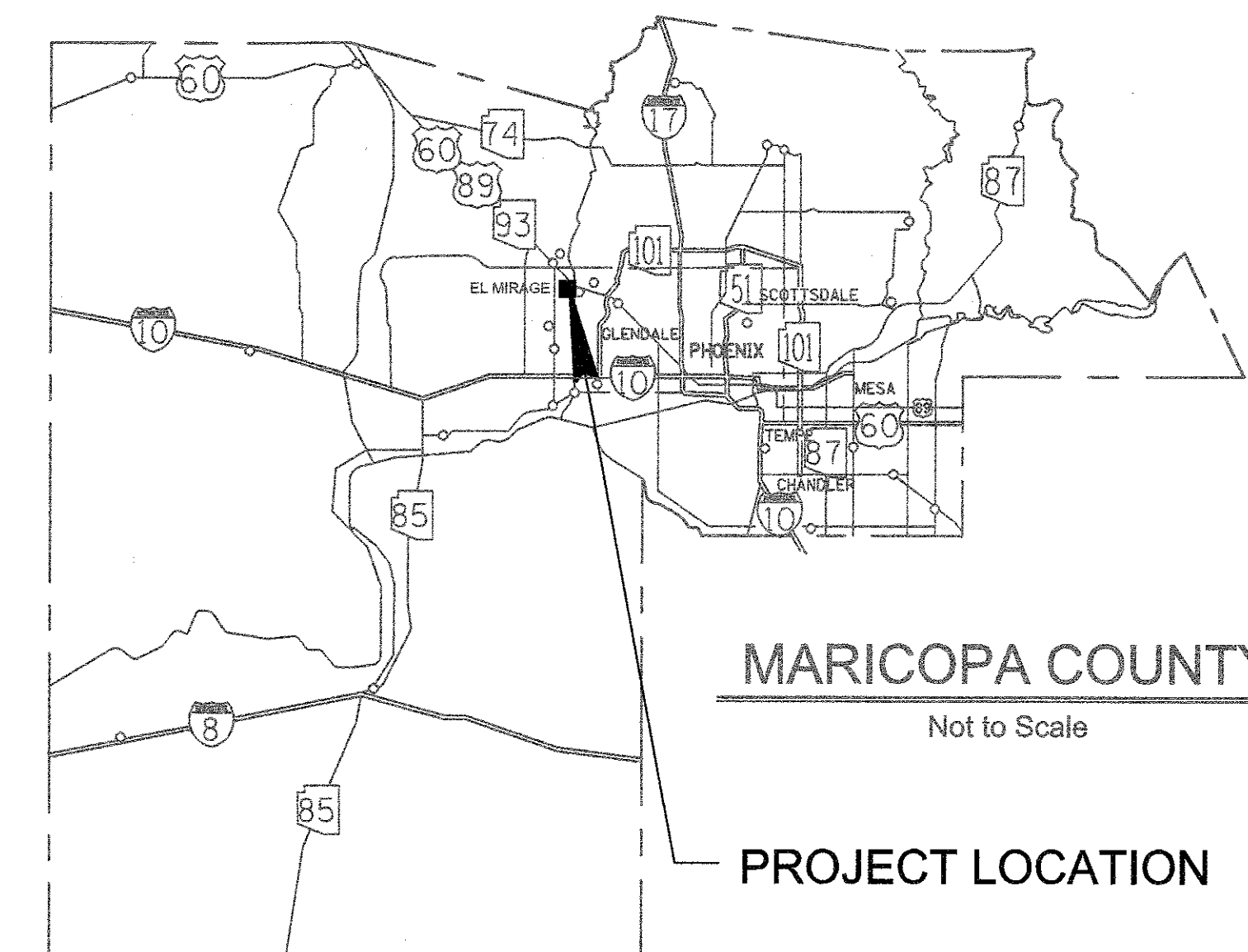
Teléfono: \_\_\_\_\_

La Ciudad de El Mirage hace que la calidad de su agua potable sea nuestra prioridad número uno. El agua potable que producimos cumple o excede todas las normas estatales y federales para el agua potable. Actualizar y mantener la calidad del agua incluye la actualización periódica de la infraestructura de la Ciudad. A través de proyectos de capital, la Ciudad y sus socios están trabajando proactivamente para asegurar la calidad y seguridad de su suministro de agua. La Ciudad de El Mirage agradece su paciencia durante estas interrupciones periódicas del servicio.

**Consultas: Contacto con el Departamento de Obras Públicas**  
L-V 6:30 AM a 3:00 PM (623) 935-6405

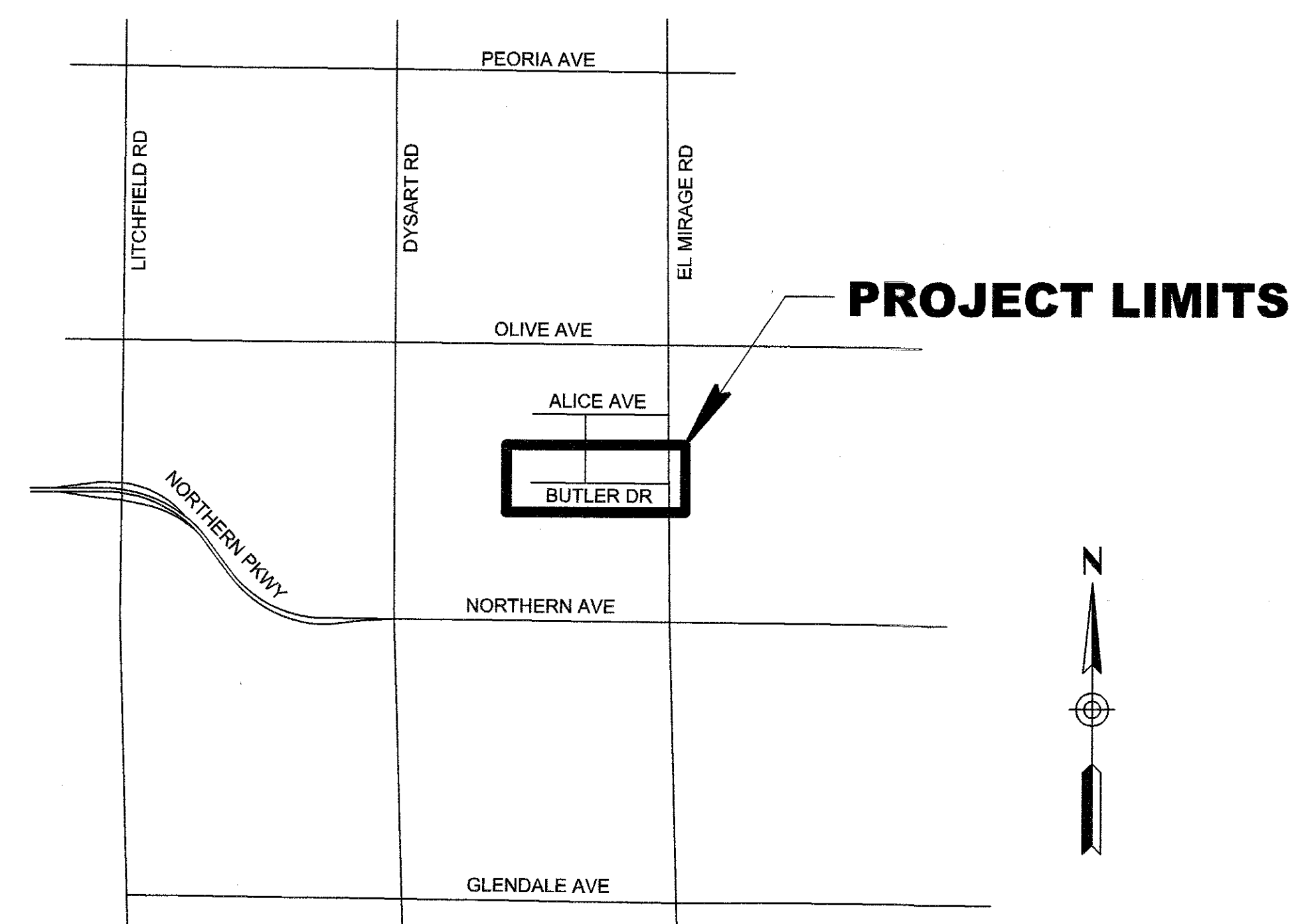


**CITY OF EL MIRAGE**  
**EL MIRAGE, ARIZONA**  
**BUTLER DRIVE IMPROVEMENTS**  
**127TH AVENUE TO EL MIRAGE ROAD**  
**PROJECT #EM17-ST01**



## KEY MAP

NTS



## VICINITY MAP

## APPROVALS

THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF PERMITS. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. THE COMPLIANCE APPROVAL SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTIONS OF ERRORS OR OMISSIONS IN PLANS FOUND TO BE IN VIOLATION OF LAW OR ORDINANCES.

Joey Gault  
EL MIRAGE CITY ENGINEER

DATE 6/13/11

## AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN  
HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO  
THE BEST OF MY KNOWLEDGE AND BELIEF.

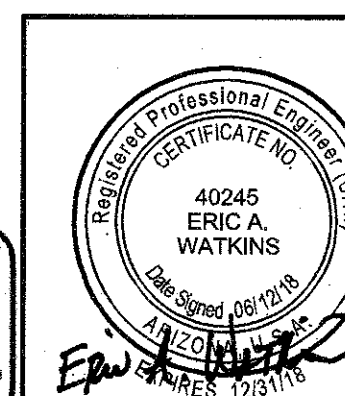
REGISTERED LAND SURVEYOR/ENGINEER

DATE \_\_\_\_\_

REGISTRATION NUMBER

COMPANY


CONSTRUCTION PLANS FOR THIS PROJECT HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND UTILITY AGENCIES FOR REVIEW AND TO DETERMINE POTENTIAL CONFLICTS.					
COMPANY NAME	COMPANY CONTACT	TELEPHONE NUMBER	60% SUBMITTAL	95% SUBMITTAL	100% SUBMITTAL
APS	RON GANDARA	602-371-7546	10/24/17	12/08/17	04/05/18
CENTURYLINK	MICHAEL VESPUCCI	602-630-1429	10/24/17	12/08/17	04/05/18
CITY OF EL MIRAGE (SEWER, WATER)	SHANE SWARTWOUT	623-876-4251	10/24/17	12/08/17	04/05/18
COX COMMUNICATIONS	JEFFREY PALEN	623-328-3554	10/24/17	12/08/17	04/05/18
SOUTHWEST GAS	TYLER RICHARDS	602-484-5347	10/24/17	12/08/17	04/05/18










		F.H.W.A. REGION		STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	RECORD DWG.
		9		ARIZ	EM17-ST01	3	13	
		<div><div></div><div><div>NFra Inc.</div><div>a transportation engineering firm</div><div>77 East Thomas Road, Suite 200</div><div>Phoenix, Arizona 85012</div></div></div>						
REVISION BY CITY OF EL MIRAGE								
NO.		DESCRIPTION		REV BY		CKD BY		DATE
REVISION BY CITY OF EL MIRAGE								
NO.		DESCRIPTION		REV BY		CKD BY		DATE
REVISION BY CITY OF EL MIRAGE								
NO.		DESCRIPTION		REV BY		CKD BY		DATE
<div><div><h3>CITY OF EL MIRAGE PAVING NOTES</h3><ol style="list-style-type: none"><li>EXACT POINT OF PAVEMENT MATCHING, TERMINATION AND/OR OVERLAY, IF NECESSARY, SHALL BE DETERMINED IN THE FIELD BY THE ENGINEERING DIVISION. CRACK SEAL IS REQUIRED BETWEEN OLD AND NEW ASPHALTIC CONCRETE AND BETWEEN ANY NEW ASPHALTIC CONCRETE PAVEMENT AND CONCRETE CURBING OR DRIVEWAY.</li><li>ALL FRAMES, COVERS, VALVE BOXES AND MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE UPON COMPLETION OF PAVING OR RELATED CONSTRUCTION. THE CONCRETE COLLAR SHALL BE ADJUSTED LEVEL WITH EXISTING BITUMINOUS PAVEMENT. THE EDGE OF THE CONCRETE COLLAR SHALL BE CRACK SEALED.</li><li>ALL CONTRACTORS/DEVELOPERS SHALL COMPLY WITH THE CITY OF EL MIRAGE STANDARD DETAIL 149 FOR TRENCH PLATING.</li><li>PAVING SHALL NOT START UNTIL ALL APPROPRIATE TESTING HAS BEEN COMPLETED AND ACCEPTED (PRESSURE TESTING OF UTILITIES, DENSITY TESTING, VIDEO OF SEWER LINE, ETC.). SERVICE STUBS TO ALL PLATTED LOTS SHALL BE EXTENDED, AND ALL CONFLICTING UTILITY CONSTRUCTION COMPLETED PRIOR TO START OF PAVING.</li><li>TREES AND SHRUBBERY IN THE RIGHT-OF-WAY, WHICH CONFLICT WITH THE IMPROVEMENTS PROPOSED HEREIN, ARE NOT TO BE REMOVED OR RELOCATED WITHOUT PRIOR APPROVAL OF THE CITY OF EL MIRAGE. THE PERMITTEE SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY AUTHORIZATION TO REMOVE AND/OR RELOCATE SAID TREES OR SHRUBBERY.</li><li>IN ALL AREAS WHERE NEW CONSTRUCTION OF CURB, GUTTER, SIDEWALKS, AND DRIVEWAYS IS REQUIRED, AND THE ENGINEER DETERMINES THE EXISTING GRADE TO CONSIST OF SOILS WITH SWELLING CHARACTERISTICS, THE MOISTURE CONTENT SHALL BE BROUGHT AS CLOSE AS POSSIBLE TO OPTIMUM REQUIRED FOR COMPACTION BY THE ADDITION OF WATER, BLENDING OF DRY SUITABLE MATERIAL OR BY DRYING OF EXISTING MATERIAL. THE MATERIAL SHALL THEN BE COMPACTED TO A RELATIVE DENSITY OF 95 PERCENT MAXIMUM.</li><li>CONSTRUCTION LOADS: DURING CONSTRUCTION OPERATIONS, HEAVY EQUIPMENT MAY CROSS EXISTING OR PROPOSED PIPE. IN THIS CASE, AN EARTH FILL SHOULD BE CONSTRUCTED TO AT LEAST THREE (3) FEET ABOVE PIPE. THE FILL MUST BE SUFFICIENT TO PREVENT THE LATERAL DISPLACEMENT OF THE PIPE.</li><li>UNLESS OTHERWISE SPECIFIED, THE CITY OF EL MIRAGE REQUIRES THAT THE ASPHALTIC CONCRETE MIX DESIGN MEET THE CURRENT CITY OF PHOENIX MIX DESIGN FOR A C-¾" &amp; D-½". COPIES OF THESE MIX DESIGNS AND RELATED PRODUCT CODES ARE AVAILABLE FROM THE ENGINEERING DEPARTMENT.</li><li>ALL STREET IMPROVEMENTS FOR CUSTOM HOMES MUST BE COMPLETED IN ACCORDANCE WITH THE CITY OF EL MIRAGE POLICY ON UNPAVED ROADS. ALL PRIVATE ACCESS MUST BE CONSTRUCTED WITH AN ACCEPTABLE DUST PALLIATIVE.</li><li>ALL CONTRACTORS/DEVELOPERS ARE RESPONSIBLE TO CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES IN ORDER TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAYS OR STREETS. GRAVEL TRACK-OUT PADS SHALL MEET CURRENT MARICOPA COUNTY STANDARDS. THE CONTRACTOR/DEVELOPER SHALL IMMEDIATELY REMOVE ANY SEDIMENT TRACKED ONTO PUBLIC RIGHTS-OF-WAYS OR STREETS.</li><li>IF ANY EXISTING BARRICADES, TRAFFIC SIGNS OR STREET NAME SIGNS NEED TO BE REMOVED DURING CONSTRUCTION, NOTIFY THE CITY OF EL MIRAGE OPERATIONS SUPERINTENDENT AT (623) 876-4254. A MINIMUM OF 48-HOURS NOTICE IS NEEDED FOR REMOVALS. IF SIGNS AND BARRICADES BELONG TO ANOTHER AGENCY, IT IS THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO NOTIFY THEM.</li><li>NO WATER SUPPLY HOSE OR RAMPS SHALL BE PLACED ACROSS OR IN THE ARTERIAL OR COLLECTOR STREETS. APPROVAL IN WRITING FROM THE CITY ENGINEER OR HIS DESIGNEE IS REQUIRED FOR PLACEMENT OF THE SUPPLY HOSE OR RAMPS IN LOCAL STREETS. APPLICATIONS SHALL INCLUDE SUBMITTALS OF THE MANUFACTURER'S SPECIFICATIONS, MATERIALS USED, AND DIMENSIONS OF THE RAMP, PROPOSED LOCATION, PROPOSED BARRICADING AND SIGNAGE.</li></ol></div><div><h3>ENGINEER'S NOTES</h3><ol style="list-style-type: none"><li>MAINTAIN 10' OSHA CLEARANCE FROM ENERGIZED PRIMARY LINES.</li><li>NFRA INC. HAS ENDEAVORED TO PROVIDE ACCURATE UTILITY INFORMATION BASED ON THE DATA AVAILABLE. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATIONS OF OVERHEAD AND UNDERGROUND UTILITIES SHOWN OR NOT SHOWN ON THESE PLANS WITH RESPECT TO LINE AND GRADE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT ALL UTILITIES (PUBLIC AND PRIVATE) AND PROPERLY NOTIFY BLUE STAKE PRIOR TO ANY CONSTRUCTION ACTIVITY.</li><li>ALL UTILITIES EXPOSED SHALL BE PROTECTED IN-PLACE.</li><li>THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF EL MIRAGE AND ANY OTHER REQUIRED AGENCY PRIOR TO CONSTRUCTION.</li><li>CRACK SEALING IS REQUIRED BETWEEN ANY NEW OR EXISTING CONCRETE CURB AND GUTTER OR DRIVEWAY AND NEW ASPHALT PAVING. NO ADDITIONAL PAYMENT WILL BE MADE FOR CRACK SEALING, THE COST CONSIDERED INCIDENTAL TO OTHER BID ITEMS.</li></ol></div></div> <div><div><h3>CITY OF EL MIRAGE LANDSCAPING &amp; IRRIGATION NOTES</h3><ol style="list-style-type: none"><li>ALL LANDSCAPE AND IRRIGATION INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY OR OTHER CITY MAINTAINED AREAS SHALL BE INSTALLED PER THE CITY'S SPECIFICATIONS. ALL LANDSCAPING APPROVED AS A PART OF THE SITE PLAN PROCESS SHALL BE INSTALLED PER THE APPROVED PLANS. ANY DEVIATIONS TO THE APPROVED PLANS REQUIRE CITY APPROVAL.</li><li>PERMITS ARE REQUIRED FOR ELECTRICAL CONNECTIONS, INCLUDING ELECTRIC METER INSTALLATION, BACKFLOW PREVENTERS, AND WORK WITHIN THE CITY RIGHT-OF-WAY OR CITY DEDICATED PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THESE PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK.</li><li>ALL LANDSCAPE PROJECTS REQUIRING CITY MAINTENANCE OR WITHIN THE CITY RIGHT-OF-WAY SHALL BE INSPECTED FOR THE FOLLOWING:<div><div>A. PLANT LOCATIONS: THESE LOCATIONS SHALL BE STAKED IN THE FIELD WITH IDENTIFICATION AS TO TREES OR SHRUBS; OR HOLES FOR THE PLANT MATERIALS MAY BE DUG WITH IDENTIFICATION OF PLANT TYPE. USE OF THIS METHOD DOES NOT RELIEVE THE CONTRACTOR OF ANY PLANT RELOCATIONS MADE BY THE CITY.</div><div>B. IRRIGATION INSTALLATION: INSPECTIONS SHALL BE MADE AT THE POINT THE IRRIGATION SYSTEM IS INSTALLED. INSPECTIONS OF THE PIPE DEPTH, AUTOMATIC VALVE INSTALLATION AND EMITTER/SPRAY INSTALLATIONS WILL BE MADE.</div><div>C. SUBSTANTIAL COMPLETION: AN INSPECTION AT COMPLETION OF THE LANDSCAPE AND IRRIGATION INSTALLATION WILL BE MADE. ANY DEFICIENCIES IN THE INSTALLATION WILL BE NOTED AND CORRECTED BY THE CONTRACTOR DURING THE MAINTENANCE PERIOD.</div><div>D. FINAL ACCEPTANCE: A FINAL INSPECTION IS REQUIRED PRIOR TO CITY ACCEPTANCE OF THE LANDSCAPE AND IRRIGATION IMPROVEMENTS.</div></div><div>THE ABOVE INSPECTIONS REQUIRE A MINIMUM OF 48-HOURS PRIOR NOTIFICATION TO THE CITY. CALL THE EL MIRAGE DEVELOPMENT &amp; COMMUNITY SERVICES DEPARTMENT AT (623) 876-2996 AND LEAVE A MESSAGE INCLUDING THE SUBDIVISION, LOCATION AND TYPE OF INSPECTION TO ARRANGE FOR THESE INSPECTIONS.</div></li><li>SEPARATE INSPECTIONS ARE REQUIRED FOR THE BACKFLOW PREVENTER AND ELECTRICAL CONNECTIONS. PLEASE CALL FIRE, BUILDING &amp; LIFE SAFETY AT (623) 876-2979 A MINIMUM OF 24-HOURS PRIOR TO ARRANGE FOR THESE INSPECTIONS.</li><li>LANDSCAPE AND IRRIGATION, WHICH IS INSTALLED ON PRIVATE PROPERTY IN CONJUNCTION WITH A CITY APPROVED SITE PLAN, WILL BE INSPECTED BY THE DEVELOPMENT &amp; COMMUNITY SERVICES DEPARTMENT FOR CONFORMANCE TO THE APPROVED SITE PLAN PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.</li><li>THE LANDSCAPE AND IRRIGATION FOR THIS PROJECT WILL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION (HOA) PER THE APPROVED PLANS. IF NO HOA EXISTS, THE PROPERTY OWNER SHALL BE RESPONSIBLE.</li><li>ALL CITY MAINTAINED PROJECTS REQUIRE A 90-DAY MAINTENANCE PERIOD TO BEGIN AT THE DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY THE CITY.</li><li>RIGHT-OF WAY AND CITY MAINTAINED AREAS REQUIRE SEPARATE WATER METER CONNECTIONS. RIGHT-OF-WAY AREAS DESIGNATED FOR MAINTENANCE BY THE ADJACENT PROPERTY OWNERS FOR COMMERCIAL, INDUSTRIAL AND MULTI-FAMILY DEVELOPMENTS SHALL HAVE THE RIGHT-OF-WAY IRRIGATION ISOLATED OR SEPARATED FROM THE ON-SITE IRRIGATION SYSTEM.</li><li>THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, COST AND REQUIRED PERMIT FEES FOR THE WATER METER(S) DESIGNATED TO SERVE THE IRRIGATION SYSTEM.</li><li>ALL PLANTINGS AT MATURITY SHALL MAINTAIN A MINIMUM 6'-0" CLEARANCE AROUND ALL FIRE HYDRANTS AND FIRE SUPPRESSION DEVICES.</li><li>PLANTINGS SHALL NOT INTERFERE WITH ANY TRAFFIC CONTROL SIGNS AND SHALL MAINTAIN A MAXIMUM HEIGHT OF 24" WITHIN ANY SIGHT DISTANCE TRIANGLES.</li><li>INSTALLATION OF THE LANDSCAPE AND IRRIGATION SYSTEM INCLUDING ADDITION OF GROUND PLANT MATERIALS SHALL NOT IMPEDE THE FLOW OF DESIGNED DRAINAGE FACILITIES NOR DECREASE THE DESIGN VOLUME OF ANY DETENTION/RETENTION BASINS.</li><li>THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UNDERGROUND UTILITIES DURING THE LANDSCAPE AND IRRIGATION INSTALLATION.</li><li>ALL TREES SHALL MAINTAIN A MINIMUM OF 6'-0" CLEARANCE FROM ANY CITY WATER OR SEWER LINE. ALL PLANTINGS SHALL MAINTAIN A SUFFICIENT DISTANCE TO ANY SANITARY AND STORM SEWER MANHOLES TO ALLOW ACCESS BY MAINTENANCE VEHICLES.</li><li>A SWALE A MINIMUM OF 6" IN DEPTH SHALL BE PROVIDED IN ALL LANDSCAPE AREAS WITHIN THE CITY RIGHT-OF-WAY TO PROMOTE WATER HARVESTING.</li><li>ALL PLANTING AREAS (EXCEPT TURF AREAS) TO BE MAINTAINED BY THE CITY SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE BY A LICENSED APPLICATOR PRIOR TO AND AFTER THE PLACEMENT OF THE DECOMPOSED GRANITE, RIVER ROCK ETC. PRODUCT LABELS AND APPLICATION DOCUMENTATION WILL BE REQUIRED PRIOR TO ACCEPTANCE OF THE LANDSCAPING BY THE CITY.</li><li>AS-BUILT DRAWINGS OF THE LANDSCAPE AND IRRIGATION SYSTEM ARE REQUIRED PRIOR TO ACCEPTANCE BY THE CITY AND FOR PROJECTS WITHIN THE CITY RIGHT-OF-WAY OR CITY OWNED PROPERTY. THE AS-BUILT DRAWINGS SHALL SHOW THE LOCATIONS OF ALL PLANTINGS AND THE DIMENSIONS TO FIXED POINTS OF ALL IRRIGATION EQUIPMENT, PIPING, ETC. THE AS-BUILT DRAWINGS MUST BE SUBMITTED ON A CD THAT CONTAINS PDFS OF ALL PLAN SHEETS.</li></ol></div></div> <div><div><div><div><div><div>40245</div><div>ERIC A. WATKINS</div><div>RESIDENT PROFESSIONAL ENGINEER</div><div>CERTIFICATE NO.</div><div>40245</div><div>06/18/2018</div><div>06/18/2018</div><div>12/31/18</div></div><div><div>EW</div><div>12/31/18</div></div></div><div></div></div></div><div><div>GENERAL INFORMATION AND NOTES</div><div><div><div><div><div>City of</div><div>EL MIRAGE</div><div>ARIZONA</div></div><div><div>BUTLER DRIVE</div><div>127TH AVENUE TO EL MIRAGE ROAD</div></div></div><div><div>DR: EAW</div><div>DES: EAW</div><div>CK: RPW</div><div>DATE: 06/18</div><div>DATE: 06/18</div><div>DATE: 06/18</div></div><div>DWG. NO. <b>G2</b></div><div>SCALE:</div><div>OF</div></div></div></div><div><div>ewatkins</div><div>NFRA-El Mirage.tbl</div><div>6/12/2018</div><div>11:48:34 AM</div><div>W:\Transportation\El Mirage\EM17 - W01 Butler Drive Recst\CADD\Civil\NFra\Plan Sheets\GenNotes02.dgn</div></div></div>								



