

**SOLICITATION AMENDMENT
RFQ # 2019030
CITY OF BUCKEYE
CONSTRUCTION & CONTRACTING DIVISION**

AMENDMENT #1

NOTE: Attach to Original Request for Qualifications. However, if the Statement of Qualifications (SOQ) has already been returned, complete this amendment and return for attachment to your SOQ no later than 3:00 PM, December 19, 2019.

City of Buckeye
530 East Monroe Avenue
Buckeye, Arizona 85326
Attn: Debby Fasano

SOLICITATION: RFQ #2019030 Construction Manager at Risk Miller Road Trunk Sewer

NOTICE TO CONTRACTORS:

This Amendment forms a part of the Contract and clarifies, corrects, or modifies the original Request for Qualifications documents prepared by the City of Buckeye.

Bid Due Date and Time: December 23, 2019 no later than 3:00 PM

THE FOLLOWING CHANGES HAVE BEEN MADE:

1. The Bid Due Date and Time have been changed from December 19, 2019 not later than 3:00 PM to **December 23, 2019 not later than 3:00 PM.**

THE FOLLOWING QUESTIONS WERE ASKED BY CONTRACTORS:

Q1: Are there a set of plans that we can review to better understand the project and build an accurate GMP?

A1: Plans are included in this Amendment as Attachment A. These plans are not approved for construction and just as a reference for a better understanding of the project.

Q2: Could you confirm dates for Pre-Construction and Construction on SOQ page 3 (SECTION 2)? Does the City really mean Pre-Construction late January 2020 and Construction will conclude June 2021 (i.e. instead of 2019 and 2020 (respectively)? Just trying to best understand project schedule.

A2: Please delete the following sentences in Section 2 – Project Description on page 3 as follows:

“It is anticipated that the CMAR pre-construction phase will begin in late January 2019 and the construction phase will conclude June 2020.”

Q3: Can the CPM Schedule in Section 6 – Format and Contents of Submittal, Tab D be 11” X 17” paper?

A3: Yes.

Q4: In Section 6 – Format and Contents of Submittal, Tab A it states: “Each project identified shall be at least \$5M.” If the project is relevant and under \$5M can it be used as one of the projects?

A4: The City of Buckeye is more interested in projects you have completed that are comparable and relevant to this project. We are looking for your experience in projects you have done that show you have done this type of work. Please delete the sentences in Section 6 – Format and Contents of Submittal, Tab A that states: “Each project identified shall be at least \$5M.”

The balance of the specifications and instructions remain the same. Offerors must acknowledge receipt and acceptance of this amendment by returning the entire amendment with the Proposal.

PLEASE ACKNOWLEDGE YOUR FIRM’S RECEIPT OF THIS AMENDMENT BY SIGNING THE ATTACHED SOLICITATION AMENDMENT ACKNOWLEDGEMENT.

SOLICITATION AMENDMENT ACKNOWLEDGEMENT

RFQ# 2019030 – Construction Manager at Risk North Miller Road Trunk Sewer

AMENDMENT NUMBER 1

AMENDMENT ISSUE DATE: December 2, 2019

Offeror certifies that Offeror has read, understands, and will fully and faithfully comply with this Request for Qualifications, its attachments and any referenced documents. Offeror also certifies that this offer was independently developed without consultation with any of the other Offerors or potential Offerors.

Name of Company: _____

Authorized Signature: _____

Print Name and Title: _____

Date: _____

Address: _____

City, State, Zip Code: _____

Telephone Number: _____

Email Address: _____

ATTACHMENT A



CITY OF BUCKEYE

PROJECT SPECIAL PROVISIONS

NORTH MILLER ROAD TRUNK SEWER EXTENSION

2019

MAYOR
JACKIE MECK

VICE MAYOR
DISTRICT NO. 6 – ERIC ORSBON

CITY COUNCIL

DISTRICT NO. 1 – TONY YOUNGKER
DISTRICT NO. 2 – JEANINE GUY
DISTRICT NO. 3 – MICHELL HESS
DISTRICT NO. 4 – PATRICK HAGESTAD
DISTRICT NO. 5 – GRAIG HEUSTIS



A Stanley Group Company
Engineering, Environmental and Construction Services - Worldwide



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PART 100 – GENERAL CONDITIONS

The “Uniform Standard Specifications for Public Works construction” which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the “MAG Standard Specifications,” are hereby adopted as part of these Contract Documents. Copies of these documents, with the latest revisions, may be obtained at: Maricopa Association of Governments, 302 North 1st Avenue, Phoenix AZ 85003.

The Maricopa County Department of Transportation Supplement to the MAG Standard Specifications is also adopted as part of these Contract Documents. Copies of these documents, with the latest revisions, may be obtained at: Maricopa County Department of Transportation, 2901 W. Durango, Phoenix, AZ 85009.

SECTION 101 ABBREVIATIONS AND DEFINITIONS: Add the following Subsections to MAG Standard Specifications.

101.2 DEFINITIONS AND TERMS:

Contracting Agency:	City of Buckeye, Arizona
City:	City of Buckeye, Arizona
COB:	City of Buckeye, Arizona
City Representative:	Stanley Consultants, Inc.
Design Engineer	Stanley Consultants, Inc. 1661 East Camelback Road, Suite 400 Phoenix, AZ 85016

SECTION 104 SCOPE OF WORK: Add the following Subsections to MAG Standard Specifications.

104.1 Work to be Done:

This project is located within the City of Buckeye, Arizona. Project improvement limits are generally described as the following:

- Miller Road, between W. Tonopah Salome Highway to W. Broadway Road
- Durango Street, approximately 200 feet east of Miller Road
- Lower Buckeye Road, from Miller Road to east side of 247th Avenue

The project is generally described as follows: Trunk sewer installation on Miller Road from south side of Roosevelt Irrigation District (RID) canal to ADOT ROW limits south of Interstate I-10, sewer replacement on Lower Buckeye Road from intersection of Miller Road and Lower Buckeye Road to east side of 247th Avenue.

Major elements of project include construction and installation of the following: sewer pipe

installations, manhole installations, steel casing installation by means of jack & bore, sewer service connections, bypass pumping, sewer stub-outs, test station, asphalt concrete pavement removal and replacement, microseal, striping and marking, sewer pipe and manhole abandonment/removal, temporary traffic control, bypass pumping, and all incidental items to complete the work.

104.1.1 General:

The work shall be described in the specifications, as shown on the project plans, and in compliance with permit requirements.

The work shall conform to City of Buckeye's Public Works and City of Buckeye Standards and Details, and MAG Standard Specifications and Details, latest editions. Any section or any sub-section of any Standard Specification included within these Contract Documents by reference only is understood to be made part of these Contract Documents. The Contractor shall always maintain at least one copy of all referenced standard specifications and details at job site.

Standard Drawings and the manuals referenced in the project contract documents shall be required for construction of this project, insofar as applicable for any work to be performed within the public right-of-way and within City of Buckeye jurisdictional limits.

- City of Buckeye Public Works and City of Buckeye Standards and Details
- Manual on Uniform Traffic Control Devices (MUTCD), Millennium Edition, latest version

All work mentioned or indicated within the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such construction is to be excluded or modified.

SECTION 105 CONTROL OF WORK: Add the following Subsections to MAG Standard Specifications.

105.2 Plans and Shop Drawings:

If the submittal is acceptable, one (1) electronic .pdf copy will be stamped "No Exceptions Taken" and will be returned to the Contractor.

If the submittal requires corrections, one (1) electronic .pdf copy will be stamped "Revise & Resubmit" or "Make Corrections Noted" and will be returned to the Contractor. The Contractor shall submit one (1) corrected or new .pdf copy.

If the submittal is rejected, one (1) electronic .pdf copy will be stamped "Rejected" and will

be returned to the Contractor. The Contractor shall submit one (1) corrected or new copy.

The copy stamped "No Exceptions Taken," returned to the Contractor, will become a part of the Contract Documents and will be kept at the job site. Any work done prior to the receipt of this review will be at the Contractor's risk and expense.

105.8 Construction Stakes, Lines and Grades: Replace Section 105.8 of MAG Standard Specifications within the following:

The Contractor shall furnish all materials, personnel, and equipment necessary to perform all surveying, staking, lay out of control lines, and verifications of the accuracy of all existing control points which are delineated in the design drawings and Contract Documents. All survey work shall be done under the direction of a Registered Land Surveyor licensed to practice in the State of Arizona.

Staking Outline: Prior to beginning any survey operations, the Contractor shall furnish to the City of Buckeye Project Manager, for approval, a written outline detailing the method of staking, interval of stakes, marking of stakes, grade control for various courses of materials, referencing, structure control, and any other procedures and controls necessary for survey completion. A part of this outline shall include a schedule which will show the sequencing of the survey and layout work, throughout the course of the contract, listing a percentage of completion for each month.

Field Books: The Contractor shall furnish field books to be used for recording survey data and field notes. These books shall be available for inspection by City of Buckeye at any time and shall become the property of City of Buckeye upon completion of work.

Survey Control Verification: The Contractor shall protect in-place the Project Benchmark, as described on the cover sheet.

The Contractor shall be responsible to stake construction elevations tied to the bench mark.

- A. Survey Monuments – All survey monuments that lie within the construction area that may be disturbed shall be referenced to a specific point on at least four (4) stable objects by distance measurement. Reference objects shall be located no greater than three-hundred (300) feet from the survey monument being referenced.
- B. Water and Sewer Line Appurtenances – Water and sewer line appurtenances such as manholes, cleanouts, test stations, valves, hydrants, and air-release valves (ARV's) that lie within the construction area shall be located and noted on the Contractor's approved construction documents prior to any demolition or excavation activities.

- C. Match Points and Removals – Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify the City of Buckeye Project Manager when location discrepancies of connecting facilities greater than one-tenth (0.10) foot horizontal or two-hundredths (0.02) foot vertical are identified.

Construction Stakes: The Contractor shall set construction stakes and marks establishing lines and grades for road work, curbs, gutters, path, structures, buildings, centerlines for utilities and necessary appurtenances and other work as indicated in the design drawings and Contract Documents and shall be responsible for their conformance with the plans and specifications.

The stakes shall be established in accordance with the following guidelines which represent the minimum standard and the Contractor shall provide additional stakes and controls necessary to perform the work. The Contractor shall be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the City of Buckeye, any construction stakes or marks which have been carelessly or willfully destroyed by any party.

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

As-Builts: A full size set of project Design Drawings shall be kept on-site and updated on a weekly basis with a red pencil or red ink to reflect any field adjustments, changes, omissions, additions, as they occur on the project.

The Contractor shall prepare as-builts using the project design drawings. Information shall be shown on these design drawings in red ink, depicting the constructed dimensions, elevations, grades, and materials including the locations of existing underground utilities found during construction. The City of Buckeye will be sole judge in determining whether completed as-builts are acceptable.

All work included in the contract documents as well as changes to the contract shall be noted as correct or modified by either checking off the information if it is correct, or by drawing a neat line through the original data and writing in the correct information in red ink if the information is incorrect. Unless noted otherwise below in the minimum as-built requirement section, station/offset measurements will be from construction centerline/monument line both parallel and transverse to roadway; added items or location changes shall be physically drawn at revised or new locations on the as-builts; and all measurements and stations are to be to the nearest tenth of a foot.