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		NO.		DESCRIPTION		REV BY		CKD BY		DATE		<div><div></div><div><div>NFra Inc.</div><div>a transportation engineering firm</div><div>77 East Thomas Road, Suite 200</div><div>Phoenix, Arizona 85012</div></div></div>											
		NO.		DESCRIPTION		REV BY		CKD BY		DATE		<div><div><b>CITY OF EL MIRAGE WATER NOTES</b></div><div><div>1. ACCEPTABLE WATER LINE MATERIALS:<div><div>A. DUCTILE IRON PIPE, PRESSURE CLASS 350, IS ACCEPTABLE FOR WATER LINES SIZES SIX (6) INCHES THROUGH TWELVE (12) INCHES IN DIAMETER. ALL DUCTILE IRON PIPE SHALL BE POLYWRAPPED IN CONFORMANCE WITH SECTION 610.5 OF THE MAG STANDARD SPECIFICATIONS.</div><div>B. DUCTILE IRON PIPE, PRESSURE CLASS 250 MINIMUM, IS ACCEPTABLE FOR WATER LINES 16 INCHES IN DIAMETER AND LARGER. ALL DUCTILE IRON PIPE SHALL BE POLYWRAPPED IN CONFORMANCE WITH SECTION 610.5 OF THE MAG STANDARD SPECIFICATIONS.</div><div>C. PVC PIPE, AWWA C-900 PRESSURE CLASS 200, IS ACCEPTABLE FOR WATER LINES SIZES SIX (6) INCHES AND EIGHT (8) INCHES IN DIAMETER. (PRIVATE ONLY)</div></div></div><div>2. TRENCH EXCAVATION, BACKFILLING AND COMPACTION SHALL CONFORM TO MAG STANDARD SPECIFICATION SECTION 601 EXCEPT AS MODIFIED HEREIN.</div><div>3. BEDDING AND BACKFILL FOR WATER LINES SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF THE CITY OF EL MIRAGE STANDARD DETAIL 406, BEDDING AND BACKFILL FOR ALL PIPELINES.</div><div>4. BACKFILL SHALL BE TYPE I AS DEFINED IN SECTION 601 OF THE MAG STANDARD SPECIFICATIONS.</div><div>5. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE PROJECT ENGINEER BEFORE THE WATER LINE OR FITTINGS ARE COVERED, SO "AS-BUILT" MEASUREMENTS MAY BE TAKEN. ANY CHANGES TO THE APPROVED PLANS MUST BE AUTHORIZED BY THE PROJECT ENGINEER AND THE CITY ENGINEER BEFORE THE CHANGE IS MADE IN THE FIELD.</div><div>6. SIX-(6) INCH AND EIGHT (8) INCH WATERLINES LOCATED IN STREETS SHALL HAVE A MINIMUM COVER OF 48 INCHES OVER THE TOP OF THE PIPE TO FINISH GRADE. SIX (6) INCH AND EIGHT (8) INCH WATERLINES IN LOCATIONS OTHER THAN STREETS SHALL HAVE A MINIMUM COVER OF 36 INCHES OVER THE TOP OF THE PIPE TO FINISH GRADE, UNLESS DESIGN CONDITIONS WARRANT ADDITIONAL COVER.</div><div>7. TWELVE (12) INCH WATERLINES LOCATED IN STREETS SHALL HAVE A MINIMUM COVER OF 60 INCHES OVER THE TOP OF THE PIPE TO FINISH GRADE. TWELVE (12) INCH WATERLINES IN LOCATIONS OTHER THAN STREETS SHALL HAVE A MINIMUM COVER OF 48 INCHES OVER THE TOP OF THE PIPE TO FINISH GRADE, UNLESS DESIGN CONDITIONS WARRANT ADDITIONAL COVER.</div><div>8. SIXTEEN (16) INCH WATERLINES SHALL HAVE A MINIMUM COVER OF 60 INCHES OVER THE TOP OF THE PIPE TO FINISH GRADE, UNLESS DESIGN CONDITIONS WARRANT ADDITIONAL COVER.</div><div>9. ALL STUB-OUTS SHALL HAVE A TWO (2) INCH BRASS BALL CORP STOP AS A BLOW-OFF, LEFT IN PLACE WITH A TWO (2) INCH RISER, PER MAG STANDARD DETAIL 390, TYPE 'A', AND SHALL BE ACCESSIBLE TO USE.</div><div>10. FIRE HYDRANTS SHALL CONFORM TO CITY OF EL MIRAGE STANDARD DETAIL 360. THE FIRE HYDRANT MANUFACTURER MUST BE APPROVED BY THE CITY OF EL MIRAGE PRIOR TO THE INSTALLATION OF THE FIRE HYDRANT.</div><div>11. ALL VALVES 16 INCHES AND UNDER SHALL BE RESILIENT SEAT AWWA APPROVED GATE VALVES AND SHALL OPEN BY TURNING TO THE LEFT.</div><div>12. VALVES SHALL NOT BE LOCATED IN SIDEWALKS, GUTTERS, CURB, OR VALLEY GUTTERS.</div><div>13. ALL WATER VALVES SHALL HAVE A VALVE BOX AND COVER PER MAG STANDARD DETAIL 391-1, TYPE 'A' AND 392, TYPE 'A'. ADJUSTMENTS SHALL CONFORM TO MAG STANDARD DETAIL 391-1, TYPE 'A'.</div><div>14. CONTRACTORS SHALL NOT OPERATE VALVES ON THE EXISTING CITY SYSTEM.</div><div>15. WATER LINES SHALL BE INSTALLED IN SUCH A MANNER TO ELIMINATE DIPS OR HIGH POINTS. WATER LINES CONSTRUCTED ON LINEAR STREETS SHALL NOT HAVE HORIZONTAL ALIGNMENT DEFLECTIONS. ALL HORIZONTAL DEFLECTIONS IN WATER LINES (CONSTRUCTED IN NONLINEAR STREETS) SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS FOR DEFLECTION AT JOINTS.</div><div>16. THRUST RESTRAINT SHALL BE INSPECTED PRIOR TO BACKFILL. REINFORCING STEEL AND FORM WORK SHALL BE INSPECTED PRIOR TO PLACING CONCRETE FOR THRUST BLOCKS. THRUST RESTRAINT SHALL CONFORM TO MAG STANDARD SPECIFICATION 610.4 AND MAG STANDARD DETAILS 301, 380 AND 381.</div><div>17. WATER SERVICES TWO (2) INCHES AND SMALLER IN DIAMETER SHALL CONFORM TO CITY OF EL MIRAGE STANDARD DETAIL 325. THE MINIMUM SERVICE CONNECTION SHALL BE ONE (1) INCH. SINGLE FAMILY RESIDENCES MAY USE A MINIMUM ONE-(1) INCH SERVICE CONNECTION. WATER SERVICE SADDLE MANUFACTURER AND MODEL MUST BE APPROVED BY THE CITY OF EL MIRAGE PRIOR TO INSTALLATION.</div><div>18. WATER SERVICES SHALL NOT BE LOCATED UNDER DRIVEWAYS, OR UNDER CONCRETE APRONS ADJACENT TO DRIVEWAYS.</div><div>19. AN APPROVED METALLIC LOCATOR TAPE AND TRACING WIRE SHALL BE INSTALLED WITH ALL WATER LINES AND SERVICES (LINEAR AND NONLINEAR), AND ATTACHED TO VALVE BOXES.</div><div>20. ALL PAVEMENT REPLACEMENT SHALL CONFORM WITH MAG STANDARD DETAIL 200-1 MODIFIED WITH A ONE-HALF (1/2) SACK PORTLAND CEMENT ABC SLURRY, WHICH CONFORMS TO MAG STANDARD SPECIFICATION 728, (MODIFIED FOR ONE-HALF SACK PORTLAND CEMENT), FOR TRENCH BACKFILL FROM ONE (1) FOOT ABOVE THE TOP OF PIPE TO THE EXISTING PAVEMENT SUBGRADE. USE TYPE 'A' FOR LONGITUDINAL TRENCH REPAIR AND USE "T TOP" FOR TRANSVERSE TRENCH REPAIR OR WHEN A TRENCH RUNS THROUGH AN INTERSECTION. PAVEMENT REPLACEMENT THICKNESS SHALL BE 1.5 TIMES THE EXISTING ASPHALT THICKNESS. AC MIX DESIGN SHALL BE PER THE CITY OF PHOENIX C-3/4" MIX. CRACK SEALING IS REQUIRED.</div></div></div> <div><div><b>CITY OF EL MIRAGE WATER NOTES (CONTINUED)</b></div><div><div>21. PRESSURE TESTING SHALL NOT BE CONDUCTED UNTIL AFTER THE CONTRACTOR HAS PRETESTED 100% OF THE LINES. INSPECTION TESTING MUST BE CALLED FOR TWENTY-FOUR (24) HOURS IN ADVANCE. WATER LINES MUST PASS PRESSURE TESTING PRIOR TO PAVING.</div><div>22. ALL MAINS SHALL BE CHLORINATED IN CONFORMANCE WITH SECTION 611 OF MAG STANDARD SPECIFICATIONS. SAMPLES WILL BE TAKEN IN CONFORMANCE WITH MAG STANDARD SPECIFICATION SECTION 611.</div><div>23. THE CONTRACTOR SHALL NOT TIE INTO EXISTING MAINS WITHOUT PRIOR APPROVAL OF THE CITY ENGINEER OR HIS/HER DESIGNEE.</div><div>24. THE FOLLOWING MAG UNIFORM STANDARD DETAILS ARE SPECIFICALLY <u>NOT</u> APPROVED.<div><div>NO. 345-2</div><div>4", 6" WATER METER WITH ON-SITE FIRE HYDRANTS</div></div><div><div>NO. 360-1</div><div>DRY BARREL FIRE HYDRANT INSTALLATION</div></div><div><div>NO. 360-2</div><div>WET BARREL FIRE HYDRANT INSTALLATION</div></div><div><div>NO. 360-3</div><div>FIRE HYDRANT INSTALLATION DETAILS</div></div><div><div>NO. 389</div><div>CURB STOP WITH VALVE BOX AND COVER</div></div><div><div>NO. 391-1</div><div>VALVE BOX INSTALLATION AND GRADE ADJUSTMENT - TYPES 'B' &amp; 'C'</div></div></div><div>25. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET OSHA STANDARDS FOR "TRENCH SAFETY".</div><div>26. IN ACCORDANCE WITH AAC R18-4-119. ALL MATERIALS ADDED AFTER JANUARY 1, 1993, WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.</div><div>27. NO WATER LINES SHALL BE LOCATED WITHIN RETENTION/DETENTION BASINS.</div><div>28. ALL WATER VALVES LOCATED OUTSIDE PAVED AREAS SHALL HAVE A 'CURVE-FLEX' UTILITY MARKER AS MANUFACTURED BY CARSONITE (CFRM-400-BLUE).</div><div>29. AN "ENGINEER'S CERTIFICATE OF COMPLETION" ISSUED BY THE MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT, IS REQUIRED PRIOR TO FINAL PROJECT ACCEPTANCE.</div><div>30. A COPY OF THE APPROVAL TO CONSTRUCT (ATC) ISSUED BY MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT (MCESD) IS REQUIRED WITHIN NINETY (90) DAYS OF ISSUANCE OF THE OFF-SITE PERMIT.</div><div>31. A COPY OF THE APPROVAL OF CONSTRUCT (AOC) ISSUED BY MCESD IS REQUIRED PRIOR TO FINAL PROJECT ACCEPTANCE.</div><div>32. ALL MATERIALS SHALL BE LEAD FREE AS DEFINED IN AAC R18-5-504 AND R-18-4-101.</div></div></div> <div><div><b>CITY OF EL MIRAGE STRIPING &amp; SIGNING NOTES</b></div><div><div>1. THE CONTRACTOR SHALL NOTIFY THE CITY OF EL MIRAGE'S ENGINEERING DIVISION AT LEAST 48 HOURS IN ADVANCE OF ANY STRIPING AT 623-933-8318. STRIPING COMPLETED PRIOR TO THE CITY'S INSPECTION SHALL BE REMOVED IF IT IS NOT CONSISTENT WITH CITY STANDARDS.</div><div>2. THE OBLITERATION OF EXISTING STRIPING IN AREAS THAT WILL BE RE-STRIPED SHALL BE ACCOMPLISHED BY WATER BLASTING OR OTHER METHODS APPROVED BY THE CITY.</div><div>3. CROSSWALK, STOP BAR AND TURN ARROW PAVEMENT MARKING INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH THE CITY OF EL MIRAGE'S STANDARD, ALKYD THERMOPLASTIC MATERIAL APPLIED AT 90 MIL THICKNESS. LONGITUDINAL STRIPING SHALL BE INSTALLED WITH ALKYD THERMOPLASTIC MATERIAL APPLIED AT 60 MIL THICKNESS AS PER THE SIGNING AND STRIPING PLAN.</div><div>4. SIGNING SHALL BE INSTALLED AS PER THE CITY OF EL MIRAGE DETAILS #132-1 AND 132-2.</div><div>5. THE CONTRACTOR SHALL RETURN ALL REMOVED TRAFFIC SIGNAL EQUIPMENT/SIGNS TO THE CITY OF EL MIRAGE MUNICIPAL OPERATIONS CENTER. CONTACT THE CITY ENGINEER'S OFFICE AT 623-933-8318.</div><div>6. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS FOR TRAFFIC CONTROL, BARRICADING, SIGNING AND STRIPING AS PER THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT), THE CITY OF PHOENIX BARRICADE MANUAL AND CITY OF EL MIRAGE SUPPLEMENTS.</div></div></div> <div><div><div><div><div><div>40245</div><div>ERIC A. WATKINS</div><div>RES 12/31/16</div></div><div>Professional Engineer</div><div>CERTIFICATE NO.</div></div><div><div>EW</div><div>12/31/16</div></div></div></div><div><div>GENERAL INFORMATION AND NOTES</div><div><div><div><div><div>City of</div><div>EL MIRAGE</div><div>ARIZONA</div></div><div><div>127TH AVENUE TO EL MIRAGE ROAD</div></div></div><div><div>DR: EAW</div><div>DES: EAW</div><div>CK: RPW</div><div>DWG. NO. G3</div></div><div><div>DATE: 06/18</div><div>DATE: 06/18</div><div>DATE: 06/18</div><div>OF</div></div></div></div></div><div><div>ewatkins</div><div>NFRA-El Mirage.tbl</div><div>6/12/2018</div><div>11:48:35 AM</div><div>w:\transportation\el mirage\em17 - w01 butler drive recst\cadd\civil\nfra\Plan Sheets\GenNotes03.dgn</div></div></div>											



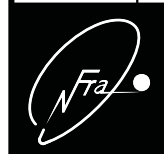
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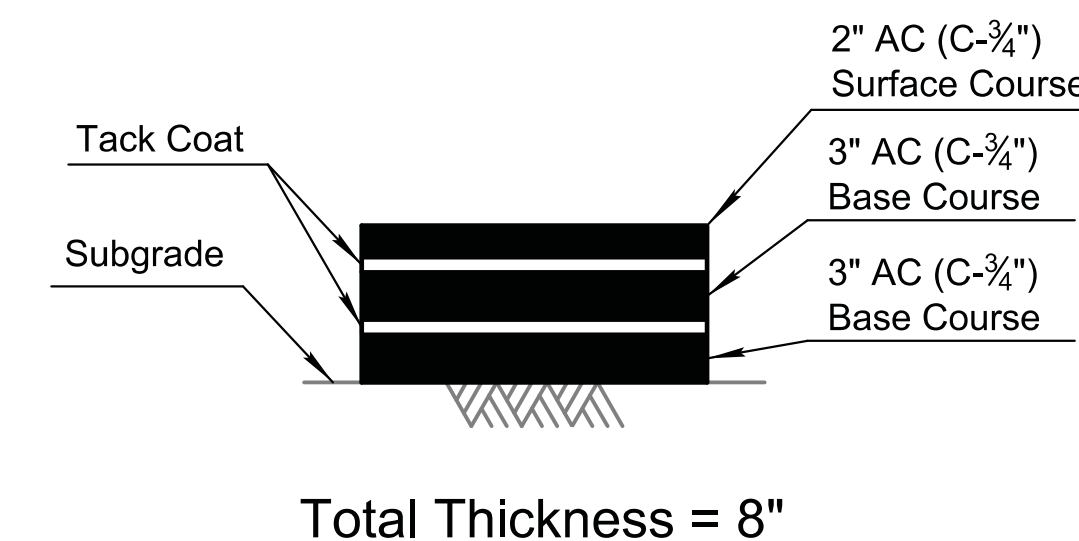
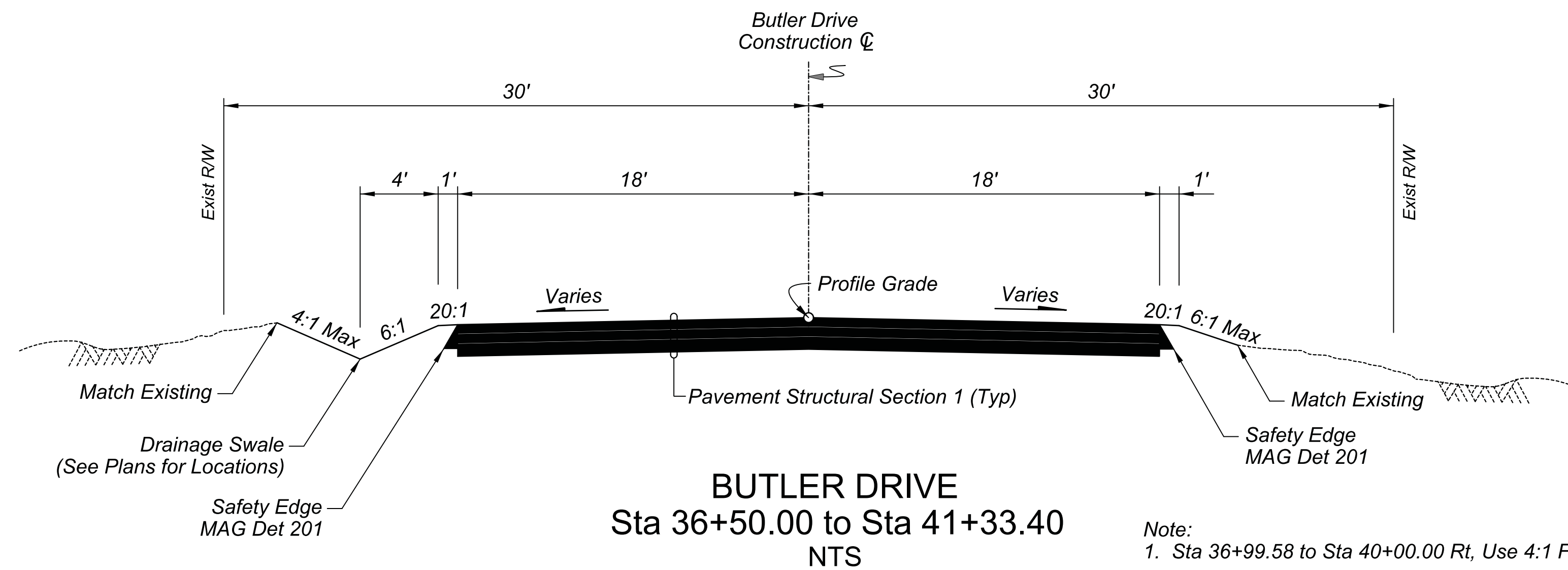
QUANTITY SUMMARY					
<div style="display: flex; align-items: center;"> <div> <h2 style="margin: 0;">EL MIRAGE</h2> <p style="margin: 0;">ARIZONA</p> </div> </div>					
<p><b>BUTLER DRIVE</b>  <b>127TH AVENUE TO EL MIRAGE ROAD</b></p>					
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DATE: 06/18	DATE: 06/18	DATE: 06/18			
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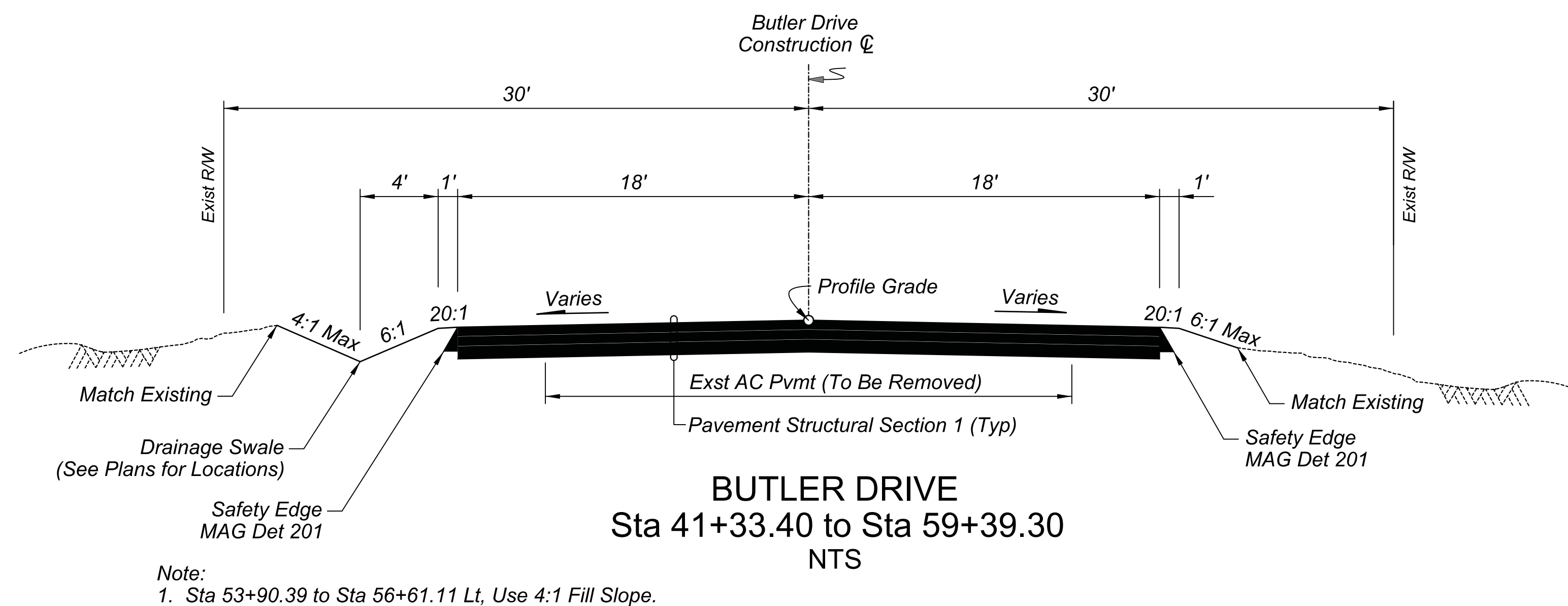
F.H.W.A. REGION	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	RECORD DWG.
9	ARIZ	EM17-ST01	6	13	



**NFra Inc.**  
*a transportation engineering firm*  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012

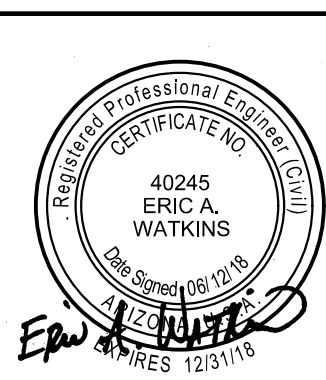
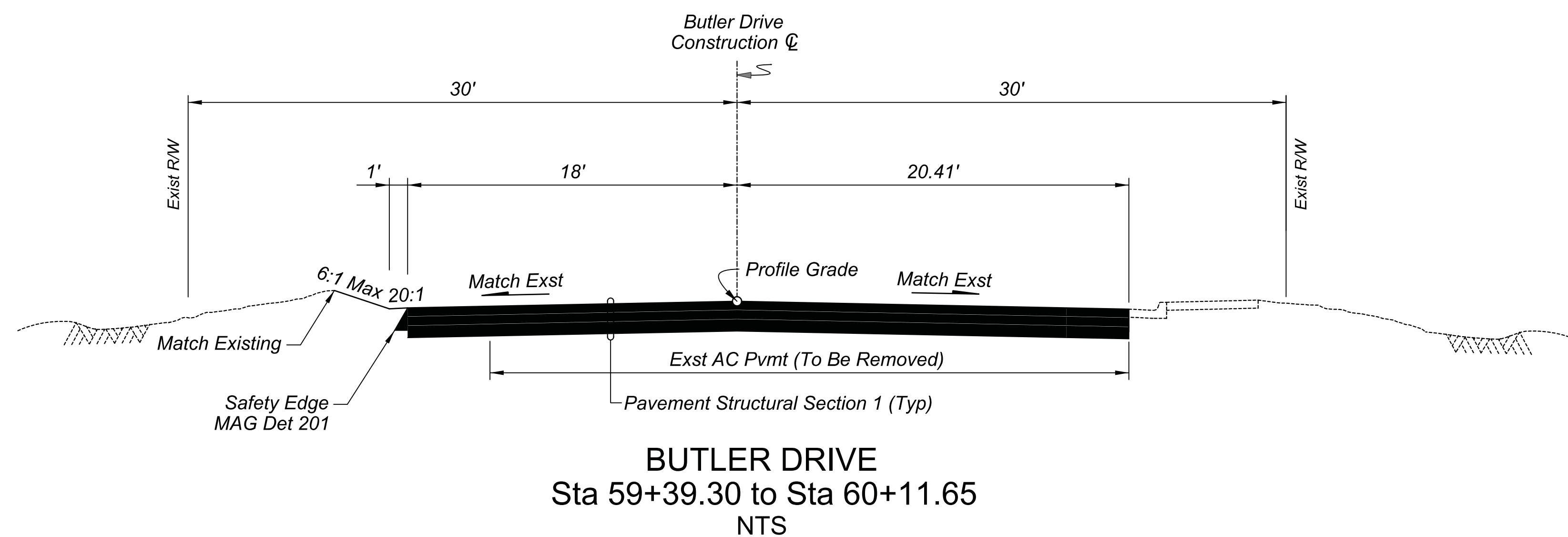


## PAVEMENT STRUCTURAL SECTION NO. 1



### SUBGRADE PREP GENERAL NOTES

1. PREPARE THE GROUND SURFACE IN FILL AREAS AND IN AREAS CUT TO GRADE BY SCARIFYING, MOISTURE CONDITIONING, AND COMPACTING THE EXPOSED SURFACE SOILS TO A DEPTH OF TEN (10) INCHES.
2. MOISTURE CONDITION AND PLACE FILL AND BACKFILL MATERIALS REQUIRED TO ACHIEVE SPECIFIED GRADES. FILL MATERIALS SHOULD BE MOISTURE CONDITIONED, PLACED, AND COMPACTED IN HORIZONTAL LIFTS OF THICKNESS COMPATIBLE WITH THE COMPACTION EQUIPMENT BEING USED.
3. NO SEPERATE PAYMENT WILL BE MADE FOR SCARIFYING AND MOISTURE CONDITIONING MATERIALS. THE COST IS CONSIDERED INCIDENTAL TO THE COST OF SUBGRADE PREPARATION.




## TYPICAL &amp; STRUCTURAL SECTIONS



EL MIRAGE  
ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>G5</b>
DATE: 06/18	DATE: 06/18	DATE: 06/18	
SCALE: NONE			OF



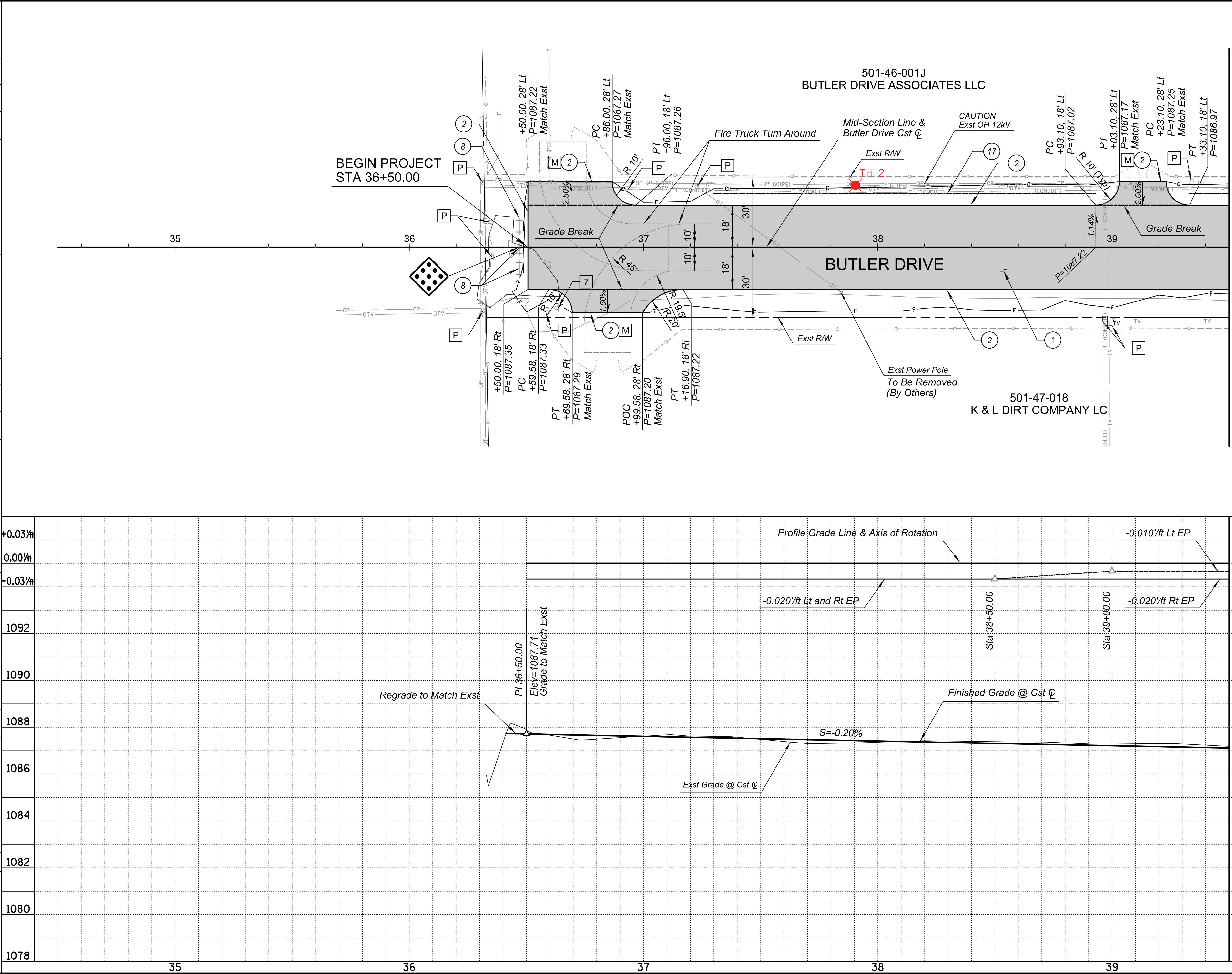
Faculty of Science, University of Zagreb

Department of Physics





REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE	
NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION



N

MATCHLINE STA 39+50.00 SEE SHEET P2

F.H.W.A. REGION	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	RECORD DWG.
9	ARIZ	EM17-ST01	8	13	

NFra Inc.  
a transportation engineering firm  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012

CONSTRUCTION NOTES			
NO	DESCRIPTION	UNIT	QTY
1	Construct New AC Pavement per Structural Section No 1 Subgrade Prep AC Pavement	SY TON	1,368 590
2	Construct Safety Edge per MAG Std Dtl 201	LF	NPI
8	Construct Barricade MAG Std Dtl 130, Type A Install Sign on each Barricade (3 Total) OM4-2 (18"x18") Sign Panel	EA	3
17	Construct Drainage Swale per Typical Section Sta 37+30.00 to 38+93.10 Sta 39+33.10 to 39+50.00	SF NPI	6.75

M

 Match

P

 Protect

S

 Sawcut

REMOVALS			
NO	DESCRIPTION	UNIT	QTY
7	Remove Sign, Post & Foundation	EA	1

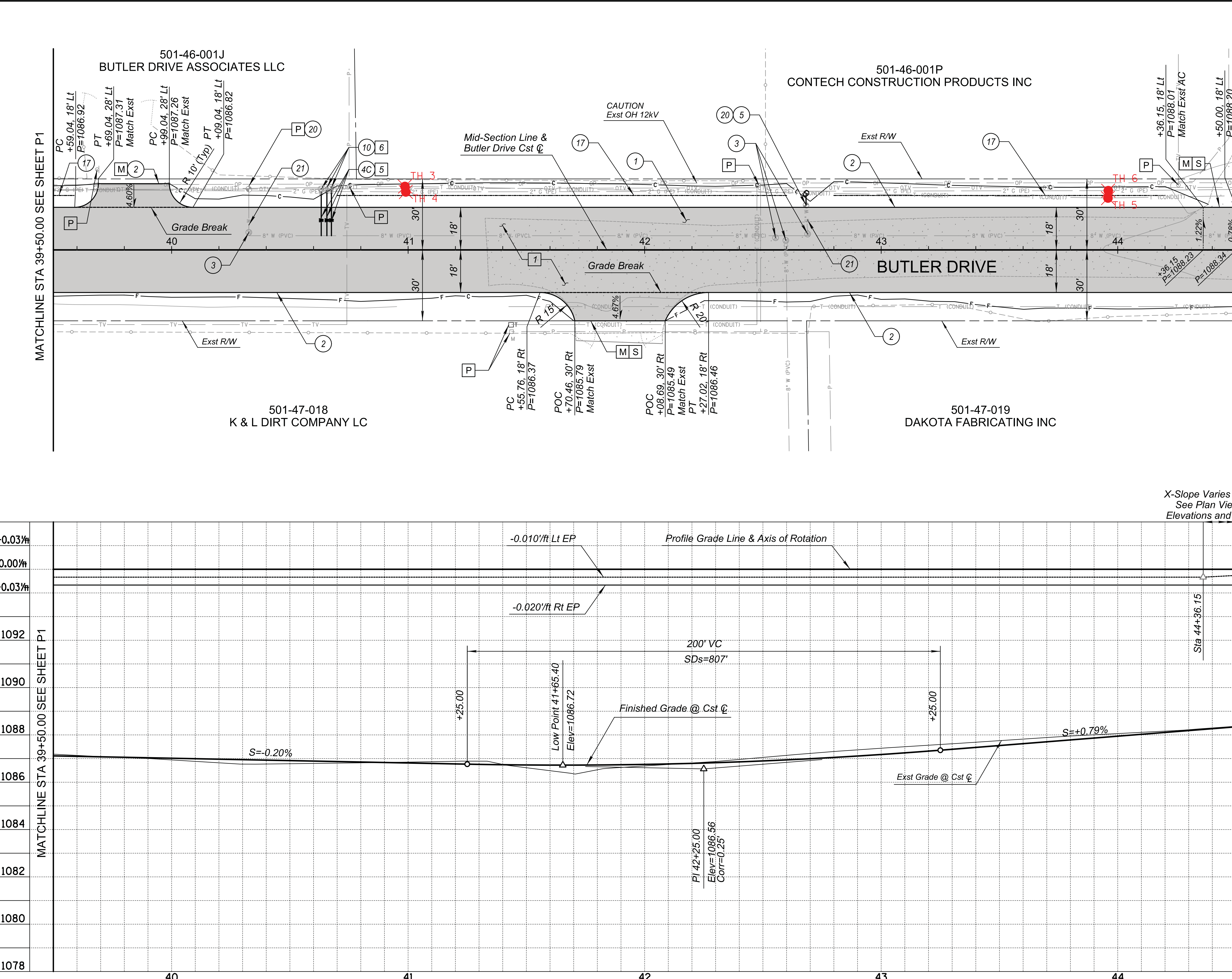
Call at least two full working days before you begin excavation.  
**ARIZONA 811**  
Arizona Blue Stakes, Inc.  
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)  
In Maricopa County: (602) 263-1100