The minimum requirements for as-built acceptance are as follows:

1. **Project Drawing Quantity Notations:** Any project drawing or quantity summary sheet that shows a quantity on it that is incorrect shall be corrected by drawing a neat line through the original quantity and writing in the correct information. When space on the drawing does not allow room to indicate the corrections, a separate table may be drawn on a separate sheet with reference on both plan sheets to the plan sheet that the table refers to or to the sheet where the table is located.
2. **Existing/New Utilities:** All underground infrastructure utilities, whether depicted on the project plans or not, shall be verified, corrected or added to the as-builts noting the beginning and ending station/offset location and elevation of utility relative to finished roadway grade or other identifiable ground or permanent roadway /project feature. Any electrical installation work for street lighting or power connection shall be located relative to construction centerline/monument line or relative to back of curb and gutter (whichever is closer) including the depth of the facility.
3. **Removals:** Dimensions and/or other volumetric descriptions and station/offset location of all removed items.
4. **Curb/Gutter/Valley Gutter:** Beginning and ending station/offset location of straight curb/gutter/valley gutter runs relative to construction centerline/monument line; flow line elevation; and station/offset location of PT's and PC's.
5. **Driveway/Alley Entrances:** Beginning and ending station/offset including driveway wings.
6. **Sidewalk Ramp:** Curvilinear distance deviations measured along gutter flow line from curb and gutter PT/PC or other shifts/adjustments to properly align with pedestrian crosswalks or other modifications necessary to incorporate/avoid existing facility conflicts.
7. **Median Island:** Beginning and ending station/offset of median and straight run median widths measured from back of curbs; beginning and ending station/offset of decorative median paving; bullnose radiuses; and measured widths of median in transition sections from back of curbs in 25-foot minimum increments or to bullnose radius PT/PC (whichever is less).
8. **Roadway Pavement:** Beginning/ending station and measured completed roadway width from edge of pavement to edge of pavement in straight roadway sections; measured completed roadway width perpendicular to construction centerline/monument line from both edges of pavement to construction

centerline/monument line curved roadway sections; and actual sawcut removal/tie-in to existing pavement locations.

9. Pipelines: When pipeline parallels the construction centerline/monument line, verify or correct the perpendicular distance between the two. When pipeline angles relative to the construction centerline/monument line or is in a curved roadway section, as-built measured straight pipe run distances, angle points, changes in sized, fitting/tee locations tied-in with practical known construction centerline/monument line location or other easily verifiable permanent point. Distances between fittings are from fitting centerline. Fire hydrant and catch basin branch lines are to be shown in profile including pipeline bends and collars. All project drawing pipeline cross sections and profiles are to be corrected to reflect modified pipeline locations/alignments. Station and offset locations for sewer line laterals are from main line to ROW line with beginning/ending line location tied to a monument or to a property corner. Locations where waterlines cross curb and gutter are to be noted by station. Where waterlines run parallel to curb and gutter, note locations relative to back of curb or construction centerline/monument line (whichever is closer) including angle points and elevation.
10. Manhole/Catch Basin/Valve/Cleanout/Tee/Test Station: Beginning/ending station and offset. Stationing is to commence at the downstream manhole (or as depicted on the drawings) with location of the tap/wh/tee/lateral locations clearly noted.
11. Roadway Striping and Marking/Signage: Any removed, salvaged, and re-installed sign shall be located by station and offset from construction centerline/monument line prior to removal. The concrete base shall be removed from the sign post and sign post installed with freshly placed concrete base. Any change in roadway striping and marking, and/or signage is to be noted on as-builts.
12. Linear Items: Fences, walls, irrigation ditches, etc. should be located by station/offset and tied in with a permanent point.

The as-built drawings shall be certified by an Arizona Registered Land Surveyor. As-built drawings shall be delivered to City of Buckeye Project Manager within thirty (30) calendar days from the date of final inspection and acceptance by the City of Buckeye for work completed under this Contract. Work under this bid item includes transfer of all information noted by the Contractor on the on-site as-built drawing set. Final payment will be made only after submitted as-builts are accepted by City of Buckeye (see Measurement and Payment below).

Measurement and Payment: Construction surveying will be measured as a single complete item of work and paid at the lump sum price under bid item Survey, which amount

shall be considered full compensation for the work as described herein and required to provide all necessary survey stakes and control. The approved schedule showing the sequencing and percentage of the survey and layout work shall be the basis on which monthly progress payment shall be made. This schedule shall be subject to periodic review, at the request of either party, if the survey and layout work lags or accelerates. If necessary, the schedule will be revised to reflect changes in survey and layout progress. When approved, the revised schedule will become the basis for payment.

Final payment for survey work will be made when City of Buckeye accepts the final as-built. Should the Contractor fail to submit acceptable as-builts within the maximum 30 calendar day period noted above, the City will execute a deduct change order for 1% of the Construction Survey bid item total from the contract (or \$3,000.00, whichever is greater) for every 5-working day period that the Contractor fails to provide acceptable as-builts (not including City of Buckeye review time). If the Contractor fails to submit acceptable as-builts after the 3rd submittal, the City of Buckeye will deduct 5% from the Construction Survey bid item total from the contract (or \$7,000, whichever is greater) and execute a final change order noting the City's justification for penalizing the Contractor for unacceptable as-built preparation.

Bid Item	Description	UOM
105	Survey	LS

SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC: Add the following Subsections to MAG Standard Specifications.

107.2.1 PERMITS (AZPDES):

The Contractor shall be responsible for the preparation and implementation of an Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit Notice of Intent (NOI), Notice of Termination (NOT), and Stormwater Pollution Prevention Program (SWPPP) along with the preparation and submittal of all supporting applications and documentation.

The Contractor shall be responsible for implementing, installing, maintaining, and removing equipment and facilities specified in the SWPPP. This includes, but is not limited to the preparation, installation, maintenance, and removal of temporary SWPPP elements, assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with the cleanup and repair following storm events, and/or runoff or releases on the project.

STORM WATER POLLUTION PREVENTION – BEST MANAGEMENT PRACTICES, as follows:

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 the storm water pollution problem, additional, higher-cost BMP's may need to be employed, upon approval by the City of Buckeye. Typical multi-tiered BMP approaches to construction operations may include:

ROADWAY SUBGRADE EXCAVATION:

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

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 BMP's do not result in blockage of drainage and resultant flooding of adjacent properties.

OPEN PIPELINE TRENCHES:

Tier I - The open trench itself will act as a temporary retention area. The Contractor shall provide a low-cost, readily-installed/removed 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 floodwaters in the excavation that could result in "floating" the pipe.

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 the preferred alternate, due to ease of installation and removal. Care must be taken to assure that runoff is not blocked to the extent that flooding of adjacent properties will result.

BACKFILLED PIPELINE TRENCHES:

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

Tier II - If the "retention" provided by the backfilled area does not prevent sediment-laden

runoff from leaving the excavated area, perimeter controls such as silt fence, straw bales, sandbag berms, or gravel filter berms may need to be installed around the downstream edge(s) of the backfilled area. With open trenches, the selection of the appropriate measure, extent of its application, and duration during which it is needed will be dependent upon cost, site conditions, ease of installation/removal, and likelihood of precipitation/runoff. Again, care must be taken to ensure that diversion of storm water onto adjacent properties does not result from these installations.

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

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

There will be no separate measurement or payment or allowance for the preparation or development of the Storm Water Pollution Prevention Plan (SWPPP), or for preparing Notice of Intent's (NOI's) or obtaining an AZPDES and/or MCESD Air Quality Permit, including; labor or equipment necessary to install, maintain or remove the BMP materials; moving existing BMP materials from one location to another on the same project; or constructing BMP swales or berms, all of these costs being considered incidental to the cost of the project.

SECTION 109 MEASUREMENTS AND PAYMENTS: Delete MAG Section 109.10 Payment for Mobilization/Demobilization in its entirety, and replace with the following:

109.10 PAYMENT FOR MOBILIZATION /DEMOBILIZATION:

The City of Buckeye will compensate the Contractor for one-time, round trip mobilization to begin work and upon completion of the work demobilization of Contractor's personnel, equipment, supplies, incidentals, temporary field offices, and other facilities required for 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.

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 under the bid item Mobilization/Demobilization. Payment shall be made in equal one-third portions. The first payment will be paid with the Contractor's initial billing.

The second payment will be made when the total payments to the Contractor for the pay items, exclusive of payments for Mobilization/Demobilization, equal greater than one-half of the initial contracted amount. The remaining one-third will be paid as part of the final payment due to the Contractor.

When other contract items are adjusted as provided in MAG Section 109, and if the costs applicable to such items of work include mobilization costs, such mobilization costs will be considered as recovered by Contractor in the lump sum price paid for mobilization and will be excluded from consideration in determining compensation under MAG Section 109.

Bid Item	Description	UOM
109	Mobilization/Demobilization	LS

PART 200 – EARTHWORK

All costs for earthwork required for this project that are not specifically identified as a contract bid item shall be included within the existing associated contract bid items. This includes, but is not limited to, the cost for all export that may be required as a result of utility excavation, roadway work, or removals.

SECTION 201 CLEARING AND GRUBBING: Add the following Subsection to MAG Standard Specifications.

201.4.1 Removal, Salvage, and Reinstall Existing Improvements:

Any existing sign removed by Contractor that is to be protected in place, shall be replaced in kind per MAG Standard Specifications 201, and City of Buckeye requirements. All signs to be salvaged shall have existing concrete bases removed and installed with new concrete bases. Costs for removal and reset of existing improvements shall be incidental to the Work Item.

Where signs scheduled for salvage are damaged by Contractor, such signs shall be replaced in kind at Contractor's expense. This includes posts and all hardware associated with the sign system. Contractor shall survey and document existing sign location prior to removal and salvage. Contractor to reinstall sign in original sign location with freshly placed concrete base in compliance with Contract Documents. Contractor shall notify City of Buckeye Representative of any damaged signs and/or posts prior to removal and/or protecting in-place.

Measurement and payment for "Remove, Salvage, and Reinstall Existing Traffic Sign Post and Panel per COB STD DTL 65120" shall be made per each salvaged sign under Bid Item 201. Payment shall include all labor, equipment and tools, and required materials to

salvage the traffic sign post, panel, hardware, survey, remove, transport and properly salvage all sign post and panel materials removed and shall include all materials, equipment and labor required to excavate, install, grade, and compact any required backfill in accordance with these specifications and the project plans.

Bid Item	Description	UOM
201	Remove, Salvage, and Reinstall Existing Traffic Sign Post and Panel per COB STD DTL 65120	EA

Contractor shall remove, salvage, and reinstall existing CMP drain pipes between stations 45+72 and 46+08 (30.0' LT) as necessary to complete sanitary sewer installation. All CMP drain pipes to be salvaged by Contractor shall be carefully excavated and handled to prevent any damage to pipes. Contractor shall notify City of Buckeye Representative of any damaged CMP drain pipe/pipes prior to any excavations and CMP pipe removal.

Where CMP drain pipes scheduled for salvage are damaged by Contractor, such pipes shall be replaced in-kind at Contractor's expense. Contractor shall survey and document existing CMP drain pipe locations (station, offset, elevation, slope) prior to removal and salvage. Contractor to reinstall CMP drain pipe/pipes in original location (station, offset, elevation, slope) with freshly ½ sack slurry backfill to pre-existing finish grade elevation in compliance with Contract Documents.

No separate payment will be made for item "Remove, Salvage, and Reinstall Existing CMP Drain Pipe per Contract Documents". Costs associated with this work includes all labor, materials, tools, and equipment necessary to complete excavation, supports, dewatering, removal, salvage, installation, backfill, compaction, surface replacements, and all other incidental items necessary to complete the work.

SECTION 220 RIPRAP CONSTRUCTION: Add the following language to MAG Standard Specifications Subsection 220.2, and delete Subsection 220.8 in its entirety and replace with Subsection 220.8 as depicted below:

220.2 Materials:

Contractor shall remove existing riprap as necessary to complete sewer work. All removed riprap shall be re-installed to match existing depth, elevation, orientation, and thickness of pre-existing conditions.

220.8 Payment:

No separate payment will be made for removal of existing grouted riprap, installation of grouted riprap, installation of filter materials, and grout. This includes costs for all labor,

materials, tools, and equipment, and completing all work involved in removing and placing the riprap. This also includes, but is not limited to, transport, excavation, and placement of the riprap as described in the MAG Standard Specifications, on the plans, and in the special provisions.

PART 300 – STREETS AND RELATED WORK

SECTION 301 SUBGRADE PREPARATION: Add Subsection 301.1.1 to MAG Standard Specifications, and replace Subsections 301.7 and 301.8 with the following:

301.1.1 Required Inspections:

Subgrade shall be inspected prior to placing aggregate base course. The minimum number of density tests required is one for each 1,000 square yards.