Professional Engineer Seal

40245  
ERIC A. WATKINS  
RES 12/31/16

ROADWAY PLAN AND PROFILE	
	<b>EL MIRAGE</b> ARIZONA
BUTLER DRIVE 127TH AVENUE TO EL MIRAGE ROAD	
DR: EAW DATE: 06/18	DES: EAW DATE: 06/18
CK: RPW DATE: 06/18	DWG. NO. <b>P1</b>
SCALE: 1"=20' HORIZONTAL 1"=2' VERTICAL	
OF	



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H.W.A. REGION	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	RECORD DWG.
9	ARIZ	EM17-ST01	9	13	

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*a transportation engineering firm*  
 77 East Thomas Road, Suite 200  
 Phoenix, Arizona 85012

CONSTRUCTION NOTES			
NO	DESCRIPTION	UNIT	QTY
1	Construct New AC Pavement per Structural Section No 1 Subgrade Prep AC Pavement	SY TON	2,187 945
2	Construct Safety Edge per MAG Std Dtl 201	LF	NPI
3	Adjust Valve Box & Cover per MAG Std Dtl 391-1, Type 'A'	EA	4
4C	Construct 2" Water Service per COEM Std Dtl 325	EA	3
5	Relocate Fire Hydrant per MAG Std Dtls 122 and 362 and COEM Std Dtl 360	EA	1
10	Install New Water Meter Lid per COEM Std Dtl 325	EA	3
17	Construct Drainage Swale per Typical Section Sta 39+50.00 to 39+59.04 Sta 40+70.00 to 42+60.00 Sta 42+80.00 to 44+20.00	NPI	
20	Paint Exst Fire Hydrant per COEM Std Dtl 360	EA	2
21	Raised Pavement Marker for Fire Hydrant, Blue per MAG Std Dtl 122	EA	2
M	Match		
P	Protect		
S	Sawcut		

REMOVALS			
NO	DESCRIPTION	UNIT	QTY
1	Sawcut & Remove Exst AC Pavement	SY	991
5	Remove Exst Water Service to Exst Corp Stop (Box and Meter to Remain)	EA	3
6	Remove Exst Water Meter Lid (Box and Meter to Remain)	EA	3

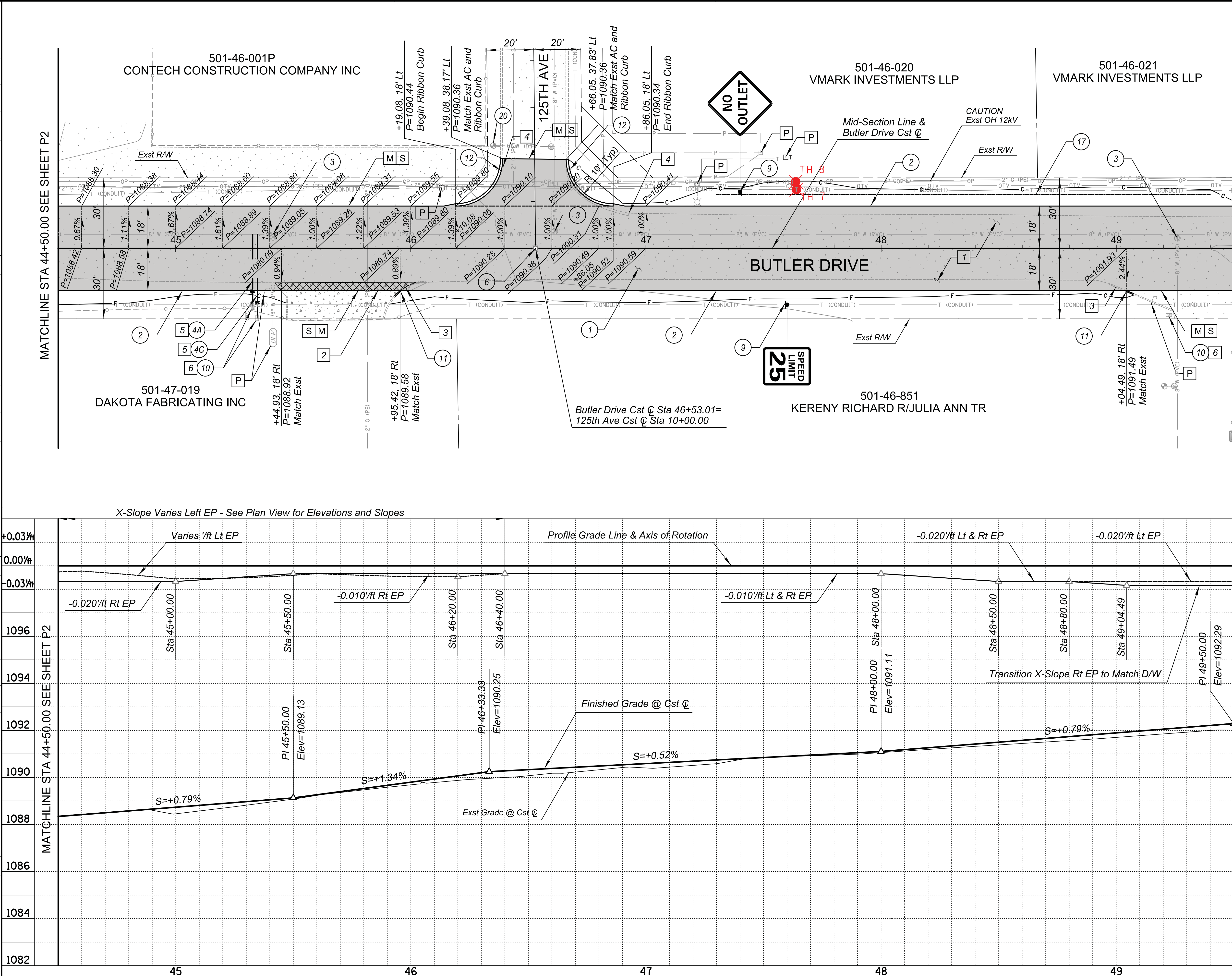
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**ARIZONA 811**  
 Arizona Blue Stake, Inc.  
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 In Maricopa County: (602) 263-1109

*Eric A. Watkins*  
 12/5/18

ROADWAY PLAN AND PROFILE	
<p><b>EL MIRAGE</b> ARIZONA</p>	<p><b>BUTLER DRIVE</b>  <b>127TH AVENUE TO EL MIRAGE ROAD</b></p>

DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>P2</b>
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SCALE: 1"=20' HORIZONTAL			OF



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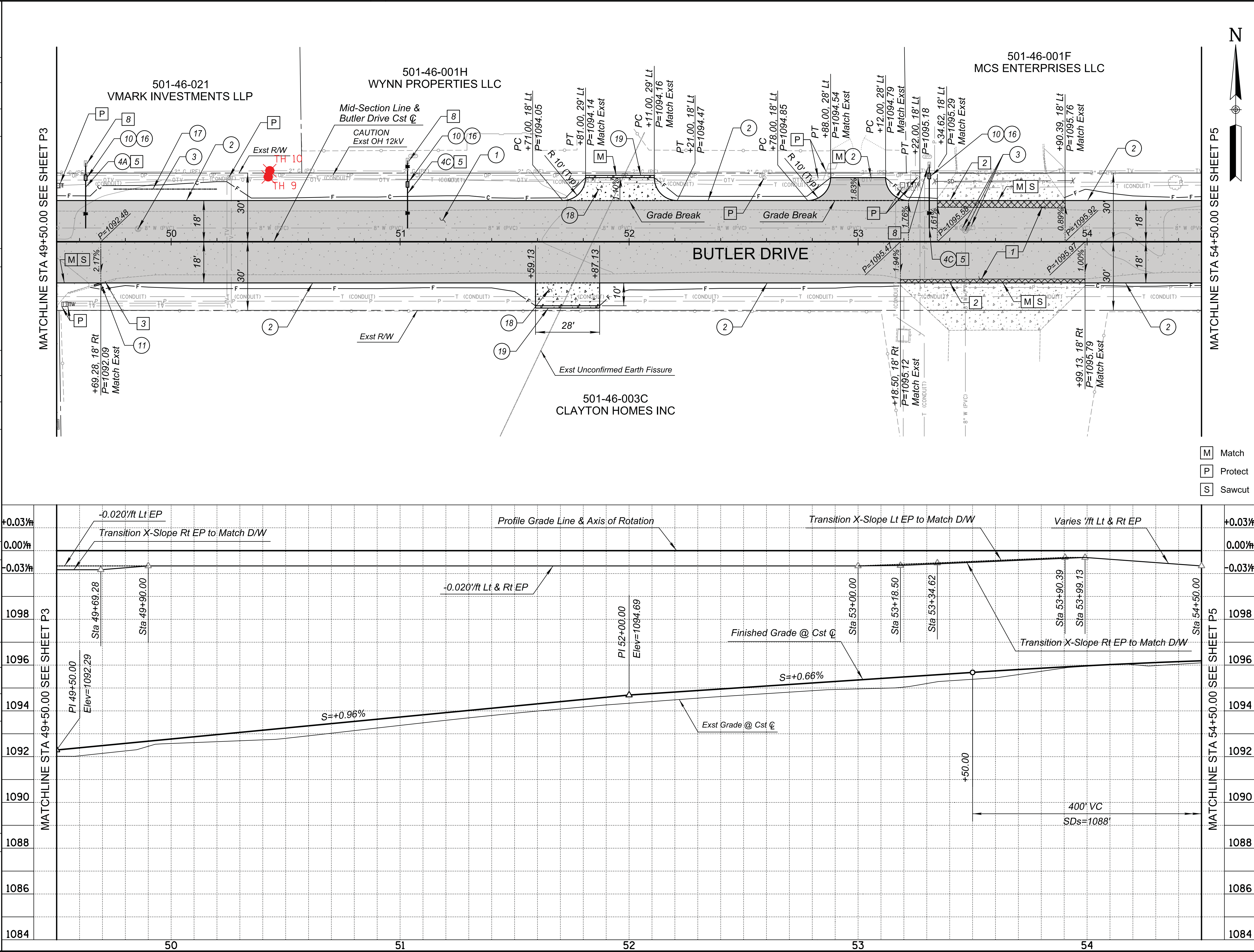
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REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE	
NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION



F.H.W.A. REGION  
9

STATE  
ARIZ

PROJ. NO.  
EM17-ST01

SHEET NO.  
11

TOTAL SHEETS  
13

RECORD DWG.

NFra Inc.  
a transportation engineering firm  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	Construct New AC Pavement per Structural Section No 1 Subgrade Prep AC Pavement	SY TON	2,101 912
2	Construct Safety Edge per MAG Std Dtl 201	LF	NPI
3	Adjust Valve Box & Cover per MAG Std Dtl 391-1, Type 'A'	EA	4
4A	Construct 1" Water Service per COEM Std Dtl 325	EA	1
4C	Construct 2" Water Service per COEM Std Dtl 325	EA	2
10	Install New Water Meter Lid per COEM Std Dtl 325	EA	3
11	Construct Conc Single Curb Termination per MAG Std Dtl 222	EA	1
16	Install New Water Meter Box per COEM Std Dtl 325	EA	3
17	Construct Drainage Swale per Typical Section Sta 49+75.00 to 50+20.00	NPI	
18	Construct 9" Thick Concrete Driveway/Pad Subgrade Prep	SF	623 70
19	Construct 2' Concrete Cutoff Wall per MAG Std Dtl 552	LF	58

REMOVALS

NO	DESCRIPTION	UNIT	QTY
1	Sawcut & Remove Exst AC Pavement	SY	1,584
2	Sawcut & Remove Exst Conc Driveway	SF	304
3	Sawcut & Remove Exst Conc Single Curb	LF	10
5	Remove Exst Water Service to Exst Corp Stop (Box and Meter to Remain)	EA	3
8	Remove Exst Water Meter Box and Lid, Backfill and Compact	EA	3

Call at least two full working days before you begin excavation.  
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In Maricopa County: (602) 263-1100

ROADWAY PLAN AND PROFILE

EL MIRAGE ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW  
DATE: 06/18

DES: EAW  
DATE: 06/18

CK: RPW  
DATE: 06/18

DWG. NO. **P4**

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

OF



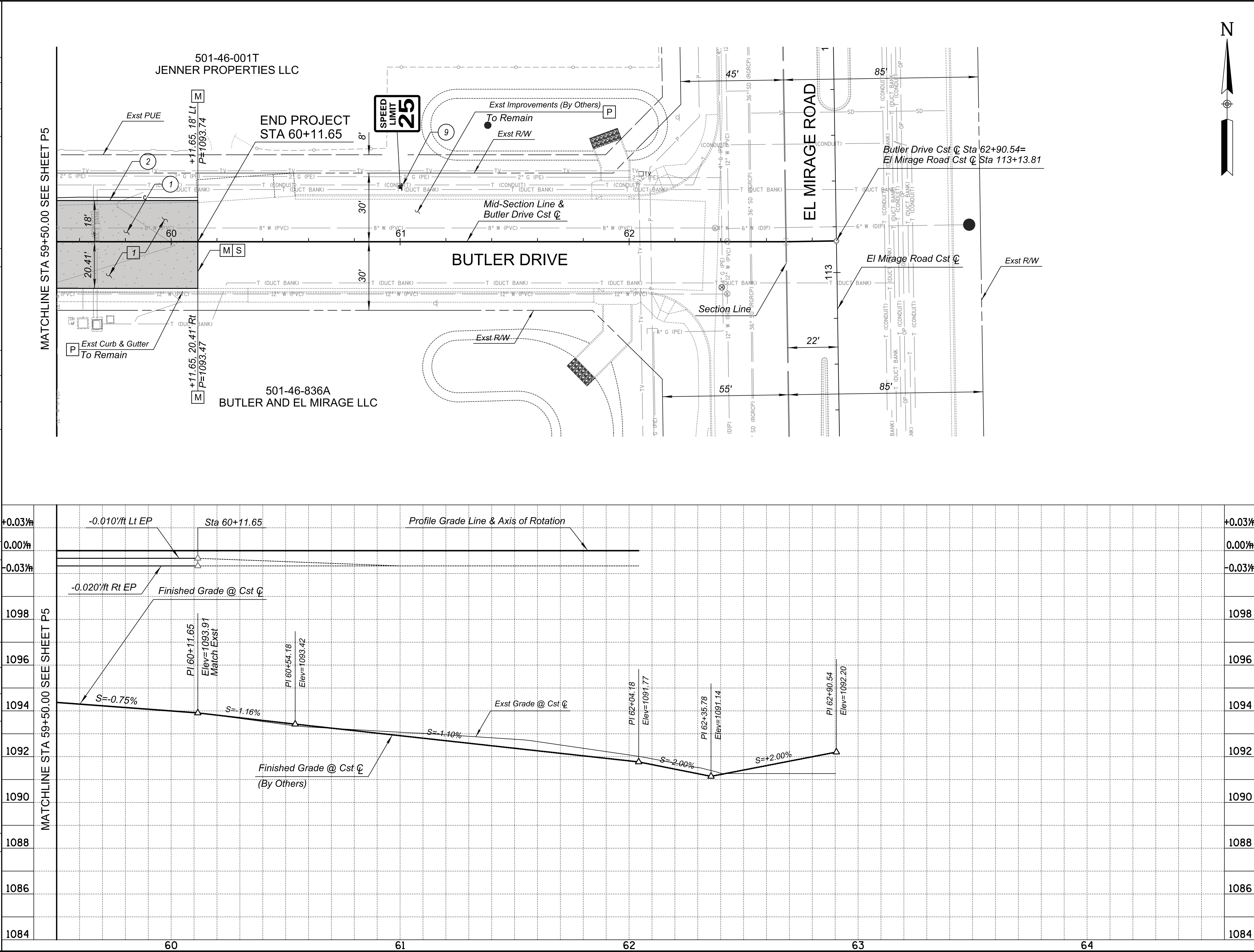
REVISION BY CITY OF EL MIRAGE			
NO.	DESCRIPTION	REV BY	CKD BY DATE



<p>Call at least two full working days before you begin excavation.</p> <p><b>ARIZONA 811</b></p> <p>Arizona Blue Stake, Inc.</p> <p>Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 262-1100</p>	 <p><i>Eric A. Watkins</i></p>
<p align="center"><b>ROADWAY PLAN AND PROFILE</b></p>	



REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE		REVISION BY CITY OF EL MIRAGE	
NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION



F.H.W.A. REGION  
9

STATE  
ARIZ

PROJ. NO.  
EM17-ST01

SHEET NO.  
13

TOTAL SHEETS  
13

RECORD DWG.

NFra Inc.  
a transportation engineering firm  
77 East Thomas Road, Suite 200  
Phoenix, Arizona 85012

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	Construct New AC Pavement per Structural Section No 1 Subgrade Prep AC Pavement	SY TON	269 118
2	Construct Safety Edge per MAG Std Dtl 201	LF	NPI
9	Install Speed Limit Sign per COEM Std Dtl 132-1 & 132-2 R2-1 (24"x30") Station 61+00, 24' Lt Sign Panel Post Foundation	SF LF EA	5 12 1

M Match

P Protect

S Sawcut

REMOVALS

NO	DESCRIPTION	UNIT	QTY
1	Sawcut & Remove Exst AC Pavement	SY	254

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In Maricopa County: (602) 263-1100

ROADWAY PLAN AND PROFILE

**EL MIRAGE**  
ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW DATE: 06/18	DES: EAW DATE: 06/18	CK: RPW DATE: 06/18	DWG. NO. <b>P6</b>
SCALE: 1"=20' HORIZONTAL 1"=2' VERTICAL			OF



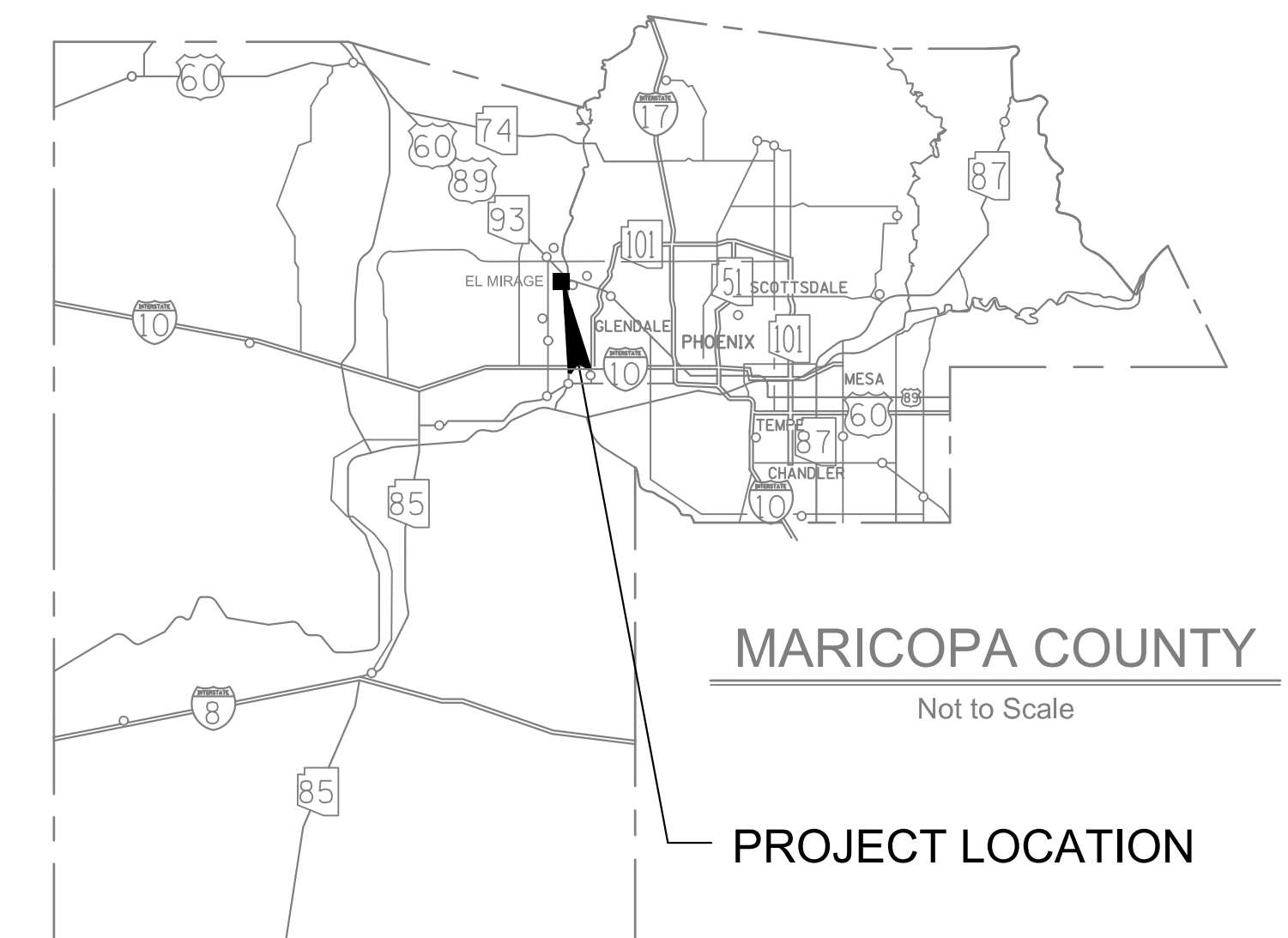
# CITY OF EL MIRAGE

## EL MIRAGE, ARIZONA

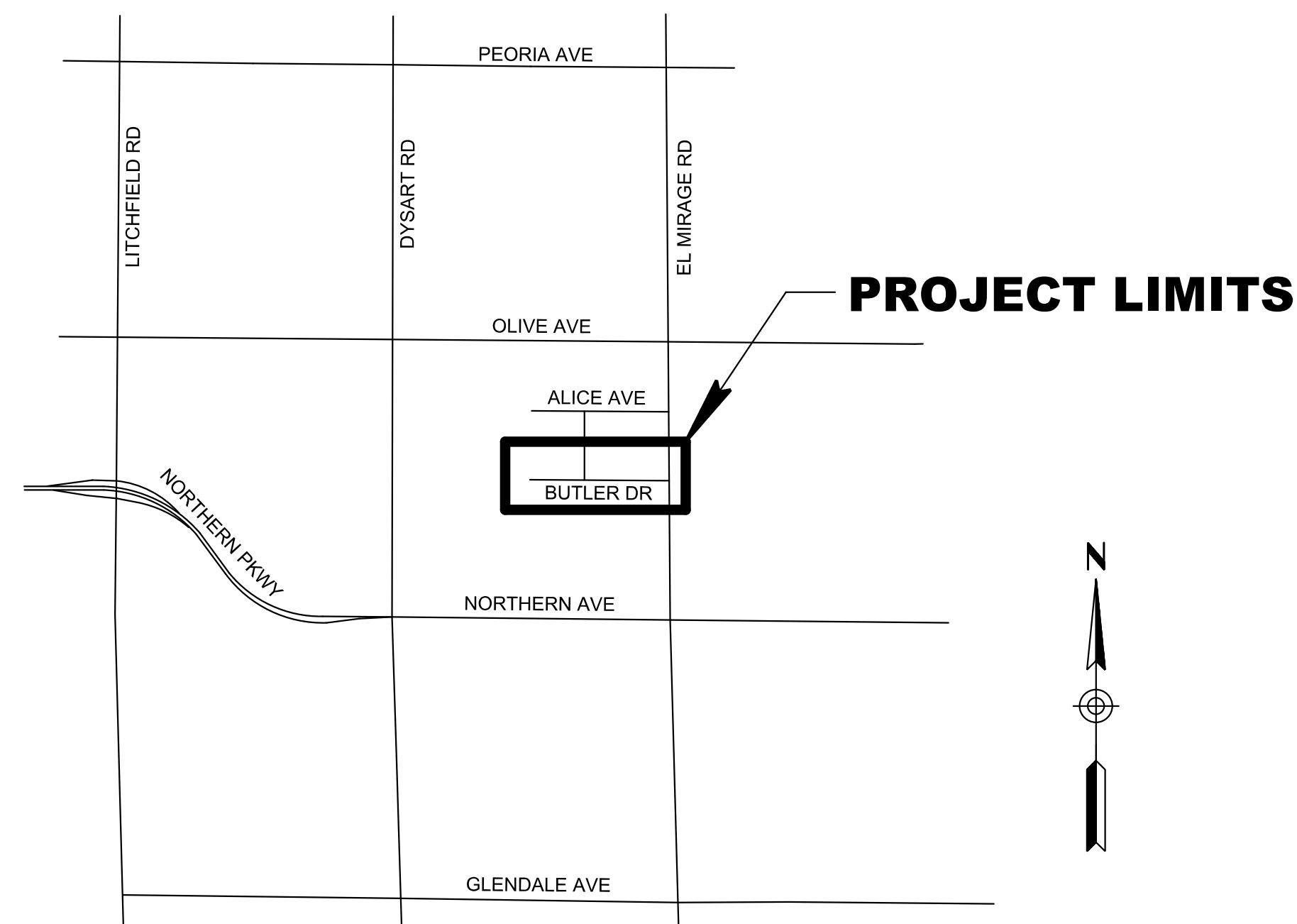
### BUTLER DRIVE IMPROVEMENTS

### 127TH AVENUE TO EL MIRAGE ROAD

### PROJECT #EM17-ST01



## CROSS SECTIONS



VICINITY MAP  
NTS

#### Notes:

1. Areas for cut and fill shown in the cross sections are unadjusted for earthwork factors or removals of AC.
2. Approximately 1,773 CY (Includes earthwork factors and pavement removal on-site) of excavation will be generated by project.

#### Earthwork Factors:

Shrinkage Factor: 10% (Average)

Ground Compaction Factor: 0.10' (Average)

#### Pavement Removal:

Butler Drive: 467 CY (Average 2.75" Thick)

**FINAL**

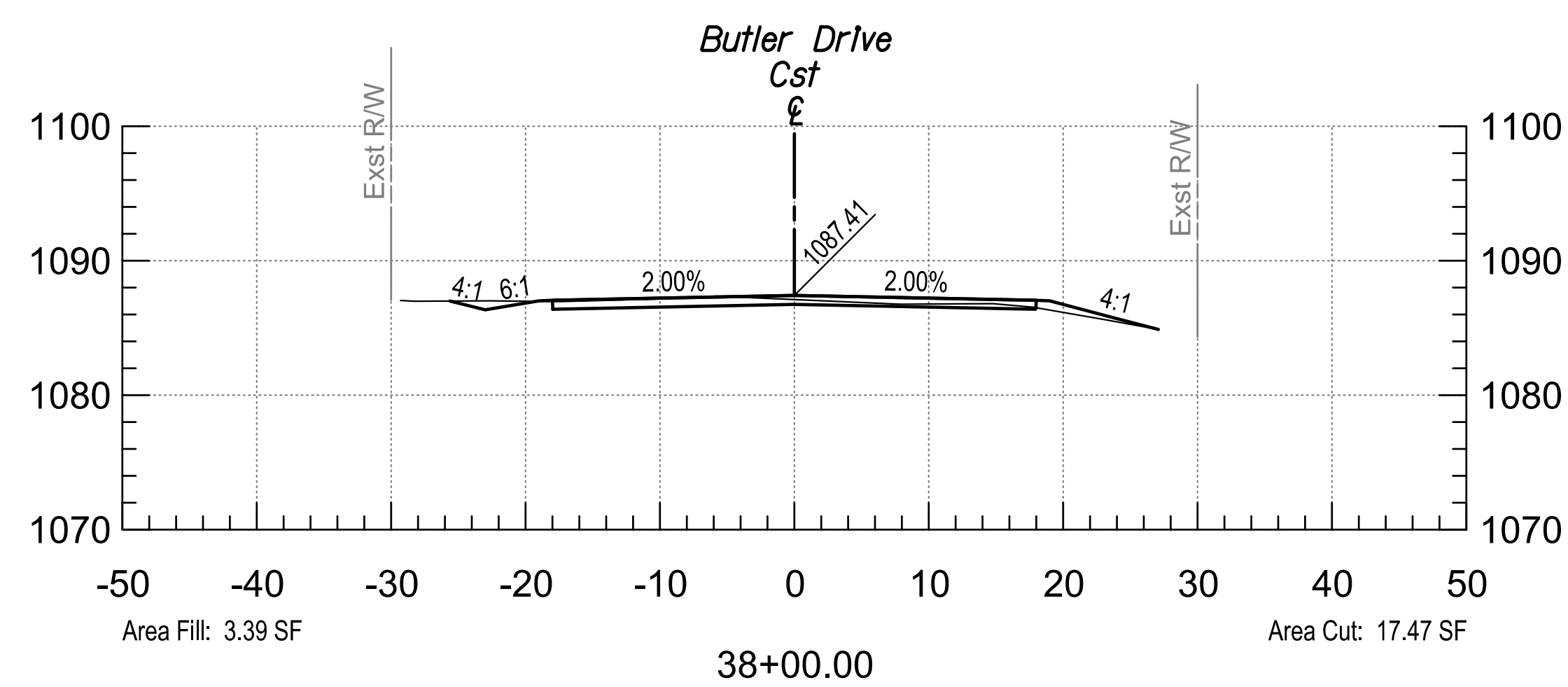
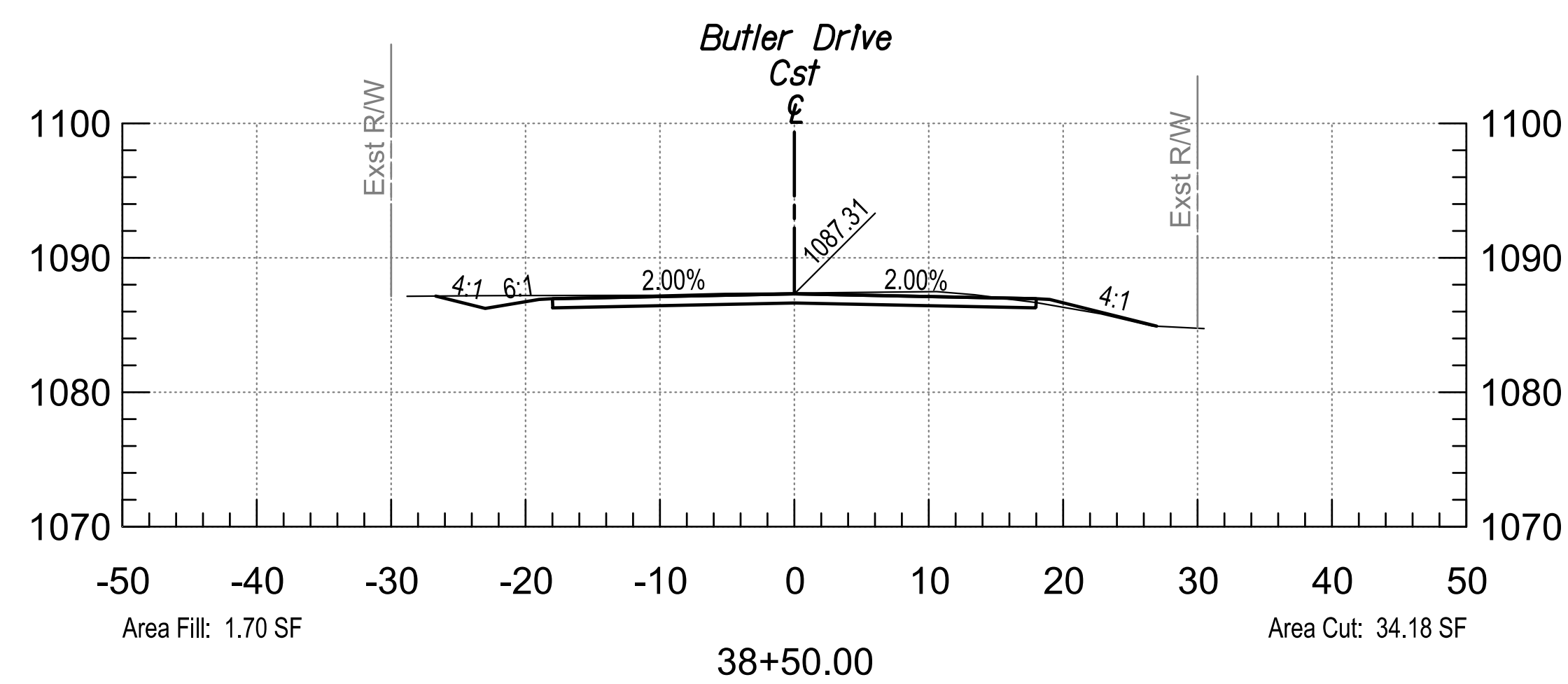
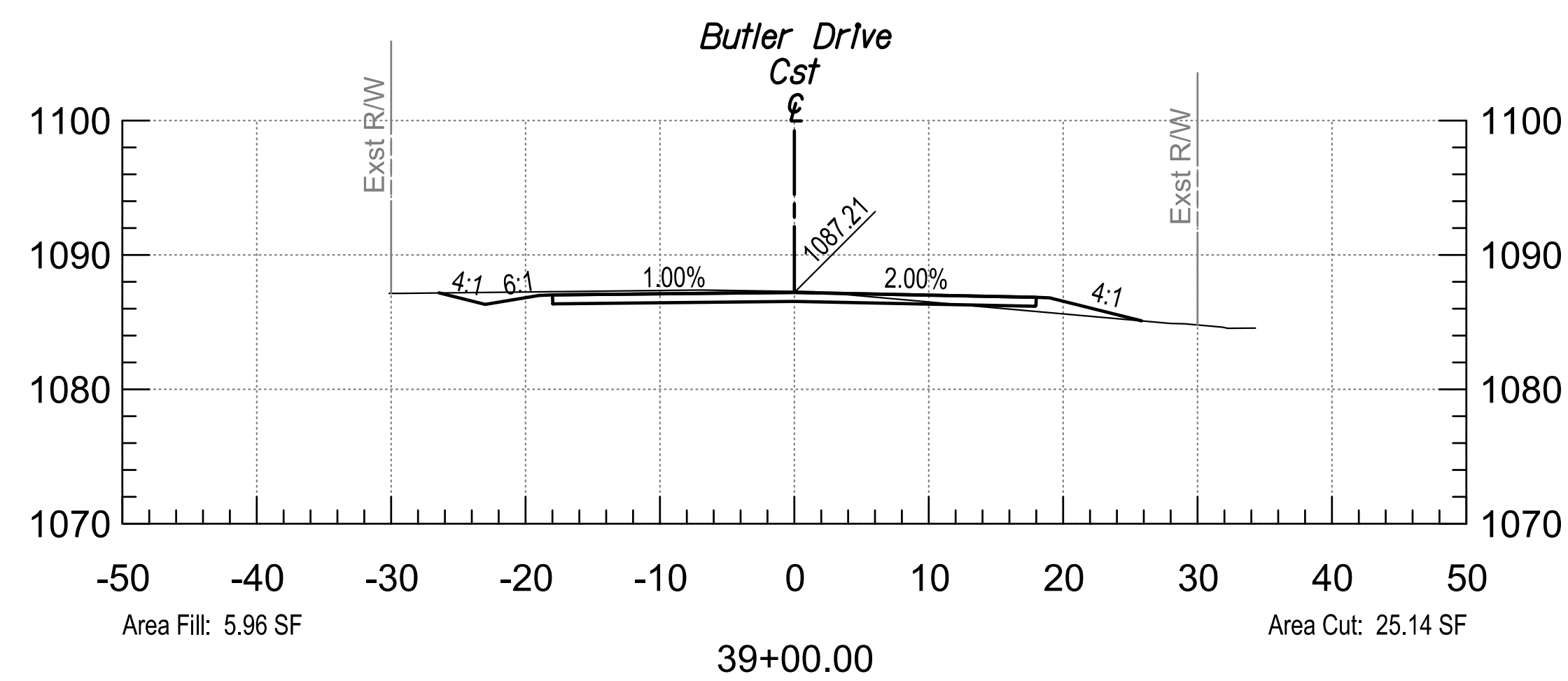
FOR  
CONSTRUCTION







**NFra Inc.**  
*a transportation engineering firm*  
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 Phoenix, Arizona 85012



Call at least two full working days  
before you begin excavation.