301.7 Measurement:

Measurement for earthwork quantities within the limits described for subgrade preparation shall be measured by square yard and shall be included in the unit price for Subgrade Preparation. No additional measurement for earthwork quantities shall be made.

301.8 Payment:

Payment for subgrade preparation will be made at the contract unit price per square yard. Such payment shall constitute full compensation for all the work required to prepare the subgrade.

Bid Item	Description	UOM
301	Subgrade Preparation	SY

SECTION 321 PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT:

Add the following language to MAG Standard Specification Subsections 321.1, 321.2, 321.4, 321.8, Delete Subsection 321.13 in its entirety and replace with Subsection 321.13 depicted below.

321.1 Description:

New pavement shall conform to Sections 321 and 336 of the MAG Specifications as indicated on the plans. Backfill and compaction density requirements shall be in accordance with the project plans and details. The pavement replacement thickness shall be as indicated on the plans.

The Contractor shall coordinate with the City Representative for Quality Assurance (QA) testing and inspection of the asphalt concrete material and placement. The Contractor shall be responsible for third-party quality control inspection, sampling, rolling patterns, and testing of paving material and compaction requirements as required by MAG and City of Buckeye Supplements.

All street striping and marking to be pursuant to Maricopa County Department of Transportation (MCDOT) Pavement and Marking Manual, except as modified by City of Buckeye Signing and Marking Design Standards (latest edition).

All street signs shall be in accordance with most current edition of Manual on Uniform Traffic Control Devices (MUTCD), as revised by ADOT.

All street striping and marking, and signage materials shall meet ADOT's Standard Specifications for Road and Bridge Construction, unless modified within City of Buckeye Signing and Marking Design Standards (latest edition).

321.2 Materials and Manufacture:

Only City of Buckeye approved asphalt mix designs (latest edition) will be allowed on this project.

13. **Arterial Street (N. Miller Road & W. Lower Buckeye Road):** The base course shall consist of 3-inches of dense graded Type 19MM (Gyratory) asphalt laid in single 3-inch compacted lift. The surface course shall consist of 2-inches of dense graded Type 12.5MM (Gyratory) asphalt laid in single 2-inch compacted lift. Or match existing asphalt pavement structure thickness, whichever is greater.
14. **Arterial Street (W. Durango Street):** The base course shall consist of 3-inches of dense graded Type 19MM (Gyratory) asphalt laid in single 3-inch compacted lift. The surface course shall consist of 2-inches of dense graded Type 12.5MM (Gyratory) asphalt laid in single 2-inch compacted lift. Or match existing asphalt pavement structure thickness, whichever is greater.
15. **Local Street (247th Avenue):** The base course shall consist of 3-inches of dense graded Type 19MM (Gyratory) asphalt laid in single 3-inch compacted lift. The surface course shall consist of 2-inches of dense graded Type 12.5MM (Gyratory) asphalt laid in single 2-inch compacted lift. Or match existing asphalt pavement structure thickness, whichever is greater.
16. **Local Street (Private Driveway-Saint Henry Roman Catholic Church):** The base course shall consist of 3-inches of dense graded Type 19MM (Gyratory) asphalt laid in single 3-inch compacted lift. The surface course shall consist of 2-

inches of dense graded Type 12.5MM (Gyratory) asphalt laid in single 2-inch compacted lift. Or match existing asphalt pavement structure thickness, whichever is greater.

321.4 Application of Tack Coat:

Tack Coat shall be Type SS-1h per MAG Section 713 and applied in accordance with MAG Section 329. Measurement and Payment is incidental to all asphalt removal and replacement work.

321.8.8 Thickened Edge

Thickened edge to comply with MAG Standard Detail 201 "Type B".

321.13 Payment

Measurement and payment for "T Top" pavement replacement per MAG Detail 200-1 "T TOP" Trench Repair will be by the square yard, and installed in-place. In computing the pay quantity, the field measurement, complete in-place along the centerline of the trench and the trench pay width as listed in MAG 336 will be used.

Payment as specified above shall include sawcut of existing asphalt, removal and disposal of existing materials, compaction, tack, "Type B" thickened edge, and installation of new asphalt, completed in-place.

Bid Item	Description	UOM
321.1	Remove & Replace Asphalt (N. Miller Road & W. Lower Buckeye Road)	SY
321.2	Remove & Replace Asphalt (W. Durango Street)	SY
321.3	Remove & Replace Asphalt (N. 247 th Avenue)	SY
321.4	Remove & Replace Asphalt (Private Driveway-Saint Henry Roman Catholic Church)	SY

SECTION 331 MICROSURFACING SPECIFICATIONS:

Add MAG Standard Specification Subsection 331.7.1: Microsurfacing Limits

Microseal shall be installed the full road width within 200-feet of all disturbed asphalt cuts along Miller Road, Durango Street, and Lower Buckeye Road, including from curb return to curb return at all adjacent side streets. Microseal installation shall take place on Miller Road between Stations 60+00 and 102+22. Microseal installation shall take place on Lower Buckeye Road between Stations 526+00 and 547+00. Microseal installation shall take place on Durango Street between Stations 600+10 and 604+20. Contractor shall

coordinate asphalt replacement and microseal with the City of Buckeye Durango Street Improvements Project.

Delete MAG Standard Specification Subsection 331.8 in its entirety, and replace with the following:

331.8 Payment

Payment for microseal will be made at the unit price bid per square yard, under the item, "Microseal". The quantity will be field measured by the City or City's Representative. The price shall be full compensation for furnishing, mixing and applying all materials; and for all labor, equipment, tools, design tests, crack sealing, pavement striping and marking, and incidentals necessary to complete the job as specified in MAG Section 331 and in the construction drawings.

Bid Item	Description	UOM
331	Microseal	SY

SECTION 337 ASPHALT PAVEMENT CRACK SEALING AND CRACK FILLING: Delete MAG Standard Specification Subsection 337.7 in its entirety, and replace with the following:

337.7 Payment

No measurement or direct payment will be made for crack sealing. All costs for crack sealing shall be included with item Microseal.

SECTION 345 ADJUSTING FRAMES, COVERS, AND VALVE BOXES: Delete MAG Standard Specification Subsections 345.1, 345.6, 345.7 in their entirety, and replace with the following:

345.1 Description

Adjustment of manhole frames, covers, clean outs, valve boxes, survey monument boxes (and water meter boxes if located in the pavement) to finish grade shall be done after placement of the final surface course pavement. All water valve adjustments to comply with MAG Std Dtl's 391-2. All sewer manhole adjustments to comply with MAG Std Dtl's 422 and 424-2. Sewer manhole cover lettering to be per COB Std Dtl 41260 – Addendum dated 06-21-2016.

Any missing manhole frames or covers and water valve or survey monument box hardware (such as lids, for example) shall be reported in writing to the City Representative during the initial locating process to allow arrangements to be made to obtain replacement hardware. Missing hardware that is properly reported to the City Representative will be supplied to the Contractor by the City of Buckeye or the appropriate private utility company.

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

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

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

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

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

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

Traffic shall not be allowed on the collars until the concrete has reached a minimum compressive strength of 3,000 psi on collector/major/arterial streets. On arterial streets, the Contractor shall use "high-early" cement in the concrete mix, approved by the City of Buckeye, to minimize delay in re-opening the street to traffic.

Prior to commencing work on the adjustments, the Contractor shall submit a written adjustment plan and schedule to the City Representative for approval.

Sewer manhole frames and covers shall be matched, kept together, and replaced to their original locations. The Contractor shall remove existing asphalt, chip seal, or other materials

from all sewer manhole covers and water valve box lids to be adjusted on this project. The Contractor's method for removal shall be approved by the City Representative prior to actual work. Cover cleaning shall be completed prior to adjustment of frames. Also, all water valve risers shall be thoroughly cleaned to fully expose the valve operating nut.

345.6 Measurement

The quantities measured will be the actual number of frames, covers and valve boxes of each type, adjusted and accepted.

345.7 Payment

Accepted quantities, will be paid for at the contract unit price for the following bid items: Adjust Existing Water Valve (MAG Std Det 391-2). Payment shall be compensation in full for all materials, labor, equipment and incidentals necessary to complete the work.

Bid Item	Description	UOM
345.1	Adjust Existing Water Valve (MAG Std Det 391-2)	EA

SECTION 346 ADJUSTING NON-CITY UTILITIES: Add the following New Section and Subsections to MAG Standard Specifications.

346 Adjusting Non-City Utilities:

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

The Contractor shall coordinate with the 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.

Payment for this work will be made at the unit price bid per each, under the proposal item "Adjusting Frames, Covers, Valve Boxes on Existing Non-City Utilities, Contingent Item" and shall be compensation in full, including any utility inspector costs associated with these adjustments, regardless of the type of manhole or valve. Individual utility companies have the right to accept or reject the Contractor's bid price for non-City utility adjustments. If the utility company rejects the Contractor's price, the utility company will adjust their own facilities and the item quantity will be adjusted accordingly.

Bid Item	Description	UOM
346	Adjusting Frames, Covers, Valve Boxes on Existing Non-City Utilities, Contingent Item	EA

SECTION 350 REMOVAL OF EXISTING IMPROVEMENTS: Add the following Subsections to MAG Standard Specifications.

350.3 Miscellaneous Removal and Other Work:

(I) Removal of Pipe, Backfill and Compaction

The work under these items shall consist of the removal of existing pipe as specified in plans or as necessary. The work also consists of the disposal of all pipe, any broken concrete and debris, and backfilling and compacting all voids. Backfill shall be in accordance with MAG Section 336. Compaction shall be in accordance with MAG Section 601.

No measurement or direct payment will be made for pipe removal, hauling, disposal of pipe, and haul off of excavated materials. The cost shall be considered incidental to the cost of the project.

(J) Materials Containing Asbestos

Materials containing asbestos and/or lead in any form are unacceptable to incorporate into the project unless formally accepted in writing by the City of Buckeye. This written approval shall take place prior to the material being incorporated into the project and/or brought to the site.

Repair kits or touch-up materials, materials that include asbestos and/or lead introduced into the product at the factory or applied at the assembly plant are all unacceptable. All field-applied products that are comprised of asbestos and/or lead containing materials are also unacceptable.

If asbestos and/or lead are installed without written approval by City of Buckeye, the Contractor will remove these materials at his expense and dispose of these materials in accordance with all state and federal laws and pay for the supervision and reporting costs in addition to the cost to properly remove them.

(K) Disposal of Surplus Material Which Does Not Contain Asbestos

All surplus and/or waste material may be disposed of at the Contractor's discretion subject to the following conditions:

If the City landfills are used, the Contractor shall pay the normal dumping fee.

If private property within the City limits is used, the Contractor shall obtain written permission from the property Owner and deliver a copy of this agreement to the City Representative prior to any hauling or dumping. All disposal and grading shall be in strict conformance with the City of

Buckeye Grading and Drainage Ordinance. The Contractor shall obtain and pay for the necessary permit(s).

If the surplus material is disposed of outside the City limits, the Contractor shall comply with all applicable laws/ordinances of the agency concerned and be responsible for all cost incurred.

No measurement or direct payment will be made for the hauling and disposal of surplus and/or waste material. The cost shall be considered incidental to the cost of the project.

PART 400 – RIGHT-OF-WAY AND TRAFFIC CONTROL

SECTION 401 TRAFFIC CONTROL: Add the following Subsections to MAG Standard Specifications.

401.4 Traffic Control Measures:

SEQUENCE OF CONSTRUCTION

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

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

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

When approved, the phasing plan and work schedule shall not be changed without the written consent of the City Representative. 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.

401.5 General Traffic Regulations:

Special Traffic Regulations

Temporary traffic control shall conform to Manual on Uniform Traffic Control Devices (MUTCD) Chapter 6 and/or as directed by City of Buckeye.