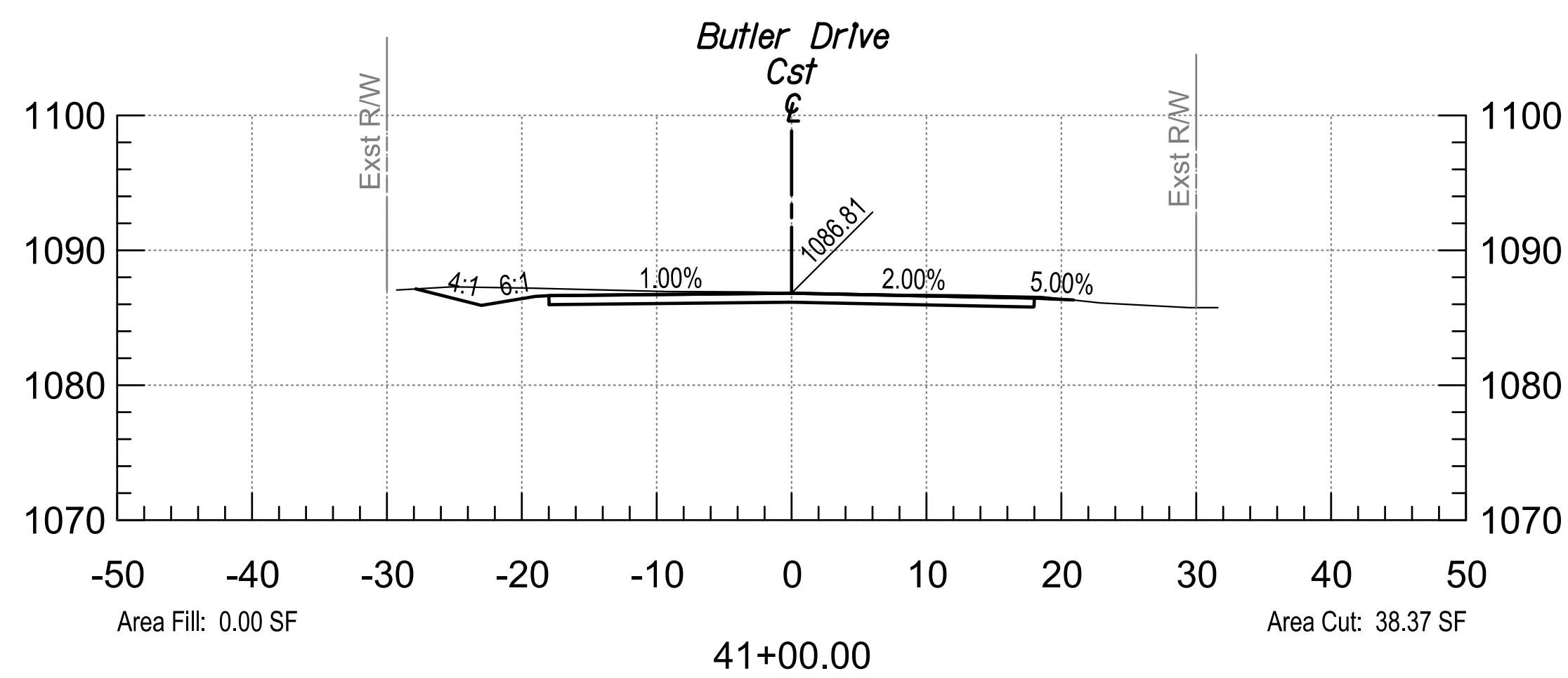
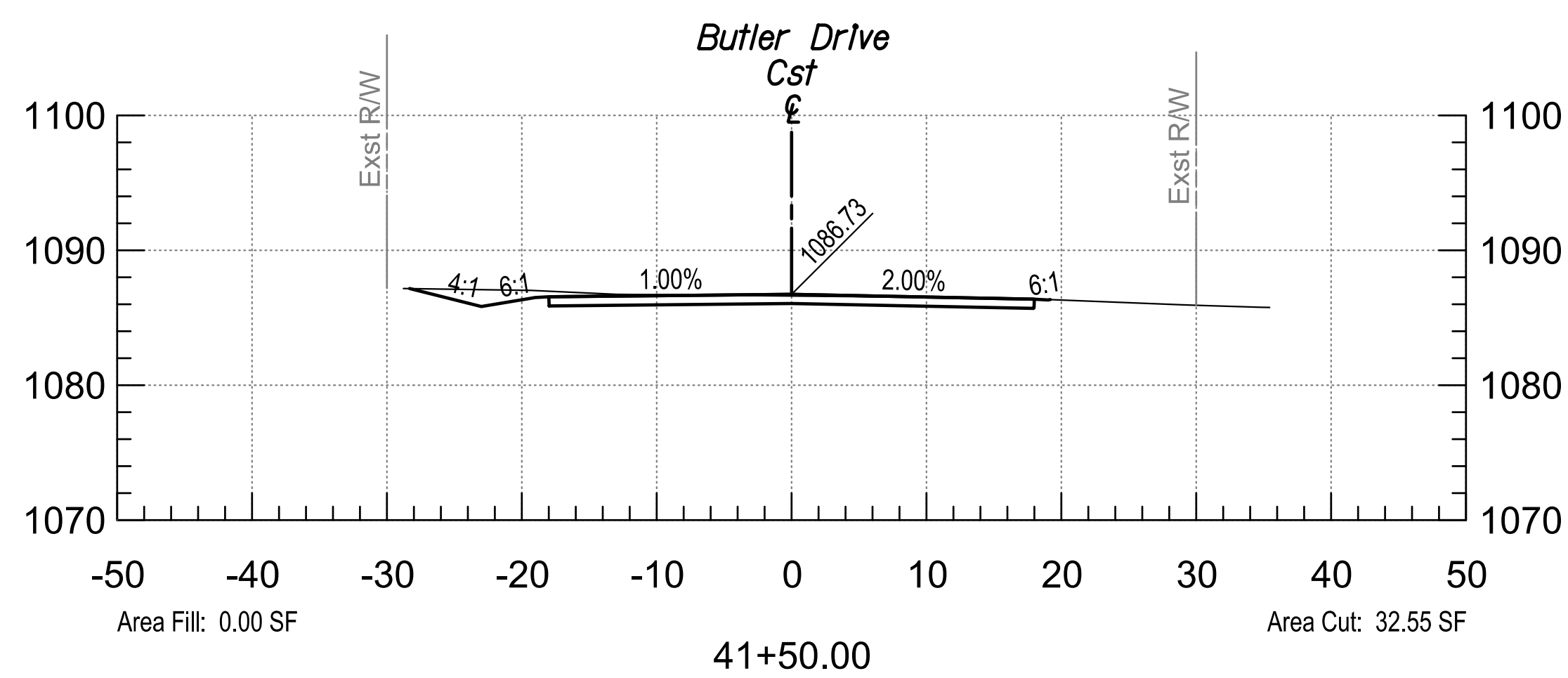
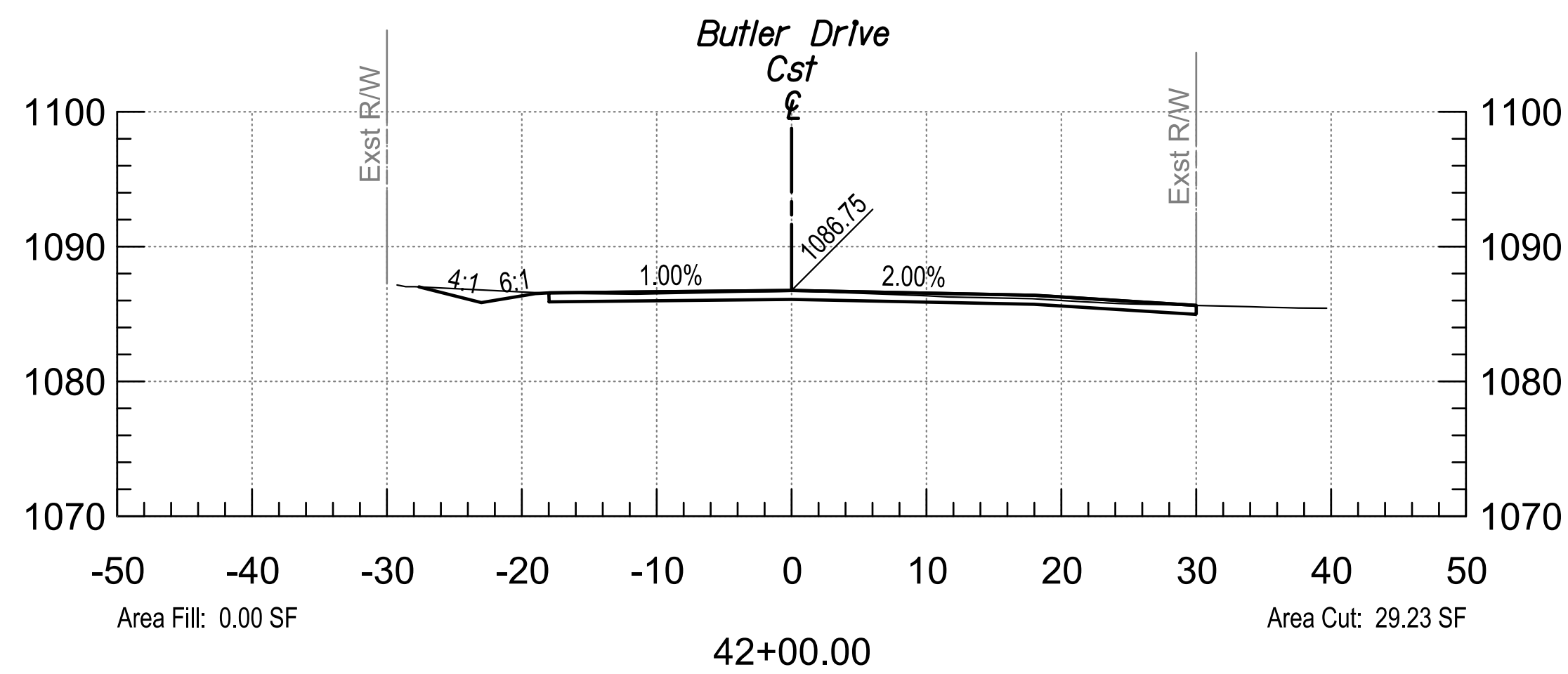
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In Maricopa County: (602) 263-1100

<h1 style="margin: 0;">CROSS SECTIONS</h1>				
	<p>City of <b>EL MIRAGE</b> Arizona</p>	<h1 style="margin: 0;">EL MIRAGE</h1> <p style="margin: 0;">ARIZONA</p>		
<h2 style="margin: 0;">BUTLER DRIVE</h2> <h2 style="margin: 0;">127TH AVENUE TO EL MIRAGE ROAD</h2>				
DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>XS-1</b>	
DATE: 06/18	DATE: 06/18	DATE: 06/18		
SCALE: 1"=10' 1"=10'      HORIZONTAL VERTICAL			OF	



**NFra Inc.**  
*a transportation engineering firm*  
 77 East Thomas Road, Suite 200  
 Phoenix, Arizona 85012



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In Maricopa County: (602) 263-1100

FINAL  
FOR  
CONSTRUCTION

## CROSS SECTIONS



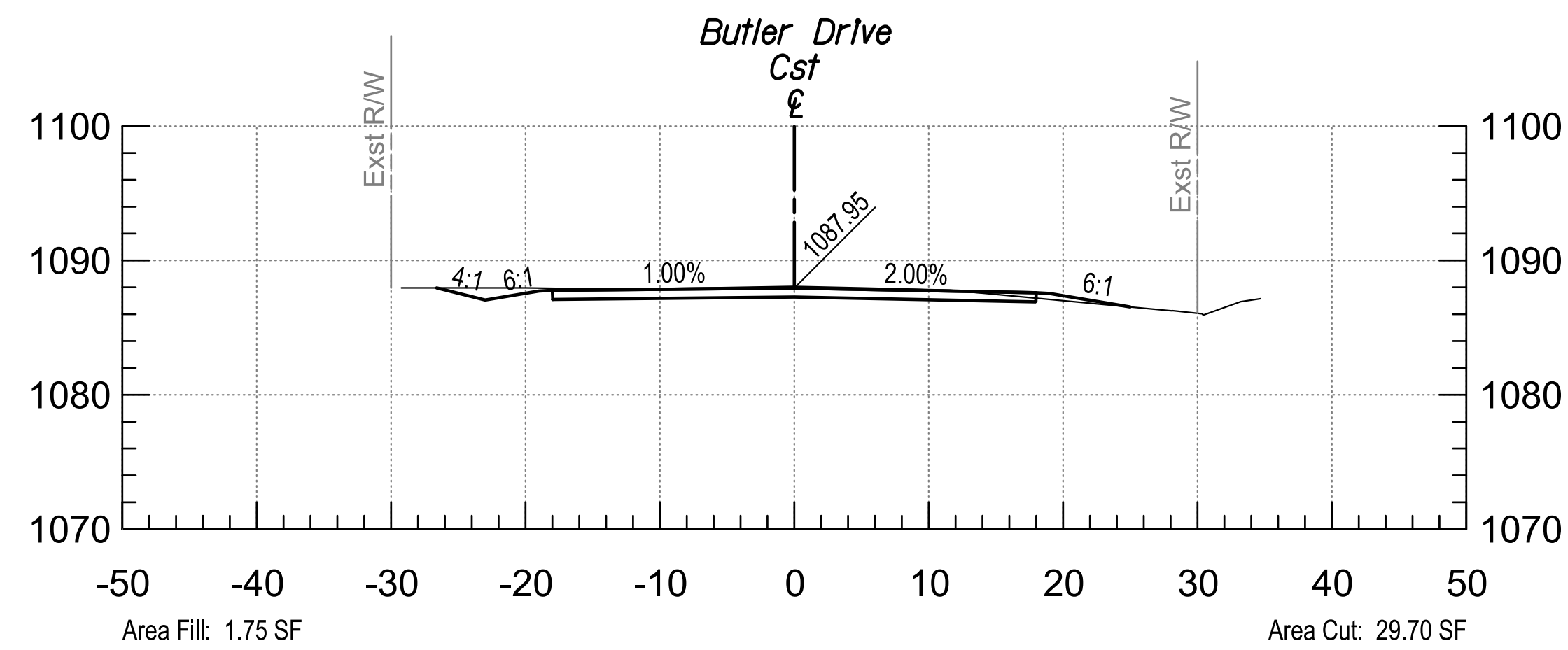
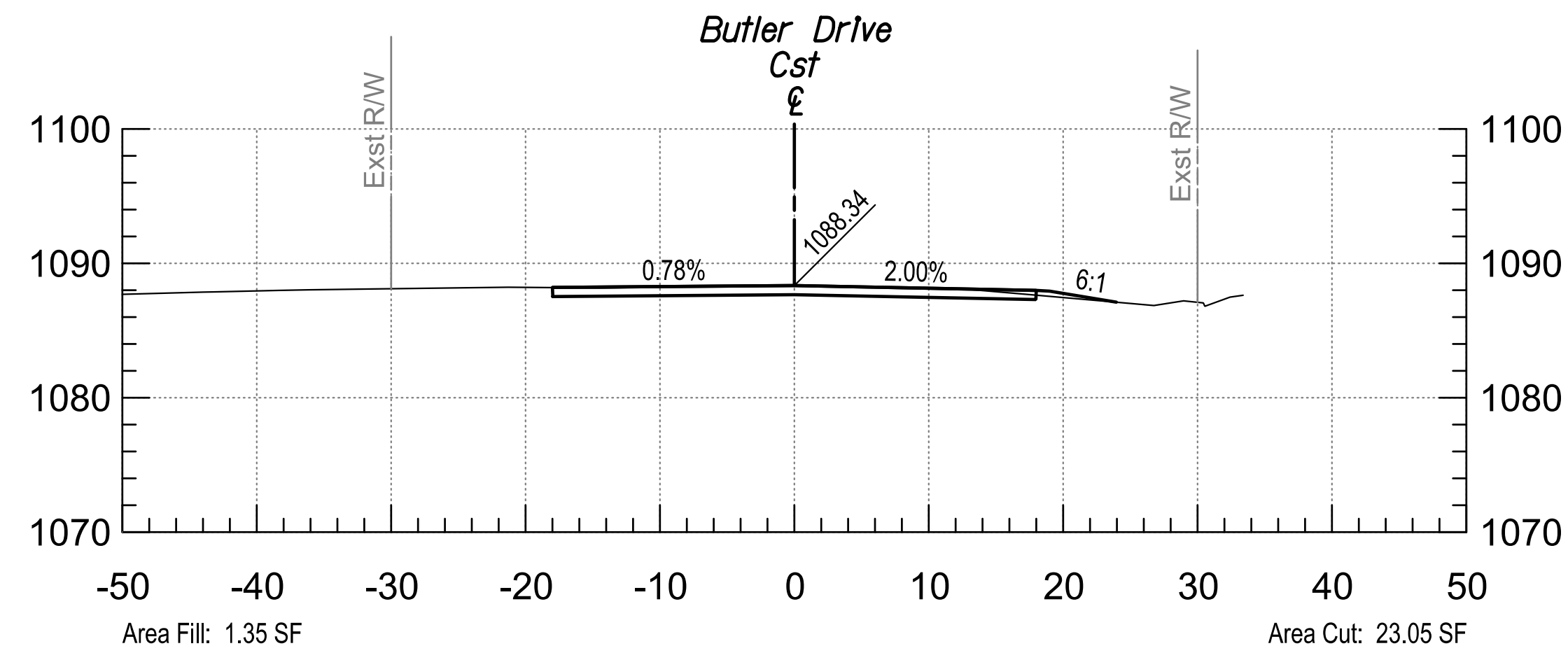
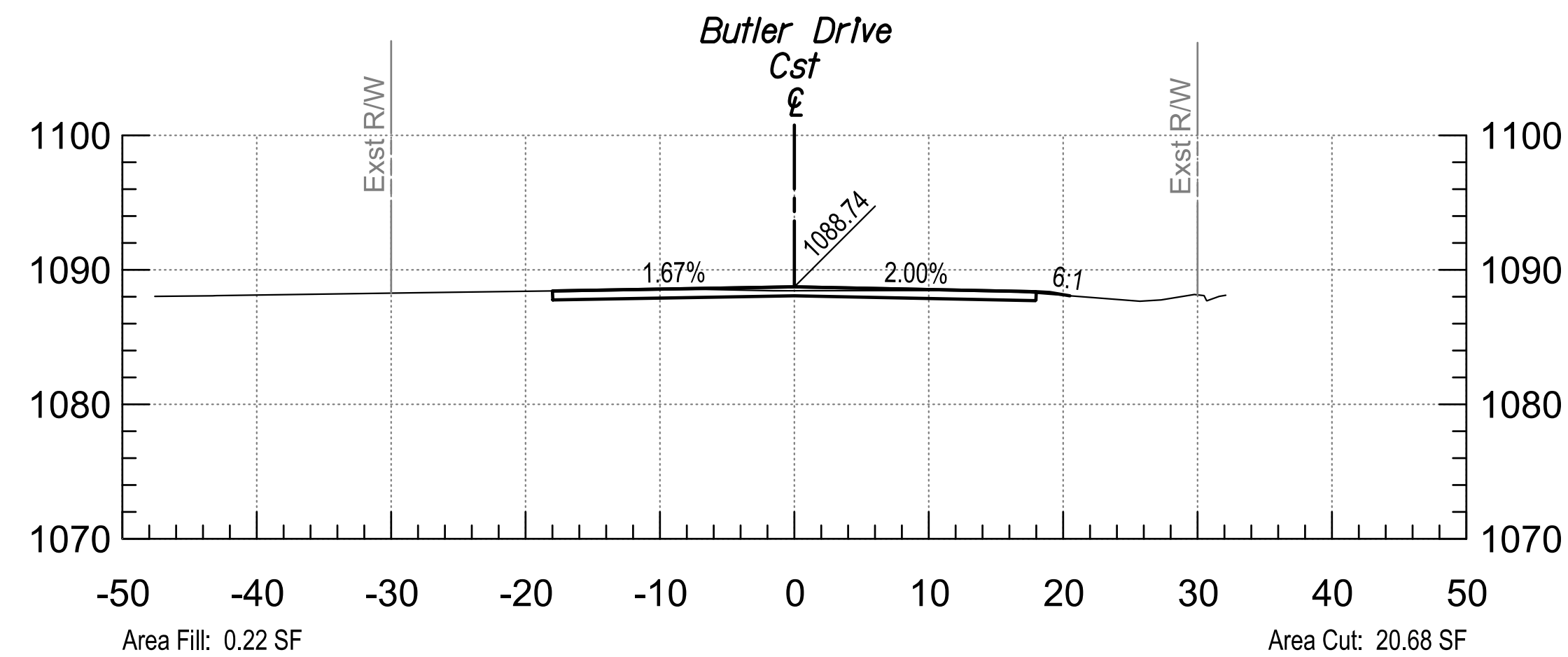
EL MIRAGE  
ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW	DES: EAW	CK: RPW	DWG. NO. XS-2
DATE: 06/18	DATE: 06/18	DATE: 06/18	
SCALE: 1"=10' HORIZONTAL 1"=10' VERTICAL			OF



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 Phoenix, Arizona 85012



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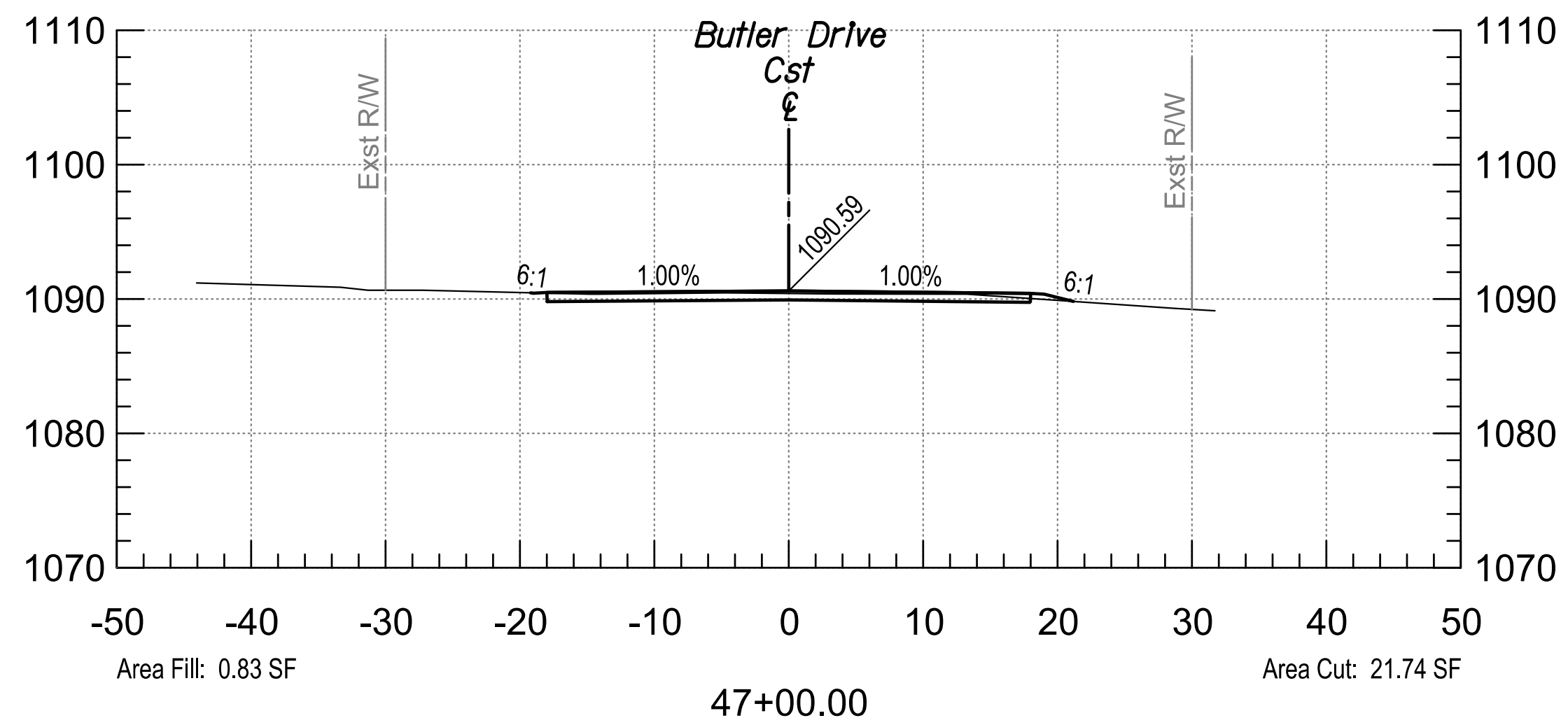
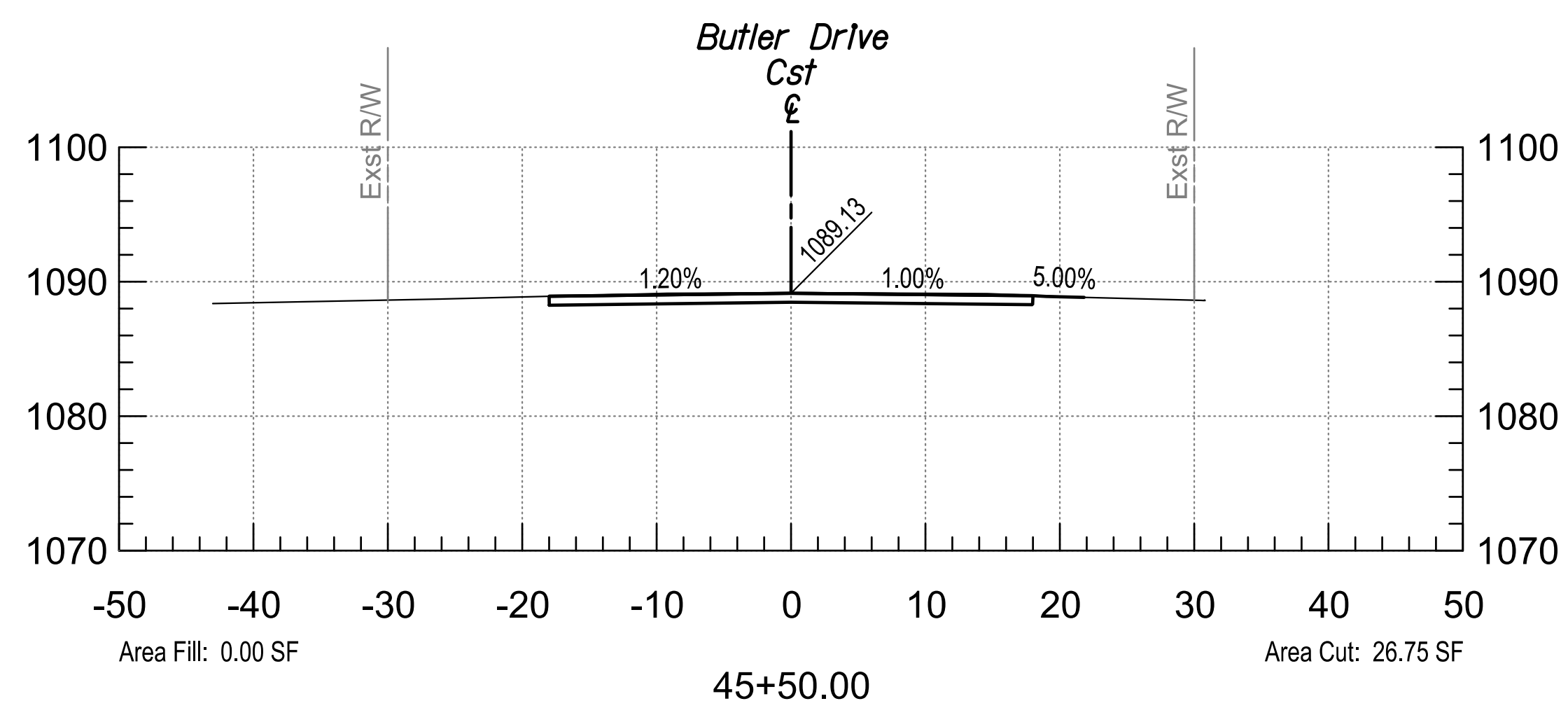
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In Maricopa County: (602) 263-1100

<h1 style="margin: 0;">CROSS SECTIONS</h1>				
	<p>City of <b>EL MIRAGE</b> <small>Arizona</small></p>	<h1 style="margin: 0;">EL MIRAGE</h1> <p style="margin: 0;"><small>ARIZONA</small></p>		
<h2 style="margin: 0;">BUTLER DRIVE</h2> <h2 style="margin: 0;">127TH AVENUE TO EL MIRAGE ROAD</h2>				
DR: EAW	DES: EAW	CK: RPW	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>DWG. NO.</span> <span style="font-size: 1.5em; font-weight: bold;">XS-3</span> </div>	
DATE: 06/18	DATE: 06/18	DATE: 06/18		
<p>SCALE: 1"=10' 1"=10'</p>			<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>HORIZONTAL VERTICAL</p> </div> <div style="text-align: center;"> <p>OF</p> </div> </div>	





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## CROSS SECTIONS



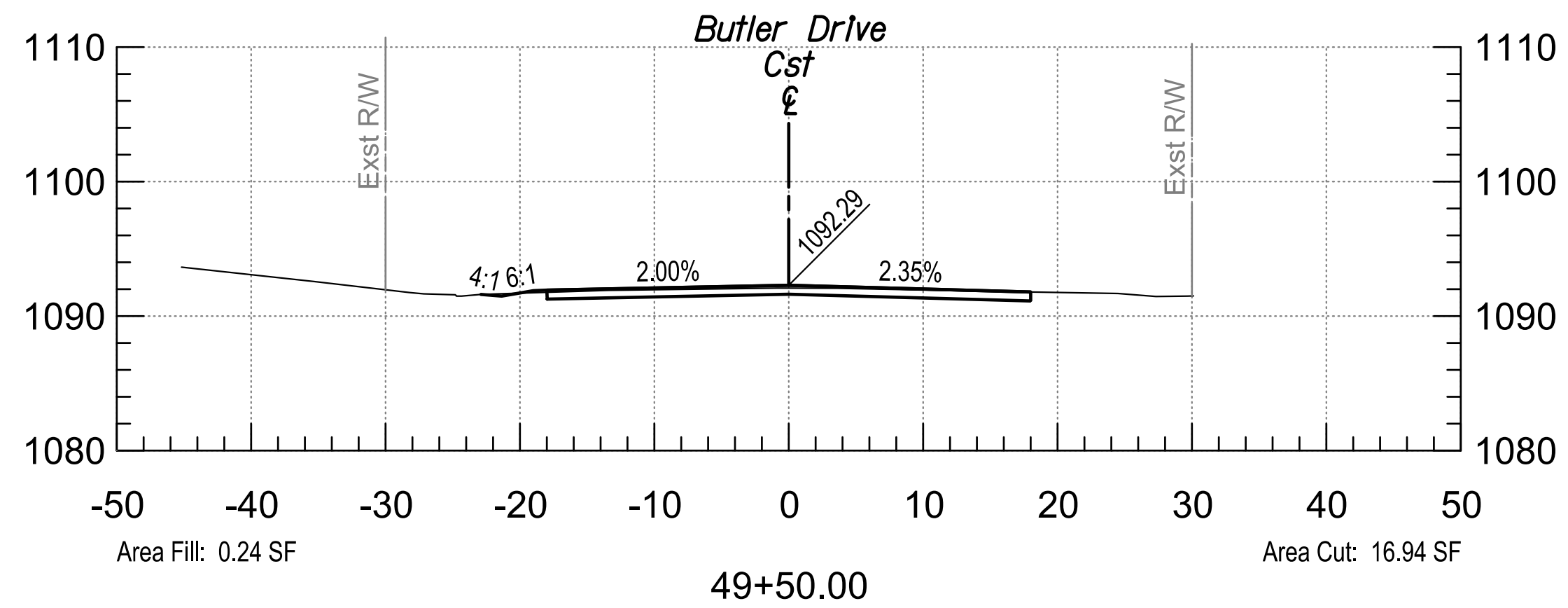
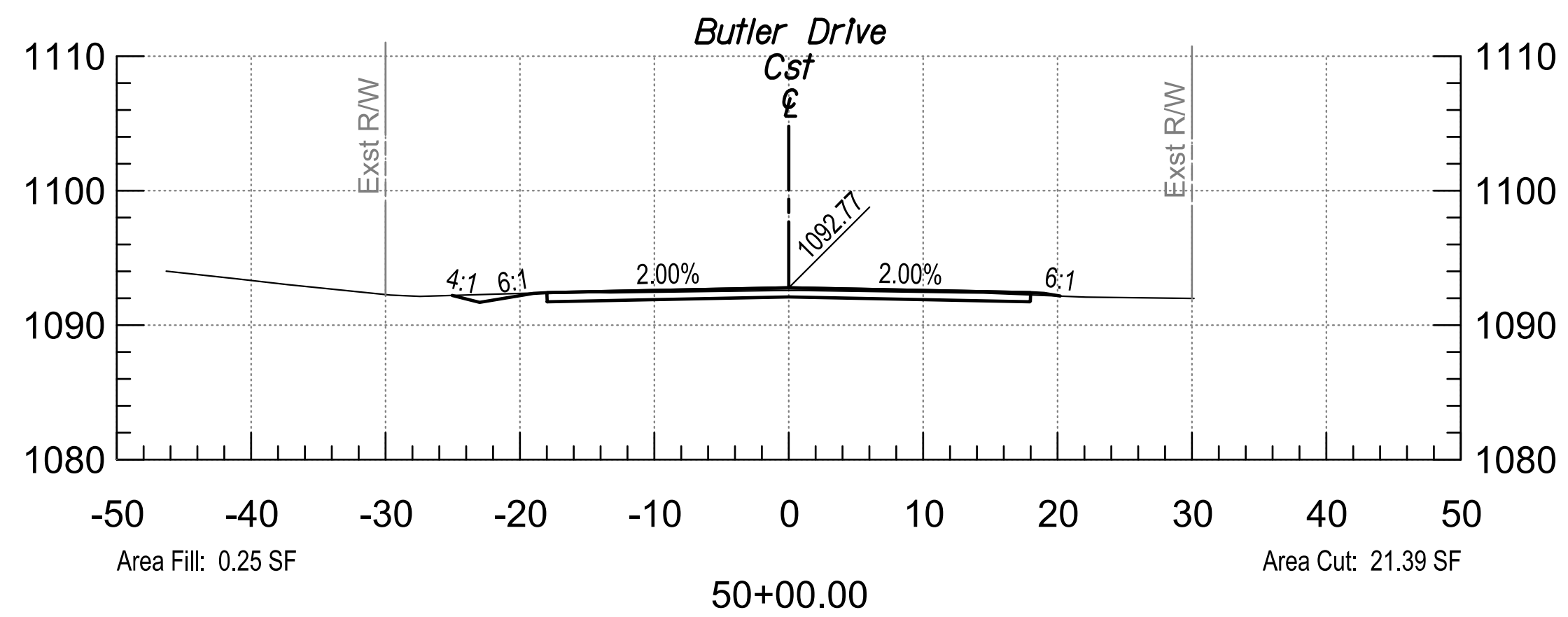
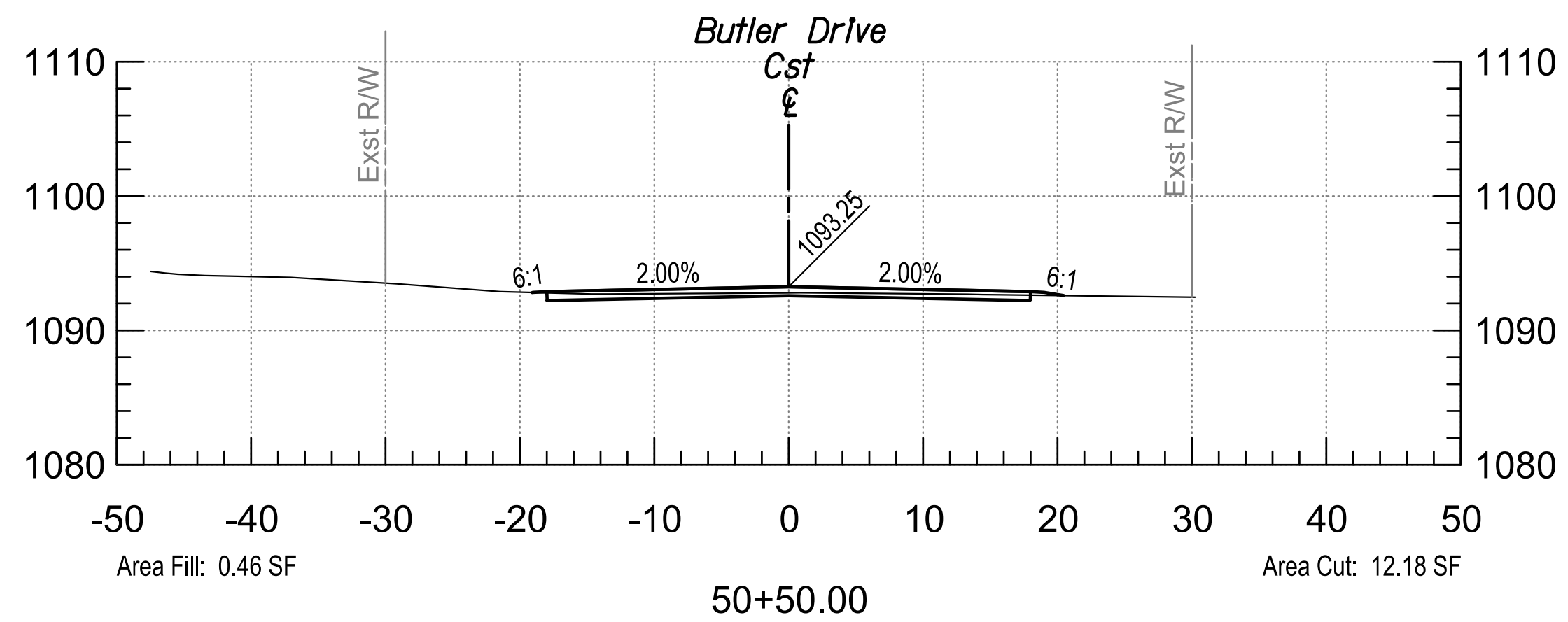
EL MIRAGE  
ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>XS-4</b>
DATE: 06/18	DATE: 06/18	DATE: 06/18	
SCALE: 1"=10' HORIZONTAL 1"=10' VERTICAL			OF