The following shall be considered major streets:

Miller Road (City of Buckeye Right-of-Way)

Miller Road (ADOT Right-of-Way)

Contractor to submit an encroachment permit prior to performing any work within ADOT Right-of-Way (ROW). ADOT Traffic Operations Center (602-257-1563) SHALL be contacted 48 hours prior to starting work within ADOT's Right-of-Way (ROW).

Durango Street

Lower Buckeye Road

When construction requires, Miller Road may be reduced to the following configuration during the associated times:

- A. Two lanes (one in each direction) plus a left-turn lane at signalized intersections, from 8:30 a.m. to 4:00 p.m. weekdays.
- B. Two lanes (one in each direction), from 7:00 a.m. to 7:00 p.m. on weekends.

When construction requires, Lower Buckeye Road may be reduced to the following configuration during the associated times:

- A. Two lanes (one in each direction) plus a left-turn lane at signalized intersections, from 8:30 a.m. to 4:00 p.m. weekdays.
- B. Two lanes (one in each direction), from 7:00 a.m. to 7:00 p.m. on weekends.

When construction requires, Durango Street may be reduced to the following configuration during the associated times:

- A. Two lanes (one in each direction) plus a left-turn lane at signalized intersections, from 8:30 a.m. to 4:00 p.m. weekdays.
- B. Two lanes (one in each direction), from 7:00 a.m. to 7:00 p.m. on weekends.

Left turn lanes at signalized intersections may be restricted during weekends with the consent of the City Representative and proper notification from City of Buckeye Traffic Management Center.

At all other times two lanes (one in each direction) shall be maintained with all left turn lanes at signalized intersections.

Portable Variable Message Boards

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

- Northbound Miller Road, approximately 500 feet north of Broadway Road;
- Southbound Miller Road, approximately 300 feet north of Durango Street;
- Lower Buckeye Road, approximately 200 feet west of Miller Road;
- Lower Buckeye Road, approximately 200 feet east of 247th Avenue;

Local Access Requirements

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

Business Access Requirements

Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties with multiple driveway access shall not have more than one driveway access restricted at any given time. While the one driveway is restricted, access to the other adjacent driveways shall be maintained and unrestricted. Each individual driveway access restriction shall be no more than fourteen (14) calendar days. Any business restrictions shall be coordinated with the affected business in writing at least fourteen (14) days prior to imposing restrictions.

Pedestrian Access Requirements

The Contractor shall ensure that all sidewalks on this project remain in compliance with the Americans with Disabilities Act (ADA) Standards. All pedestrian walkway areas, paved or unpaved, shall always be maintained open and safely usable. Such measures as backfilling or ramping to existing sidewalks or providing alternate sidewalk areas adjacent to existing sidewalks may be used. In high pedestrian use areas, the City Representative may request temporary hard-surface walkways such as plywood sheets to be installed, and/or covered pedestrian walkways at no additional cost to the City.

Frontage Road Access Requirements

Local access shall be maintained at all times on frontage roads. Frontage roads shall not be used for through traffic, equipment parking, material storage, or spoil stockpile area. Frontage road closures are prohibited.

School Access Requirements

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

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

In addition to school zones and crosswalks, the Contractor shall maintain accessibility to all school bus routes during all hours of school use. The Contractor shall notify the school

principal(s) and the school Transportation Director at least fourteen (14) days prior to any restrictions and shall restore access as soon as possible.

Church Access Requirements

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

Fire Station and Police Station Access Requirements

The Contractor shall maintain paved emergency vehicle access to and from all fire stations and police stations at all times. The Contractor shall coordinate with the Fire Station and/or Police Station Commander at least fourteen (14) calendar days prior to any restrictions, and again at least 72 hours prior to any restrictions, and shall restore full access as soon as possible.

Canal Access Road Requirements

Roosevelt Irrigation District (RID) Canal access and maintenance roads shall remain open at all times. The Contractor shall contact the District's Construction Observer at (602) 284-7017, a minimum of 14 calendar days prior to commencement of construction.

Farm Access Road and Irrigation Pipe Crossing Requirements

Parcel EMRLAND LLLP – 504-26-014G – Miller Road (between Lower Buckeye Road and Warner Street:

Active farmland (H-Four Farms) CMP drain pipe must be removed, salvaged, and re-installed with the project between stations 45+72 and 46+08 per Contract Documents. Existing irrigation pipes must be supported and protected in-place at approximately stations 45+76 and 59+00 per Contract Documents. Contractor must contact farmer 10 working days prior to commencing construction and specify dates of CMP drain pipe salvage work and/or irrigation pipe support work to minimize interruption of irrigation and driveway access.

Farmer contact information includes the following:

Art Heiken – Cell (602) 919-4581, Office (623) 386-4478

Sanitation Pick-up

The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to City of Buckeye Public Works Department, Sanitation Division (623) 349-6100.

Special Events

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

Special Sign Requirements

The Contractor shall provide, install and maintain advance notification; public informational; and directional access signs (for businesses, churches, hospitals, schools, etc.) that may be required by the City Representative. These signs may include, but are not limited to portable changeable message signs, radar/speed sensing trailers and other applicable Intelligent Transportation System type devices. The cost shall be included in the bid item for Traffic Control Devices.

Bus Stops

The Contractor shall maintain all existing bus stop locations on this project in a safe manner or provide alternate bus stop locations and related directional signage as required by the City Representative. Not fulfilling this requirement can lead to civil sanctions.

Flagging of Traffic

No flagging of traffic will be permitted except by a police officer to facilitate access for heavy construction equipment.

Traffic Control Plan

The Contractor shall submit a traffic control plan for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan shall be professionally drawn on a 24" x 36" reproducible medium and shall be submitted to the City Representative at the Pre-Construction meeting or before. The Contractor shall allow the City Representative fourteen (14) calendar days for review and approval of an acceptable plan.

Temporary Traffic Control Zone and Safety

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

Failure to maintain temporary traffic control devices in accordance with the approved Traffic Control Plan, and directives by the City Representative may result in suspension of work and/or civil sanctions until deficiencies are corrected to the satisfaction of the City Representative and/or City of Buckeye.

Safety Fencing Requirement for Trenches and Excavations

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

The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the City Representative to

remain open when construction is not in progress.

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

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

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

401.7 Payment:

ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER

This project includes a lump sum "Allowance For Uniformed, Off-Duty Law Enforcement Officer". The amount of this allowance is determined by the City Representative and is not subject to individual bid pricing. All bidders shall incorporate the amount pre-entered in the bid proposal and shall reflect the same in the total amount bid for this project.

Payment for uniformed, off-duty law enforcement officers shall be made from this allowance based on approved invoiced cost, plus taxes, and a maximum 10 percent markup for overhead and profit with bid item "Allowance for Uniformed, Off-Duty Law Enforcement Officer".

TEMPORARY TRAFFIC CONTROL

No measurement will be made for temporary traffic control devices. Payment for temporary traffic control will be full lump sum compensation for installing, maintaining, and removing all temporary traffic control devices with bid item "Temporary Traffic Control".

Bid Item	Description	UOM
401.1	Temporary Traffic Control	LS
401.2	Allowance for Uniformed, Off-Duty Law Enforcement Officer	LS

SECTION 402 SPECIAL CONSTRUCTION REQUIREMENTS: Add the following New Section and Subsections to MAG Standard Specifications.

402 Special Construction Requirements:**402.1 FIELD DOCUMENTATION**

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

402.2 CONTRACTOR COMMUNICATION INFORMATION

The Contractor shall provide a mobile phone number of on-site Project Superintendent at the pre-construction conference. The Superintendent's mobile phone shall remain in service for the duration of the project and shall be included on the Contractor's list of emergency phone numbers to be submitted at the pre-construction conference.

402.3 TRENCH PLATING

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

402.4 TRENCHING IN RIGHT OF WAY

The Contractor shall not be allowed to stockpile trench material or store any equipment other than the mainline track hoes within the right-of-way of Miller Road and Lower Buckeye Road. The Contractor shall secure temporary 6' chain link fence around the track hoe at all times during non-working hours.

402.5 MAXIMUM OPEN TRENCH

No more than 300 linear feet of open trench shall be allowed on Miller Road from RID Canal to Tonopah-Salam Highway/Yuma Road. No more than 300 linear feet of open trench shall be allowed on Lower Buckeye Road from Miller Road to 247th Avenue. Trenches across driveways shall be plated to maintain access. The cost of these plates shall be considered incidental to the project.

PART 600 – WATER, SEWER, STORM DRAIN AND IRRIGATION

SECTION 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION: Add the following Subsections to MAG Standard Specifications.

601.2.3 Trench Grade

Bell or coupling holes shall be dug after the trench bottom has been graded. Such holes shall provide sufficient width to provide ample room for caulking, banding, or bolting. Holes shall be excavated only as necessary to permit accurate work in the making of the joints and to ensure that the pipe will rest uniformly upon the prepared bottom of the

trench, and not be supported by any portion of the joint.

Depressions for joints, other than bell-and-spigot, shall be made in accordance with the recommendations of the joint manufacturer for the particular joint used.

601.6.5 Sawcutting and Removing Newly Placed Pavement

If temporary pavement must be sawcut and removed in order to install pipe, the cost of sawcutting, removing and replacing the asphalt shall be considered incidental to the cost of the pipe.

SECTION 602 TRENCHLESS OR OPEN CUT INSTALLATION OF STEEL CASING: Add the following Subsections to MAG Standard Specification Section 602 for installation of steel casing at Roosevelt Irrigation District Canal.

602.2.1 Steel Casing Fabrication

Steel casing shall conform to ASTM A-252 Grade B.

602.2.2 Steel Casing Wall Thickness

Minimum steel casing wall thickness shall be ½"

602.2.2.3 Steel Casing Diameter for Trenchless Installations

Steel casing diameter shall be 42"

602.2.3 Trenchless Operation

Steel casing end seals are to be submitted to City of Buckeye for review and approval. All casing spacers to be APS or PWM injected molded polyethylene or approved equal. Clay jack pipe bands shall be 316 stainless steel compression disc to distribute jacking forces.

Bid Item	Description	UOM
602.1	42" Steel Casing by Jack & Bore (ASTMA-252 Grade B)	LF

SECTION 610 WATER LINE CONSTRUCTION: Add the following to MAG Subsection 610.11 CONNECTION TO EXISTING MAINS:

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

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

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

SECTION 615 SANITARY SEWER LINE CONSTRUCTION: Replace the following Subsection MAG Standard Specification Section 615.2 with the following:

615.2 Materials

Pipe used for sewer line construction, including specials, joints, and gaskets, shall be according to the following Sections, or as modified by the special provisions.

- Vitrified Clay Pipe (VCP), see MAG Section 743
- Polyvinylchloride Pipe (PVC-DR 26), see MAG Section 745

SECTION 615 SANITARY SEWER LINE CONSTRUCTION: Add the following Subsection MAG Standard Specification Section 615

615.3 Trenching

The maximum length of open trench shall be in accordance with the MAG Standard Specification Section 601, except that the maximum length of trench shall not exceed 300 feet. All open trenches after the sewer installation operation shall be backfilled and compacted to grade each working day. Where any open trench is required to remain on the site during any non-work hours, the length of open cut trench shall not exceed 50 feet and the trench shall be protected by concrete Jersey barrier and temporary fence as approved and inspected by the City of Buckeye or City Representative. With the approval of the City, pipe laying may be carried on at more than one separate location, the restrictions on open trench applying to each location.

615.5 Pipe Installation

Piping shall be laid to the lines and grades indicated on the drawings. Batter boards, laser beam equipment, or surveying instruments shall be used to maintain alignment and grade.

If batter boards are used to determine and check pipe subgrades, they shall be erected at intervals of not more than 25 feet. At least three batter boards shall always be maintained in proper position when trench grading is in progress.

If laser beam equipment is used, periodic elevation measurements shall be made with surveying instruments to verify accuracy of grades. If such measurements indicate

thermal deflection of the laser beam due to differences between the ground temperature and the air temperature within the pipe, precautions shall be taken to prevent or minimize further thermal deflections.