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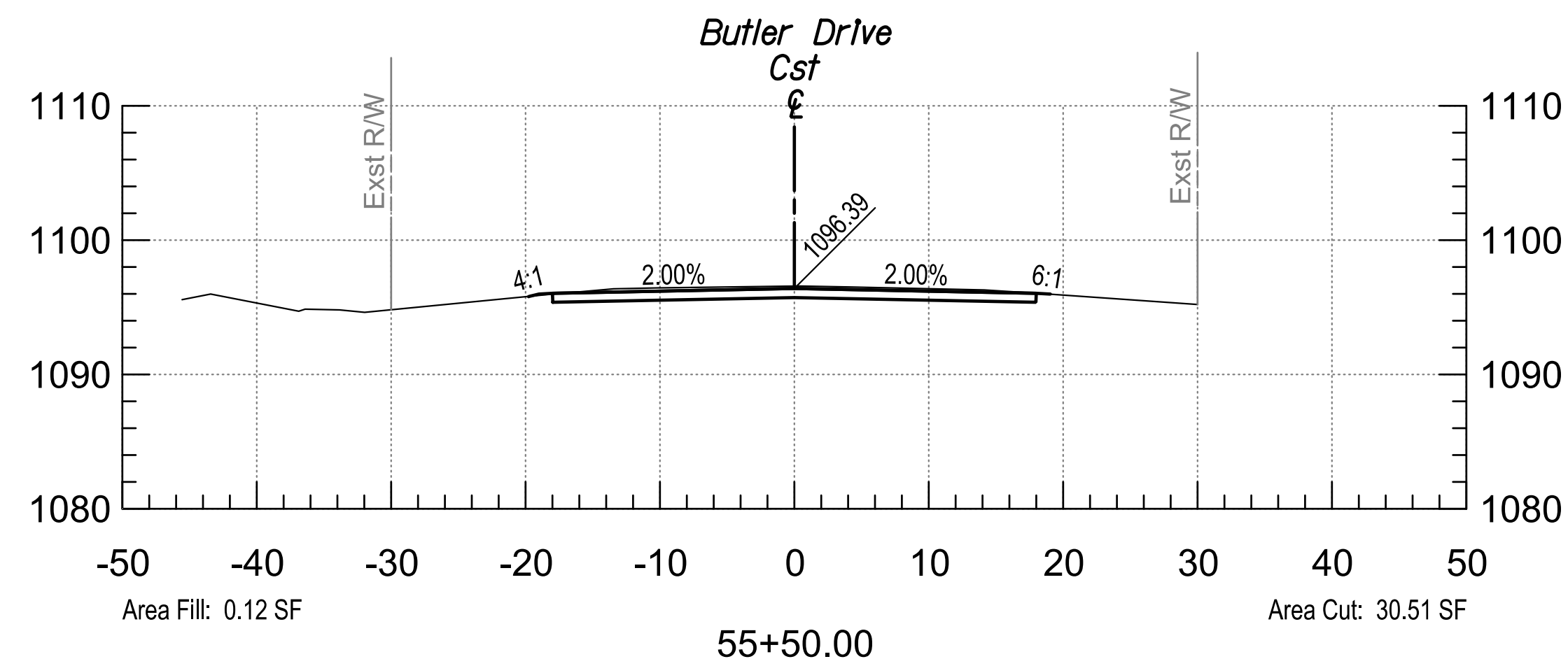
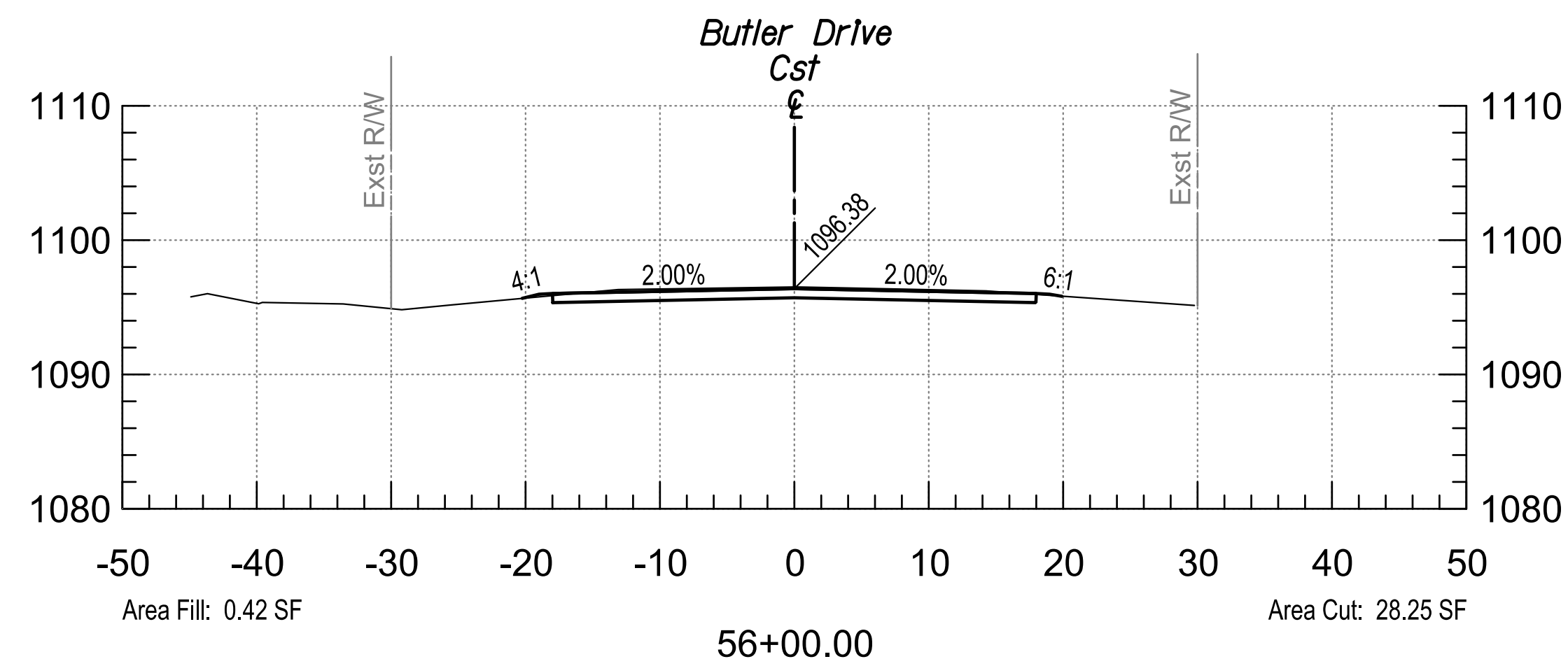
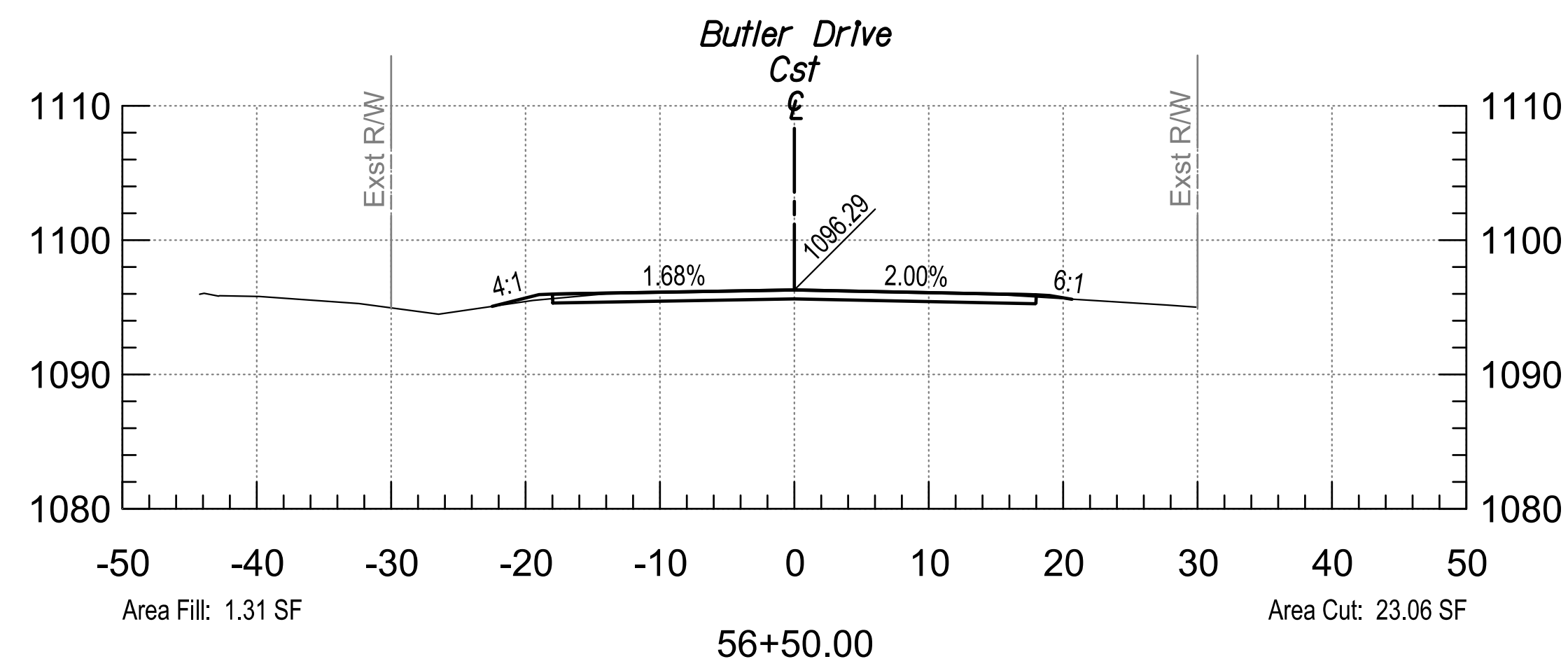
<h2 style="margin: 0;">CROSS SECTIONS</h2>				
	<p>City of <b>EL MIRADOR</b> <small>Arizona</small></p>	<h1 style="margin: 0;">EL MIRADOR</h1> <p style="margin: 0;">ARIZONA</p>		
<div style="text-align: center;"> <h3 style="margin: 0;">BUTLER DRIVE</h3> <h2 style="margin: 0;">127TH AVENUE TO EL MIRADOR ROAD</h2> </div>				
DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>XS-5</b>	
DATE: 06/18	DATE: 06/18	DATE: 06/18		
SCALE: 1"=10' 1"=10'			HORIZONTAL VERTICAL	
			OF	







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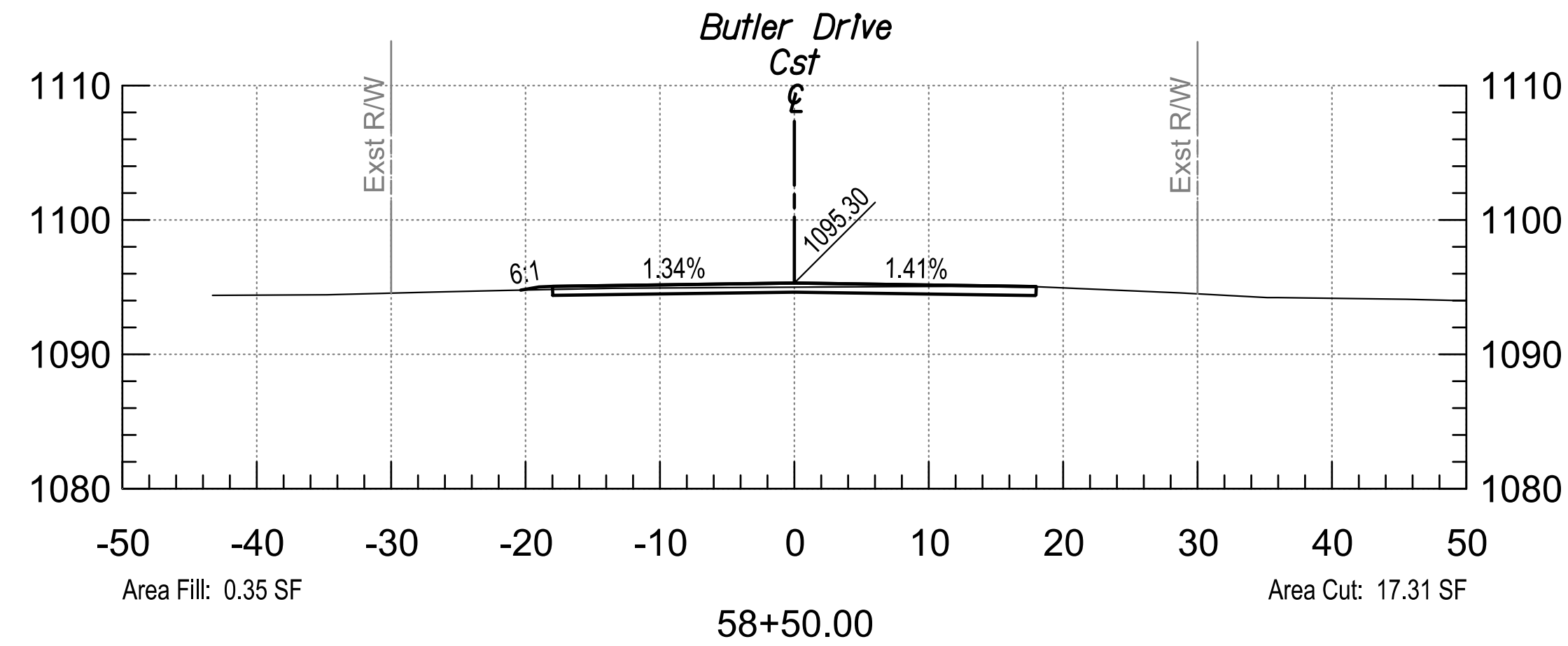
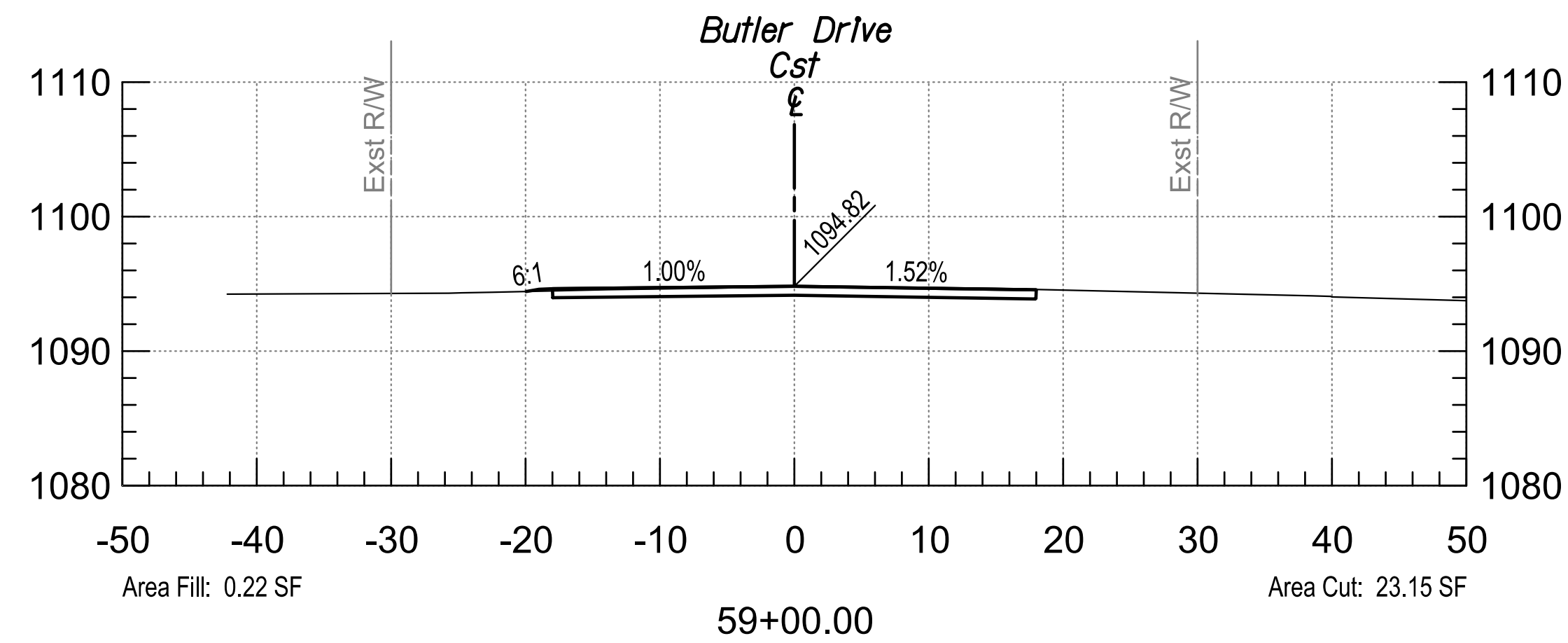
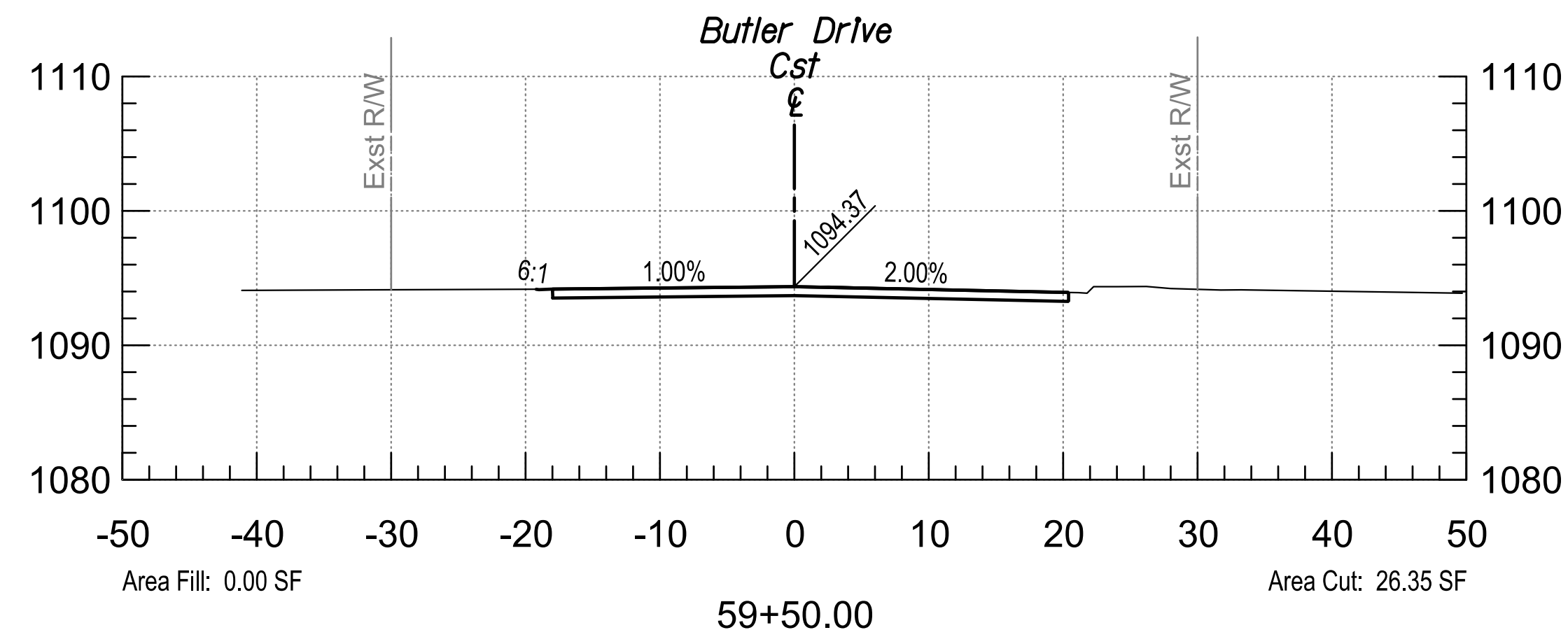
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<h2 style="margin: 0;">CROSS SECTIONS</h2>				
	<p>City of <b>EL MIRADOR</b> Arizona</p> <p><small>UNINCORPORATED RESIDENTS WELCOME</small></p>	<h1 style="margin: 0;">EL MIRADOR</h1> <p style="margin: 0;">ARIZONA</p>		
<h3 style="margin: 0;">BUTLER DRIVE</h3> <h3 style="margin: 0;">127TH AVENUE TO EL MIRADOR ROAD</h3>				
DR: EAW	DES: EAW	CK: RPW	DWG. NO. <b>XS-7</b>	
DATE: 06/18	DATE: 06/18	DATE: 06/18		
SCALE: 1"=10' 1"=10'			HORIZONTAL VERTICAL	
			OF	



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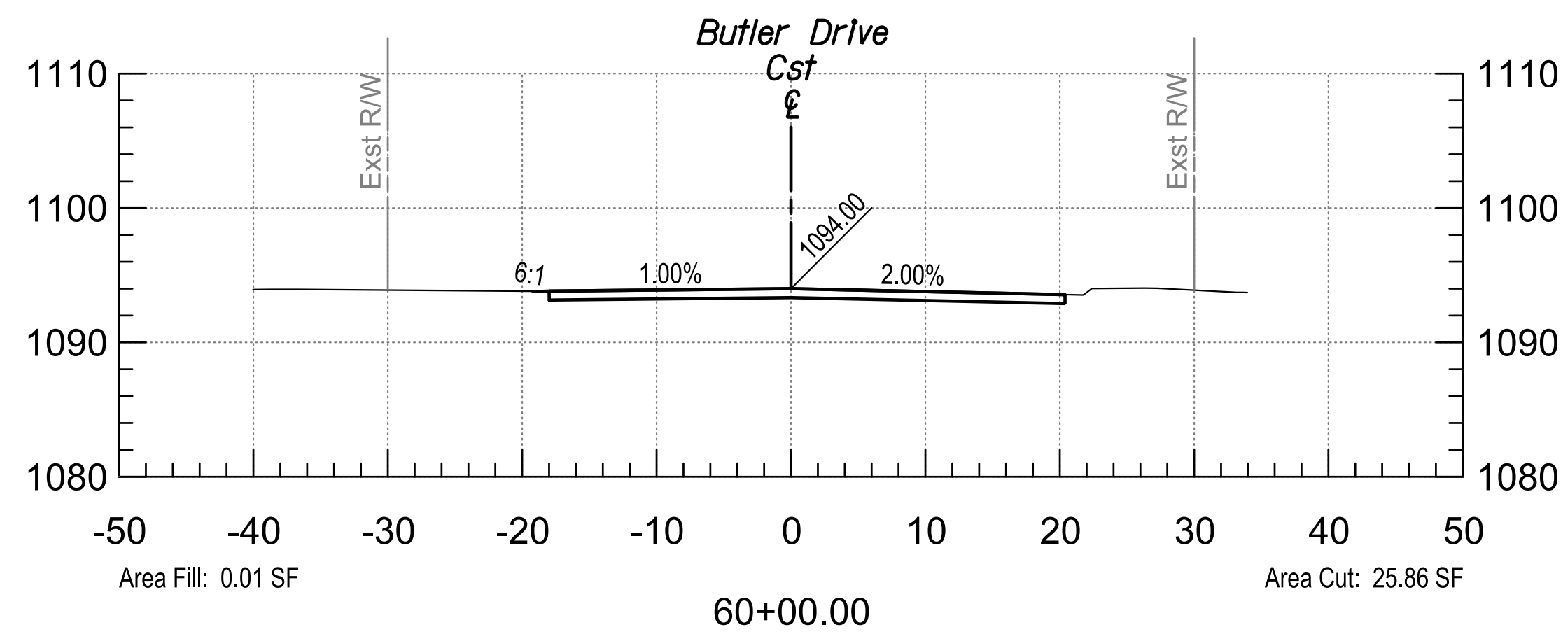
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<h1 style="margin: 0;">CROSS SECTIONS</h1>				
	<p>City of <b>EL MIRAGE</b> ARIZONA</p>	<h1 style="margin: 0;">EL MIRAGE</h1> <p style="margin: 0;">ARIZONA</p>		
<h2 style="margin: 0;">BUTLER DRIVE</h2> <h2 style="margin: 0;">127TH AVENUE TO EL MIRAGE ROAD</h2>				
DR: EAW	DES: EAW	CK: RPW		
DATE: 06/18	DATE: 06/18	DATE: 06/18	DWG. NO. <b>XS-8</b>	
SCALE: 1"=10' 1"=10' HORIZONTAL VERTICAL			OF	



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## CROSS SECTIONS



EL MIRAGE  
ARIZONA

BUTLER DRIVE  
127TH AVENUE TO EL MIRAGE ROAD

DR: EAW	DES: EAW	CK: RPW	DWG. NO. XS-9
DATE: 06/18	DATE: 06/18	DATE: 06/18	
SCALE: 1"=10' HORIZONTAL 1"=10' VERTICAL			OF