Lateral displacement of the pipe shall be prevented during embedment. Pipe shall not be laid in water or under unsuitable weather or trench conditions. Pipe laying shall begin at the lowest elevation with bell ends facing the direction of laying, except when reverse laying is permitted by the City Representative.

Whenever pipe laying is stopped, the open end of the pipe shall be closed with a tight-fitting end board to keep out soil. The end board shall have perforations near the center to admit water and prevent floatation of the pipe in the event the trench becomes flooded.

If unknown pre-existing sanitary sewer services are identified during excavation and pipe installations, Contractor shall immediately notify COB Project Manager of such sanitary sewer services. COB will determine if the services will be connected to the newly installed sewer line for future service. Connections to existing sewer sanitary sewer services shall be made with in-kind pipe materials to match existing.

615.5.1 Diversion of Sewage Flow and Dewatering

The Contractor shall provide all labor, materials and supervision to temporary bypass flow around the work in accordance with the specified needs of the rehabilitation method being utilized and dewater the pipelines in preparation for cleaning and rehabilitation.

The Contractor shall provide the design of the bypass arrangement and describe the means and methods of accomplishing the bypassing and submitted to the City Representative to determine conformance to project objectives.

Prior to placing the bypass system into operation, the Contractor shall successfully test the system to 1.5 times the maximum operating pressure of the system.

The Contractor shall notify the City Representative 48 hours prior to shutting down or operating the bypass. Provide continuous manned monitoring of the bypass flow. Should a spill occur, immediately contact the City Representative and provide immediate and proper cleanup.

The Contractor shall take all precautions necessary access and temporary construction agreements with all affected parties for the location of the bypass pumping system. The Contractor is responsible for immediate and proper clean up should any spill occur, regardless of amount.

The Contractor shall maintain public and private access along project routes. Bypass lines shall be protected from damage due to traffic and shall not impede pedestrian or vehicular traffic routes unless otherwise allowed by approved traffic control plans. Bypass lines

shall be buried at street crossings and business entrances unless otherwise approved by the City Representative. Temporary steel plating with milled edges may be used with approval for buried lines. Ramps protecting bypass lines shall be a minimum level of protection at accesses to private residences unless otherwise approved by the City Representative.

Experience

The Contractor shall utilize staff and/or a subcontractor that has been directly responsible for the completion of a project that required the bypass pumping of sewage flows that exist in these pipelines.

SUBMITTALS

At the Preconstruction Conference, the Contractor shall submit drawings and complete design data showing methods and equipment proposed to be utilized in the water piping or sewer bypassing for review by the City Representative. The submittal shall include the following information in the submittal.

1. Drawings indicating the scheme and location of temporary water or sewer line plugs, bypass discharge lines and the method and location for discharging the bypass lines.
2. Capacities of pumps, prime movers and standby equipment.
3. Design calculations proving adequacy of the system and selected equipment shall be sealed by a Professional Engineer registered in the State of Arizona.
4. Standby Power Source
5. Staffing Plan
6. Secondary Containment Provisions
7. Spill Response Plan
8. Odor Control Plan

JOB CONDITIONS

Protection

Bypassing to the ground surface, receiving waters, storm drains or bypassing which results in soil or groundwater contamination or any potential health hazards is not permitted.

Scheduling

The bypassing system is not allowed to be shut down between shifts, on holidays, weekends or during work stoppage without written permission from the City Representative. Provide an attendant, around the clock, whose only duty is to maintain the bypass pumping system until the bypassing of that specific pipeline is no longer required.

Service Lines

Water or sanitary sewers to be bypassed may have service lines connected to adjacent users. The known service lines have been shown on the construction drawings. Verify the locations of these lines and any other service lines not shown on the drawings. Sanitary sewer service must be maintained to all customers.

MATERIALS

The Contractor shall provide temporary pumps, conduits and other equipment to bypass flow around the work area. Furnish all necessary labor and supervision to set up and operate the pumping and bypass system. The Contractor shall provide critical grade sound attenuated pumps capable of achieving an operating noise level of 70 decibels or less measured at a distance of 50 feet from the operating pump for the bypass pumping. Conduct sound measurement tests in accordance with the American National Standards S. 13-1971. The Contractor shall provide pumps and bypass lines of adequate capacity and size to handle the required capacity. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

The Contractor shall maintain on site, sufficient equipment and materials to ensure continuous and successful operation of the bypass system. Unless otherwise approved by City Representative, the Contractor shall provide standby pumps on site for a minimum 50% redundancy of the bypass system flow except at least 100% redundant capacity must be provided if only one pump is being used to bypass flows. The Contractor shall provide, install in-place, maintain fully operational and fueled standby pumps, equipment and piping. The Contractor shall maintain on site a sufficient number of valves, tees, elbows, connections, tools, water line or sewer plugs, piping and other parts or system hardware to ensure immediate repair or modifications of any part of the system as necessary.

Unless otherwise approved by City Representative, the Contractor shall provide and install fully operational redundant bypass line(s), so they can be placed in service in the event one of the bypass lines develops a leak. The Contractor shall provide 33% redundancy in the bypass piping for design flows, except at least one redundant bypass line must be provided when less than three bypass lines are provided by design. The Contractor shall provide and install independent valves on all lines for the bypass pump system, so they can be quickly activated or removed from service if necessary.

Install all pumps, generators and other equipment with sufficient secondary containment to protect against gasoline, oil and hydraulic fluid spills. Provide a berm at the edge of the containment to prevent direct runoff of spills.

Estimated Flows in the Project Pipeline

Flow data may be available from the City of Buckeye during normal business hours. Use of this flow data in no way relieves the Contractor from his responsibilities for design, construction and operation of an adequately and properly functioning bypass system for each project. Any additional monitoring or gathering of flow data to properly size the bypass system is the responsibility of the Contractor. The Contractor shall include consideration for increased flow due to rainfall events, fluctuations of peak flows due to holidays, civic events, etc., equipment failure risks, etc., and provide adequate reserve capacity and redundancy to maintain sewer flows within the sewer pipe upstream and downstream of the bypass.

Monitoring Flows

Monitor flows and bypass operations during the project to ensure proper operation and ensure against upstream surcharges and/or spills.

Service Lines

Water or sewer service to customers must be maintained during the work, unless arrangements are made with the service customer. The Contractor shall meet with customers to discuss bypass pumping of services or making alternate arrangements with the customer to discuss bypass pumping of services or making alternate arrangements with the customer for service outages. No matter what arrangement is made, cooperate with the City Representative to provide the City of Buckeye documentation that all affected customers have been contacted and arrangements made for continuous service or alternate accommodations. This document must be submitted prior to start of work on the section of line affected.

Notifications

The Contractor shall cooperate fully in providing the City Representative with advanced notice and details pertaining to work schedule and individual service arrangements. The Contractor shall notify the City Representative and City of Buckeye of any planned service interruptions at least two weeks prior to any interruption of service. The City Representative or local public involvement firm retained by the City Representative shall perform notification of the work to the public. Notification shall be made door to door with printed handouts or door hangers. The information provided includes, at a minimum, the reason for the interruption, the time of the interruption and a local 24-hour telephone hotline number for project information. The first notification is to be five days before interruption of service. A more advanced notice may be required if an alternate to pumping the customer's service is proposed. The second notification is to be 24 hours prior to interruption of service.

PROTECTION

Water or wastewater spills, overflows and backups into customer's properties are not allowed. Bypassing to the ground surface, receiving waters, storm drains or bypassing which results in groundwater contamination or potential health hazards are not allowed. The Contractor shall inspect the entire bypass pumping and piping system for leaks or spills on an hourly basis. Create an inspection log and enter the time of the inspections and the conditions of the piping and the name of the inspector into the log for review by the City Representative. The Contractor shall provide City Representative a copy of an emergency spill response plan. Plan shall address notification and clean up procedures. Immediately take action to halt and clean up all spills and immediately notify CITY REPRESENTATIVE of any/all spills. The Contractor shall perform all work in compliance with OSHA standards and in no case will noise levels be permitted which would interfere with the work of the City or others. Noise levels shall be in accordance with City of Buckeye noise ordinance. Utilize sound attenuated bypass pumps with a maximum decibel rating of 70 db @ 50 feet.

Odor Control

The Contractor shall employ methods and procedures that will reduce the generation and discharge of objectionable odors to the surface environment at all times.

The Contractor shall add ferric chloride to the wastewater flow upstream of bypass pumping operations to reduce odor. Make determination of flow characteristic for required dosing.

The Contractor shall add the ferric chloride from a location upstream that will allow 10 to 15 minutes reaction time before the flow enters the work area. The chemical dosing shall reduce odors generated from the wastewater stream to a level acceptable to the City. If this is not accomplished by adding the ferric chloride only, an additional control may be required. Add hydrogen peroxide downstream to the flow that has been dosed with ferric chloride. The Hydrogen peroxide shall be added to allow a 5 – minute reaction time before the flow enters the work area. Any dosage combination of the two chemicals may be used to ensure continuous control of odors acceptable to the City.

Damages

Repairs for any damage that may result from negligence, inadequate or improper installation, maintenance, insufficient and operation of bypass system, including mechanical or electrical failures are the responsibility of the Contractor.

Cleaning Existing Sewer Lines and Manholes to be Abandoned or Removed

All existing sewer lines and manholes to be abandoned and/or removed shall be cleaned prior to abandonment and/or removal as specified in the Contract Documents. This work includes furnishing all labor, materials, tools and equipment to remove accumulated sediments within existing sewer pipes and manholes prior to abandonment, as indicated on the plans and as specified. The Contractor shall remove existing sediment, debris, pipe supports, roots, scale, encrustations, and grease accumulations from all sewers and sewer structures to be abandoned and/or removed. All materials removed during cleaning shall be removed from the work area and disposed of off-site in with all local, State, and Federal requirements.

The Contractor shall provide CCTV inspection immediately following the sewer line cleaning and shall submit three (3) DVDs of CCTV inspection to the City Representative for review and approval. CCTV inspection shall be reviewed and approved by the City Representative prior to the abandonment and/or removal of sewer line and pipe plug installations.

The Contractor shall be responsible for transporting and disposing; including all disposal fees, any sediments and material removed from the sewer lines and sewer manholes. All sediment and debris removed from the sewer shall be disposed off-site. Stockpiling or staging of removed sanitary sewer materials and debris is not be permitted.

The Contractor is responsible for obtaining all necessary permits, fees, and approval from all regulatory agencies required to perform the work, including transport of sediments. Off-site disposal of all material removed from the sewer shall be the Contractor's responsibility.

615.5.2 Remove Existing Manholes and Sewer Pipes

Removal and disposal of existing sewer pipe and manholes shall be made as stated within and shown on the project plans. Where complete manhole removal is required, removal shall include removal of the frame and cover, cone section and all portions of the manhole riser, including manhole base.

All excavations associated with manhole and pipe systems removal outside roadway asphalt limits shall be backfilled with one-half sack controlled low strength slurry per MAG Section 728, or ABC mechanically compacted to 95% from the bottom of excavation limits to 1-foot below finish grade elevation meeting requirements of Contract. Native material shall be installed from one-half sack controlled low strength slurry or ABC limits to finish grade elevation and landscaped to match pre-existing conditions.

All excavations associated with manhole and pipe systems removal within asphalt limits shall be backfilled with one-half sack controlled low strength slurry per MAG Section 728, from the invert of the manhole to finish grade elevation meeting requirements of Contract.

All manhole frames and covers scheduled for removal shall be removed with due care so that the frames and covers may be salvaged. The Contractor shall contact the City of Buckeye Project Manager to make arrangements for the delivery of the salvaged frames and covers to the City Yard. Arrangements must be made prior to delivery of the salvaged material.

The Contractor should note that sanitary manhole and sewer line materials are considered contaminated material and must be properly disposed of. All sanitary manhole materials removed, including cones, riser and base materials shall be hauled off site and disposed of in accordance with federal, state and local regulations. The Contractor shall keep daily logs of the quantity and type of material removed and the location of its disposal and provide the City Representative with a copy of all such logs.

615.5.3 Abandonment of Existing Sewer Lines and Manholes

Existing sewer lines to be abandoned in-place shall be filled with light weight grout where depicted in the Drawings. The grout shall provide a minimum average compressive strength of 60 psi, as manufactured by Elastizell Corporation or approved equal.

The Contractor is responsible to fill in completely the abandoned in-place sewer lines without any cavities or voids. The Contractor shall not proceed with filling until the sewer lines have been CCTV inspected and approved for abandonment by the City of Buckeye.

Existing manholes to be abandoned in-place outside asphalt limits shall be filled with one-half sack controlled low strength slurry per MAG Section 728, from the invert of the manhole to bottom of cone section. The Contractor shall remove the cone, adjustment rings, frame and cover and backfill from top of slurry limits to 1-foot below finish grade elevation with native material meeting requirements of Contract. Native material shall be landscaped to match pre-existing conditions.

Existing manholes to be abandoned in-place within asphalt limits of existing roadway shall be filled with one-half sack controlled low strength slurry per MAG Section 728, from the invert of the manhole to bottom of cone section. The Contractor shall remove the cone, adjustment rings, frame and cover and backfill from top of slurry limits to finish grade elevation with one-half sack controlled low strength slurry.

615.7 Jointing

All joint preparation and jointing procedures shall comply with the instructions and recommendation of the pipe manufacturer.

Immediately before rubber-gasketed bell-and-spigot type joints are pushed together, all spigot and bell joint surfaces shall be coated with the lubricant furnished with the pipe.

The position and condition of each rubber gasket (unbonded gaskets) shall be checked with a feeler gauge after the joint is completed.

615.10 Testing Cleanout

Testing cleanout to be shall be installed in accordance with COB Standard Detail 41270. Pipe backfill for testing cleanout shall be in accordance with COB Standard Detail 41300.

615.16 Measurement and Payment

Measurement and payment for installation of stub out and plug shall be made per each sewer plug under bid item "Install Stub Out and Plug Per MAG Std Dtl 427".

Measurement and payment for connecting existing sewer services to new manholes on Lower Buckeye Road shall be made per each sewer service connection under bid item "Connect Existing Sewer to New Manhole Per MAG Spec Sect 615 and COB Std Dtl 41240.

Measurement and payment for connecting existing sewer services on Miller Road shall be made per each sewer service connection under bid item "Connect Existing Sewer Pipe to Manhole Per MAG Spec Sect 615.

Measurement and payment shall be made per each testing cleanout under bid item "Testing Cleanout Per COB Std Dtl 41270.

Measurement and payment for removal of sanitary sewer manholes shall be made per each sewer manhole removed under bid item "Remove Existing Sanitary Sewer Manhole". Payment shall include all labor, equipment and tools, and required materials to salvage the frames and covers, remove, transport and properly dispose of all manholes and shall include all materials, equipment and labor required to install, grade and compact any required backfill in accordance with these specifications and the project plans. If manholes are located outside the trench limit, the cost of surface removal/replacement, including but not limited to pavement, landscape, and curb, shall be included in the removal of sewer manholes.

Measurement and payment for removal of sanitary sewer pipes shall be made per linear foot of sanitary sewer pipe removal under bid items "Remove Existing 8" Sewer Pipe" and "Remove Existing 12" Sewer Pipe". Removal of sanitary sewer pipes shall include all labor, equipment and tools, and material necessary to complete the removal of the items specified on the plans.

Measurement and payment for abandonment of existing sewer pipes shall be made per linear foot of sanitary sewer pipe abandoned under bid items "Abandon In-Place 12" Sewer Pipe Per Project Specifications" and "Abandon In-Place 10" Sewer Pipe Per Project Specifications". Costs associated with this work shall include all labor, equipment and tools, materials, and CCTV Inspection, necessary to complete the abandonment of the

items specified on the plans.

Measurement and payment for abandonment of existing manholes shall be made per sewer manhole abandoned in-place under bid item "Abandon Existing Manhole Per Project Specifications". Payment shall include all labor, equipment and tools, and required materials to salvage the frames and covers, remove, transport and properly dispose of all manhole materials removed and shall include all materials, equipment and labor required to excavate, install, grade and compact any required backfill in accordance with these specifications and the project plans. If manholes are located outside the trench limits, the cost of surface removal/replacement, including but not limited to pavement, landscape, and concrete curb/gutter, shall be included with this item.

Measurement and payment for cut and plug of existing pipe shall be made per each sewer cut and plug under bid item "Cut & Plug Per MAG Std Dtl 427.

Measurement and payment for removing existing manhole and connection to existing sewer service shall be made per each sewer manhole removed and service connection made under bid item "Remove Existing Manhole and Connect to Existing Service". Payment shall include all labor, equipment and tools, and required materials to salvage the frames and covers, remove, transport and properly dispose of all manhole and pipe materials, bypass pumping, and shall include all new pipe materials, equipment and labor required to install, grade, backfill, and compact any required backfill in accordance with these specifications and the project plans. If manholes are located outside the trench limit, the cost of surface removal/replacement, including but not limited to pavement, landscape, and curb, shall be included in this bid item.

All costs associated with pipe and manhole cleaning is considered incidental to all pipe and manhole abandonment and removal work.

Measurement and payment for bypassing shall be made at "Lump Sum" unit of measurement under bid item "Bypass Existing Sanitary Sewer". Payment shall include all equipment, labor, and materials necessary to temporarily bypass existing sewer systems during construction.

Bid Item	Description	UOM
615.1	Install 24" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.2	Install 24" Sewer Pipe," NO DIG VCP" Pipe VCP (ASTMC1208) Per MAG Section 615 & 743	LF
615.3	Install 21" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.4	Install 18" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.5	Install 12" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.6	Install 8" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.7	Install 6" Sewer Pipe (Service), VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	LF
615.8	Install 6" PVC Pipe (SDR26), Per ASTM D3034	LF
615.9	Install 8" PVC Pipe (SDR26), Per ASTM D3034	LF
615.10	Install Stub Out and Plug Per MAG Std Dtl 427.	EA
615.11	Connect Existing Sewer to New Manhole Per MAG Spec Sect 615 and COB Standard Detail 41240	EA
615.12	Connect Existing Sewer to New Manhole per MAG Spec Sect 615	EA
615.13	Testing Cleanout Per COB Std Dtl 41270.	EA
615.14	Remove Existing Sanitary Sewer Manhole	EA
615.15	Remove Existing 8" Sewer Pipe	LF
615.16	Remove Existing 12" Sewer Pipe	LF
615.17	Abandon In-Place 10" Sewer Pipe per Project Specifications	LF
615.18	Abandon In-Place 12" Sewer Pipe per Project Specifications	LF
615.19	Abandon Existing Manhole Per Project Specifications	EA
615.20	Cut & Plug Per MAG Std Dtl 427.	EA
615.21	Remove Existing Manhole and Connect to Existing Service	EA
615.22	Bypass Existing Sanitary Sewer	LS

SECTION 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS: Replace MAG Section 625 with the following:

SECTION 625 ACID RESISTANT POLYMER MANHOLES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
1. Provide all labor, materials, equipment and incidentals as shown on the Contract Drawings, specified, and required to design, furnish and install acid resistant manholes intended for use in sanitary sewer systems.
 2. Design, construction, testing, and commissioning of acid resistant manholes and related work including foundations, mechanical, and appurtenances.
- B. General:
1. Manholes shall conform in shape, size, dimensions, material, and other respects to the details shown on the Drawings or as directed by City Representative.
 2. Excavation and backfill required to install acid resistant manholes shall conform to the requirements of MAG Section 601, Trench Excavation, Backfill and Compaction.

1.2 QUALITY ASSURANCE

- A. Reference Standards: Comply with the applicable provisions and recommendations of the following, unless otherwise shown or specified:
- 1.ASTM C 33 Standard specification for concrete aggregates.
 - 2.ASTM C 443 Standard specification for joints for concrete pipe and manholes using rubber gaskets.
 - 3.ASTM C478 Standard specification for precast reinforced concrete manhole sections.
 - 4.ASTM C497 Test methods for concrete pipe, manhole sections, or tile.
 - 5.ASTM D648 Test method for deflection temperature of plastics under flexural load in edgewise position.
 - 6.ASTM C857 Standard practice for minimum structural design loading for underground utility structures.
 - 7.ASTM C923 Standard specifications for resilient connectors between concrete manholes structures and pipe.
 - 8.ASTM D6783 Standard specification for polymer concrete pipe.
 - 9.ASTM D 2584 Test method for ignition loss of cured reinforced resins.
 10. AASHTO LRFD Bridge design specifications.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
- 1.Drawings shall include station number, manhole number, location, rim and invert elevations, materials, dimensions, structural elements, reinforcing details, joint details, base slab and top slab, stubs or openings for connections, and component parts.

2. Summary of criteria used in manhole design including as a minimum, material properties, loadings, load combinations, and dimensions. Include certification from manufacturer that acid resistant polymer manhole design meets or exceeds the load and strength requirements of ASTM C 478 and ASTM C 857. Include design basis, loads and load combinations and results.
3. Manufacturer's reports including documentation of required tests, inspections, certifications and qualifications.
4. Frames, grates, rings, and covers.
5. Materials used in fabricating drop connections.
6. Materials used for pipe connections at manhole walls.
7. Materials for stubs and stub plugs, if required.
8. Materials for pipe penetration patch work.
9. Access hatch and safety hatch fall protection.
10. Submit calculations demonstrating the manhole and discharge structure meets the design criteria and established design standards. Design drawings and calculations shall be sealed by a professional City Representative registered in the State of Arizona.

PART 1 PRODUCTS

1.4 MANUFACTURERS

- A. Armorock
- B. US Composites Pipes, Inc.

1.5 ACID RESISTANT POLYMER STRUCTURES-ARMOROCK

- A. Manholes:
 1. The manholes shall be designed to resist all soil and hydraulic pressures, including both lateral pressure and hydraulic uplift. Components shall be designed for a minimum lateral saturated soil pressure of 120 pounds per square foot per foot of depth, a minimum unbalanced live load surcharge on surrounding soil of 250 pounds per cubic foot, an H-20 wheel loading, and an impact allowance of 15 percent.
 2. Acid resistant polymer manhole sections, manhole risers, transition slabs, conical tops, grade rings, base sections and related components shall be designed by the manufacturer to meet the intent of ASTM C 478 with allowable compositional and sizing differences required by a polymer product.
 3. Provide base riser section with integral floors, unless shown otherwise.
 4. Provide riser sections joined with bell and spigot / ship-lap design seamed with butyl mastic so that on assembly, manhole base, riser and top section make a continuous and uniform structure.
 5. Construct riser sections for polymer manholes from standard polymer manhole sections of the diameter indicated on Drawings.
 6. Use various lengths of manhole sections in combination to provide correct height with the fewest joints.
 7. Design wall sections for depth and loading conditions with wall thickness as required by polymer manufacturer.

8. Provide tops to support H-20 vehicle loading and receiving cast iron frame and covers as indicated on Drawings.
9. Where polymer transition slabs are required, provide precast base sections with flat polymer slab top sections used to transition to 48-inch diameter manhole access riser sections. Transition can be concentric or eccentric as shown on Drawings. Locate transition to provide minimum of 7-foot head clearance from base to underside of transition unless otherwise approved by City Representative.
10. Elastomeric Gaskets: Gaskets shall be suitable for the service intended. All gaskets shall meet the requirement of ASTM C 443.
11. The dimensions of the manholes shall be as shown on the Drawings.

B. Design

1. Polymer Mixture - the mixture shall consist solely of thermosetting resin sand and aggregate. No cementitious materials will be allowed. Resin content shall be a minimum of 7% by weight.
2. Filler: All aggregate, sand and quartz powder shall meet the requirements of ASTM C 33, where applicable.
3. Additives: Resin additives, such as curing agents, pigments, dyes, fillers and thixotropic agents, when used, shall not be detrimental to the manhole or discharge structure.
4. The required wall thickness for all members shall be that stated by the polymer manufacturer based upon loading conditions and material properties. The wall thickness of risers and conical tops shall be not less than that prescribed by the manufacturer's design by more than 5%. A wall greater than the prescribed design shall not be cause for rejection.
5. Thermosetting Resin - The resin shall have a minimum of deflection temperature of 158° F when tested at 264 psi (1.820 mPa) following Test Method D 648. The resin content shall not be less than 7% of the weight of the sample as determined by test method D 2584. Resin selection shall be suitable for applications in the corrosive conditions sanitary sewer wastewater which the structures will be exposed.
6. Each manhole and discharge structure component shall be free of all defects, including indentations, cracks, foreign inclusions and resin starved areas that, due to their nature and degree or extent, detrimentally affect the strength and serviceability of the component part. The internal diameter of manhole or discharge structure components shall not vary more than 1%. Variations in height of two opposite sides of risers and conical tops shall not be more the 5/8 inch. The under run in height of a riser or conical top shall not be more than 1/4 inch per foot of height with a maximum of 1/2 inch in any one section.
7. Marking and Identification - Each manhole and discharge structure shall be marked on the inside and outside with the following information - Manufacturer's name or trademark, Manufacturer's location and Production Date.
8. Manhole joints shall be assembled with a bell/spigot or shiplap butyl mastic joint so that on assembly, manhole base, riser and top section make a continuous and uniform structure. Joint sealing surfaces shall be free of dents, gouges and other surface irregularities that would affect joint integrity.

9. Minimum clear distance between two wall penetrations shall be a minimum of 6 inches on 48-inch to 72-inch diameter manholes. A clearance of 6 inches is required between wall penetration and joint locations.
10. Construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe-manhole connections. Provide invert slope through manholes as specified in specifications and indicated on the Drawings. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts. Polymer bench and channel shall be provided with all resin aggregate material. No alternative fill material is allowed. Provide extended cementitious concrete base footer where required for buoyancy concerns.
11. Provide resilient connectors conforming to requirements of ASTM C 923 or as required by City Representative. All connectors shall be water tight. Install approved resilient connectors at each pipe entering and exiting manholes in accordance with manufacturer's instructions.
12. Exceptions to ASTM C 478 components shall be designed for the intended combinations of manufacturing materials. Component designs may be as non-reinforced members or reinforced members as recommended by the manufacturer. Steel reinforcement is not required for circumferential reinforcement, joint reinforcement, base slab reinforcement or hoop reinforcement, but may be placed for the purpose of product handling.
13. Sanitary sewer drop connections shall be constructed in accordance with City of Buckeye Standard Detail 41255 and Contract Documents.

C. GROUTING

1. All materials needed for grouting and patching will be a polyester mortar compound provided by the manufacturer or an approved equal by the manufacture.

1.6 ACID RESISTANT POLYMER STRUCTURE – US COMPOSITES

A. Materials (per ASTM D 6783)

1. Resin: The manufacturer shall use only polymer or vinyl ester resin systems designed for use with this particular application. Resin content shall be a minimum of 7% by weight.
2. Filler: All aggregate, sand and quartz power shall meet the requirements shall meet the requirements of ASTM C33, where applicable.
3. Additives: Resin additives, such as curing agents, pigments, dyes, fillers and thixotropic agents, when used, shall not be detrimental to the manholes.
4. Elastomeric Gaskets: Gaskets shall be suitable for the service intended. All gaskets shall meet the requirements of ASTM C443.

B. Manufacturing and Production Construction

1. Manholes: Manholes components shall be manufactured by the vibrator vertical casting process resulting in a dense, non-porous, corrosion-resistant, homogeneous, composite structure, Manholes shall be steel reinforced per ASTM C478. Per ASTM C478, hoop reinforcement shall only be allowed in 48" diameter manhole risers with no openings. Larger diameter manholes shall not use hoop reinforcement. Manholes shall have monolithic base slab unless otherwise approved. Manholes shall be Engineered with rated lifting devices that shall not penetrate through the wall.

2. Section Joints: Round manhole components shall be connected with an elastomeric sealing gasket as the sole means to maintain joint water-tightness and both the gasket material and the manhole joint shall meet the requirements of ASTM C443. Round manholes shall utilize spigot and bell type joints incorporating either a confined O-ring or single step profile joint. Square and rectangular structures shall utilize a ship-lap joint and be sealed with butyl rope sealant per ASTM C990 as recommended by the manufacturer.
 3. Pipe to Manhole Connections: Pipes shall be directly connected to all structures using resilient flexible pipe to manhole and discharge connector per ASTM C923. Cold joint pipe stub grouting shall not be allowed unless shown on the plans as such. In cases where cold joint pipe stubs are shown, they shall be grouted using a corrosion resistant grout and rubber water stop grout ring.
 4. Fittings: Cones, reducer slabs and adjusting rings shall be of the same material as adjoining riser sections.
 5. Invert Manhole Channels: Invert channels shall be factory built with polymer concrete.
 6. Sanitary sewer drop connections shall be constructed in accordance with City of Buckeye Standard Detail 41255 and Contract Documents.
- C. Design.
1. Manholes shall be designed to withstand all live loads and dead loads as described in the project plans and specifications. Dead loads shall include overburden load, soil side pressure and hydrostatic load conditions. Manhole shop drawings shall be sealed by a licensed Professional City Representative licensed in the state of Arizona.
 2. Manholes wall thickness shall be designed to resist hydrostatic pressures with a safety factor of 2.0 for full depth conditions from grade to invert. In no cases shall the wall thickness be less than 4-inches for 60" and larger and 3-inch for 48" diameter.
 3. Manholes shall be designed with sufficient bottom anchorage and side friction to resist buoyancy. Field cast floatation collars are acceptable.
 4. The manholes shall be manufactured in one class of load rating. This class shall be H-20-wheel load (minimum 16,000 pounds dynamic wheel load).
- D. Testing
1. Manholes: Manholes shall be manufactured in accordance with ASTM C478.
 2. Joints: Joints shall meet the requirements of ASTM C443.
 3. Compressive Strength: Polymer concrete shall have a minimum unconfined compressive strength of 9,000 psi when measured in accordance with ASTM C497.
 4. Manhole Leakage: Manhole and discharge structure shall be tested in accordance with ASTM C1244 Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test.
- E. Handling and Shipping:
1. Handling and shipping shall be performed in accordance with the manufacturer's instruction.

PART 2 - EXECUTION

2.1 INSTALLATION

- A. The installation shall be in accordance with the project plans and specifications and the manufacturer's recommended practices.
- B. Handling: Properly rated slings and spreader bar shall be used for lifting. The type of rigging used shall be as recommended by the manufacturer's instructions:
 - 1. Sealing surfaces and joint components shall be inspected for damage and cleaned of all debris.
 - 2. Apply joint lubricant to elastomeric seals. Use only lubricants approved by the manufacturer.
 - 3. Use suitable equipment handle and set structure components.
 - 4. Each manhole shall be placed on 12" of ABC in accordance with MAG Specification Section 702. ABC shall be compacted to 95 percent of maximum dry density per ASTM D-698. Placement and compaction of surrounding backfill material shall provide sufficient and equal side pressure on the manhole during installation.

2.2 GRADING AT MANHOLES

- A. All manholes in unpaved areas shall be built with a concrete collar around the manhole rim to protect from off-road vehicles. Concrete collar shall be in accordance with MAG Standard Detail 422. A single No. 4 rebar hoop shall be placed and centered in each manhole collar. The ground surface shall be graded to drain away from the manhole. Fill shall be placed around manholes to the level 6 inches below the top of the concrete collar and upper rim of the manhole frame, and the surface evenly graded on a 1 to 5 slope to the existing surrounding ground, unless otherwise shown on the Drawings or directed by the City Representative.
- B. Manholes in paved areas shall be constructed to meet the final surface grade as shown on the Drawings.
- C. Sole responsibility for the proper height of all manholes necessary to reach the final grade at all locations belongs to Contractor. Caution: City Representative's review of Shop Drawings for manhole components will be general in nature, provide an adequate supply of random length precast manhole riser sections and adjustment rings to adjust any manhole to meet field conditions for final grading.

2.3 MANHOLE WATERTIGHTNESS

- A. All manholes shall be free of visible leakage. Each manhole shall be tested for leaks and inspected. All leaks shall be repaired in a manner subject to City Representative's approval.

SANITARY SEWER MANHOLE TESTING

All new sanitary sewer manholes installed shall be tested for exfiltration either by a watertightness test or by a negative air pressure (vacuum) test. Exfiltration testing shall be performed in accordance with MAG Section 611.3(B) and Arizona Department of

Environmental Quality (ADEQ) Engineering Bulletin No. 11, Chapter 4, Section B.

When using the watertightness test method, exfiltration loss shall not exceed 0.1 gallons per vertical foot of manhole in a 24-hour period.

Vacuum testing shall be performed in accordance with ASTM C 1244 modified for the time frames below. Testing shall be performed at the top of the manhole cone for manholes located in paved areas. Manholes outside paved areas shall be vacuum tested at the ring and cover. A negative air pressure of ten (10) inches of mercury shall be drawn on the manhole. The time shall be measured for the vacuum to drop from ten (10) inches to nine (9) inches of mercury. The manhole shall pass this test if the time to drop in mercury meets or exceeds the following values:

MANHOLE DEPTH	MINIMUM TEST DURATION (SEC) 48-INCH DIAMETER MANHOLE	MINIMUM TEST DURATION (SEC) 60-INCH DIAMETER MANHOLE
12 feet or less	60	75
Greater than 12 feet to 15 feet	Not Applicable*	90
Greater than 15 feet	Not Applicable*	105

If Manhole joint compound is pulled out during the vacuum test, the manhole shall be disassembled and the joint repaired or replaced as necessary. The vacuum testing shall then be repeated until the manhole passes.

Exfiltration testing of sanitary sewer manholes is considered incidental to the cost of furnishing and installing the manhole. There will be no separate measurement and payment for this testing.

2.4 MEASUREMENT

Each type of manhole installed, shall be measured as a complete unit, no distinction shall be made based on manhole depth.

Each type of sanitary sewer drop installed, shall be measured as a complete unit, no distinction shall be made based on sewer drop connection location, length and/or depth.

2.5 PAYMENT

Payment for manholes will be made at the contract unit price for each accepted manhole, and shall be compensation in full for furnishing and installing the manhole, complete in place, with base, shafts, cone, adjustment rings, sheeting and bracing, removal of obstructions, bedding, excavation, backfill and compaction, paving cut replacement in excess of applicable pay widths authorized in MAG Section 336, and any incidentals thereto, in conformance with the plans and specifications.

Payment for manhole frame/cover installation at new manholes will be made at the contract unit price for each accepted manhole frame/cover installed and accepted, and

shall be include full compensation for furnishing and installing the manhole frame, cover, concrete collar, and necessary adjustment.

Payment for internal sanitary sewer drop connection will be made at the contract unit price for each accepted drop connection and shall be compensation in full for furnishing and installing the sanitary sewer drop connection, complete in place. Price includes labor, equipment, and materials necessary to complete internal drop connections in accordance with City of Buckeye Standard Detail 41255 and Contract Documents. Price includes dewatering, excavation, temporary supports, grading, bedding, backfill, compaction, sheeting and shoring, utility repairs, piping, hardware, asphalt removal and replacement, and all appurtenances within manhole with base, shafts, cone, adjustment rings, frame and cover, sheeting and bracing, removal of obstructions, bedding, excavation, backfill and compaction, any pavement replacement in excess of the applicable pay widths assigned to the adjacent pipes, and any incidentals thereto, in conformance with the plans and specifications.

Bid Item	Description	UOM
625.1	Install 5' Dia Acid Resistant Polymer Manhole Base with Precast Polymer Manhole Shafts and Cone Sections per Project Specifications	EA
625.2	Install 30" Manhole Frame/Cover (New Manholes) Per MAG Section 345 & MAG Std Dtl's 422 & 424-2 (Lettering Per COB Std Dtl 41260 – Addendum Dated 06-21-2016)	EA
625.INT	Internal Drop Connection per COB STD DTL 41255	EA

PART 700 – MATERIALS

SECTION 743 VITRIFIED CLAY PIPE: Add the following Subsection to MAG Standard Specification.

743.1 General

Vitrified clay pipe installed within steel casing shall be “No Dig VCP (ASTM C-1208)” pipe of diameter depicted in project plans. The “No Dig VCP (ASTM C-1208)” pipe shall be installed from manhole base to manhole base in all steel casing installation limits as depicted in the project plans. All “No Dig VCP” pipe is to comply with the requirements set forth in ASTM C-1208 (latest edition).

APPENDIX 1

SOILS REPORT - Speedie & Associates

**REPORT ON GEOTECHNICAL
INVESTIGATION**



DESIGNATION: City of Buckeye North Miller Road
Trunk Sewer Extension

LOCATION: Yuma Road to Broadway Road
Buckeye, Arizona

CLIENT: Stanley Consultants, Inc.

PROJECT NO: 182459SA

DATE: November 13, 2019

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APPENDIX - Field and Laboratory Data



1.0 INTRODUCTION

This report presents the results of a subsoil investigation carried out at the site of the proposed sewer line from Yuma Road to Broadway Road on Miller Road in Buckeye, Arizona.

We understand that construction will consist of approximately 9,000 linear feet of a gravity sewer line from Yuma Road (north of I-10) to Broadway Road. The depth of the proposed sewer ranges from 15 to 25 feet below existing grades and the diameter of pipe is approximately 12 to 24 inches. Construction will consist of installing a pipeline, jacked casing under canals & major intersections, manholes, and pavement replacement.

2.0 GENERAL SITE AND SOIL CONDITIONS

2.1 Site Conditions

Miller Road is a 2-lane asphalt paved roadway that expands to more lanes at intersections. There are several existing utilities running north and south within Miller Road between Yuma Road and Broadway Road. The area surrounding Miller Road consists of agricultural farmland, native desert landscaping, residential properties, and commercial buildings including shops and gas stations. Miller Road passes underneath the Papago Freeway (I-10). A concrete lined irrigation ditch running east-west crosses underneath Miller Road approximately 800 feet north of West Warner Street. A cursory review of the available historical aerials show that Miller Road was a dirt road since the 1940's and first appears paved in the 1986 aerial. Refer to the following historical aerials:

Figure 2.1.1 Dated 1949



Figure 2.1.2 Dated 1986

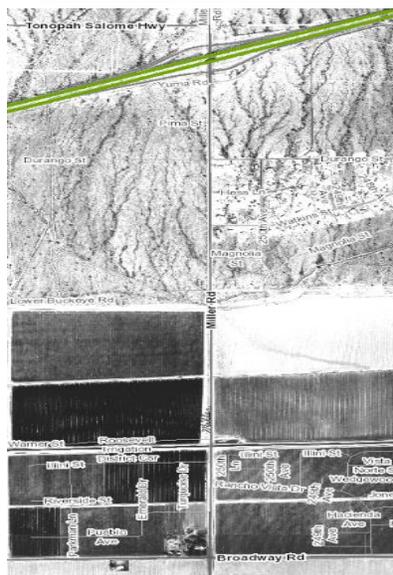
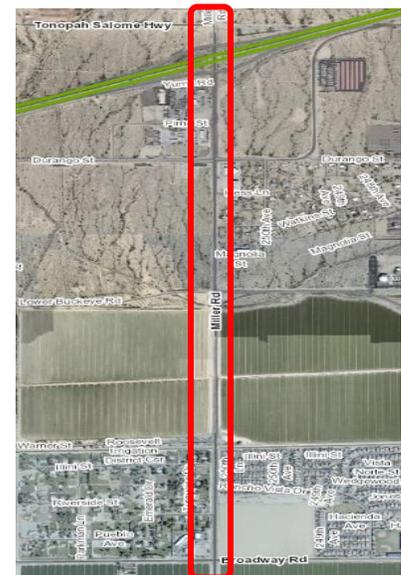


Figure 2.1.3 Dated 2018



2.2 Geologic Conditions

The site is located **near** areas that have undergone considerable subsidence due to groundwater removal. Areas of subsidence are known to produce earth fissuring, which has affected areas approximately 5 miles southeast of the site. Fissure gullies form over subsurface irregularities such as bedrock highs, which cause tensional stresses and differential subsidence. Where such anomalies are not present, subsidence tends to be uniform over a wide area, this having minimal effect on surficial structures. The closest known earth fissures are located near Luke AFB approximately 10 miles northeast of the project site and near 363rd Avenue and Baseline Road several miles to the southwest. **No evidence of earth fissures was observed on the site.**

If any cracks or crevasses are noted during site excavation this office should be notified immediately. Representatives from this office will then visit the site, assess the feature and make recommendations regarding restorative measures.

2.3 Seismic Design Parameters

The project area is in a seismic zone that is considered to have low historical seismicity. Earthquakes in eastern Arizona are quite rare. The seismicity of the Phoenix area has had only two magnitude 3.0 events in over 100 years. Liquefaction is not considered a concern as groundwater generally exceeds 15 meters below ground surface.

Although borings were not advanced to 100 feet, based on the nature of the subsoils encountered in the test locations and the geology in the area, Site Class Definition, Class D should be used for design of the structures supported at ground surface. In addition, the following seismic parameters may be used for design (based on 2012/15 IBC and ATC Hazards Tool):

Table 2.3.1 Seismic Parameters

MCE ¹ spectral response acceleration for 0.2 second period, S_s :	0.156g
MCE ¹ spectral response acceleration for 1.0 second period, S_1 :	0.053g
Site coefficient, F_a :	1.6
Site coefficient, F_v :	2.4
MCE ¹ spectral response acceleration adjusted for site class, S_{MS} :	0.249g
MCE ¹ spectral response acceleration adjusted for site class, S_{M1} :	0.127g
5% Damped spectral response acceleration, S_{DS} :	0.166g
5% Damped spectral response acceleration, S_{D1} :	0.085g
NOTE 1: MCE = maximum considered earthquake	

2.4 General Subsurface Conditions

Possible fill was encountered on the western edge of Miller Road consisting of clayey sand and silty clayey sand to depths of 1 to 3 feet below existing grades. Native subsoils primarily of clayey sand and sandy lean clay to the termination depths of 25.4 to 26.5 feet below ground surface. Subordinate amounts of gravel and varying degrees of calcareous cementation were noted throughout the soil profile. The standard penetration resistance test (SPT) values range from 6 to 50+ blows per foot (bpf), generally increasing with depth. No groundwater was encountered during this investigation. Moisture contents were in a state of ‘dry to moist’ at the time of the site investigation.

Laboratory testing indicates in-situ dry density of the soils are on the order of 96.1 to 118.6 pcf and water contents from 4.1 to 8.6 percent at the time of investigation. Percent passing the #200 sieve ranged from 18.3 to 36.7. Liquid limits are in the range of 44 to 52 percent with plasticity indices in the range of 21 to 29.

3.0 ANALYSIS AND RECOMMENDATIONS

3.1 Analysis

Analysis of the field and laboratory data indicates data subsoils at the site are generally favorable for the support of the proposed pipeline on typical bedding required for the piping and trench loading conditions. Variable soil conditions were encountered in the soil borings, including granular soils. It should be noted that very dense/hard cemented soils were encountered at approximately 20 to 25 feet below grade. Any manhole structures required can be supported on shallow spread foundations or structural mat foundations.

Bedding, haunching and initial backfill should be selected per the requirements of the pipe materials used and the trench loading (conditions see Section 3.8). Groundwater is not expected to be a factor in pipeline design or construction.

3.2 Site Preparation

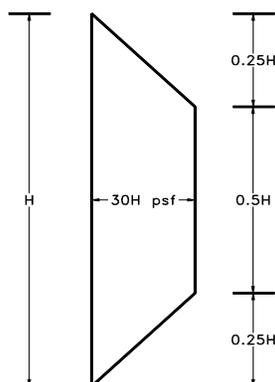
The entire area to be occupied by the proposed construction should be stripped of all vegetation, debris, rubble, and obviously loose surface soils. Given the anticipated depth of the sewer line, excavations will penetrate the very dense/hard soils layer. Care should be taken during excavation not to endanger nearby elements such as roadways, utilities, etc. **Depending on proximity**, existing elements may require shoring, bracing or underpinning to provide structural stability and protect personnel working in the excavation. The need for shoring or bracing is a means and methods decision by the contractor.

Excavations to the levels expected will likely terminate within similar soil types. All excavations must comply with current governmental regulations including the current OSHA Excavation and Trench Safety Standards. Based on this limited soil data, the soils would be classified as Type B. This will require side slopes for open-cut excavation to cut back at 1:1 (horizontal to vertical). It is recommended that a representative of the Geotechnical Engineer or the Contractor Qualified party examine the cut slope during excavation to reduce the risks posed by unstable conditions. The slopes should be protected from erosion due to run-off or long-term surcharge at the slope crest. Construction equipment, building materials, excavated soil and vehicular traffic should not be allowed within 10 feet or one-third the slope height, whichever is greater, from the top of slope. Adjustments to the recommended slopes may be necessary due to wet zones, loose strata and other conditions not observed in the borings. Shotcrete or soil stabilizer on the slope face may be useful in preventing erosion due to run-off and/or drying of the slope.

A representative of the geotechnical engineer shall examine the exposed subgrade once sub-excavation is complete and prior to backfilling to ensure removal of deleterious materials. Fill placement and quality should be as defined in the "Fill and Backfill" section of this report.

3.3 Shoring

If open-cut excavation is not be feasible consideration will have to be given to a shoring system. A standard system made up of steel soldier piles, lagging and tiebacks (or interior bracing), depending on depth and loading is one option. This system typically requires pre-drilling and installing heavy steel shoulder beams spaced on 8 to 10-foot centers and backfilled with lean grout. As the excavation progresses, wood lagging can be installed, and tieback anchors installed and tensioned. For the relatively short periods of time required to install lagging and tiebacks, excavations may stand vertical. **Sloughing in the cleaner loose sands should be anticipated and may require special procedures.** Consideration should be given to value engineering in the design stage to assist in establishing a cost-effective solution to shoring issues. For preliminary design of braced temporary shoring systems, we recommend the following conservative pressure diagram.



H=Depth of Excavation
 γ =Unit Wet Soil Weight=120 pcf

Prior to any excavation work commencing, consideration should be given to pre-construction surveys of surrounding buildings, roadways, utilities, etc. (if any). It is also advisable to accurately locate utilities that may be affected by soil nails or tiebacks. It is recommended that each line of shoring be monitored for movement during the construction period, or at least until the at-grade level floor is in-place. Frequent monitoring of surrounding elements should also be provided during the construction period.

3.4 Foundation Design

It is recommended that any vault/manhole structures be founded on a mat type foundation bearing on medium to very dense native soils (or 12 inches of compacted bedding material or Aggregate Base, crushed stone or 1½ sack MAG Spec 728 CLSM as indicated above in loose/soft zones) at an invert depth on the order of 15 feet below grade. If site preparation is carried out as set forth herein, a recommended allowable bearing capacity of **4,000 psf** can be utilized for design. This bearing capacity refers to the total of all loads, dead and live, and is a net pressure. It may be increased one-third for wind, seismic or other loads of short duration. All footing excavations should be level and cleaned of all loose or disturbed materials. Positive drainage away from any proposed structure must always be maintained.

Estimated settlements under design loads are on the order of less than 1-inch, virtually all of which will occur during construction. Post-construction differential settlements will be negligible, under existing and compacted moisture contents. Additional localized settlements of the same magnitude could occur if native supporting soils were to experience a significant increase in moisture content.

3.5 Lateral Pressures

The following **static** equivalent fluid lateral pressure values may be utilized for the proposed construction. As usual these are modeled as a right triangle pressure distribution (assumes level backfill, no surcharge loading, and above the water table):

Active Pressures	
Unrestrained Walls	35 pcf
Restrained Walls	50 pcf
Passive Pressures	
Continuous Footings	300 pcf
Spread Footings	350 pcf
Coefficient of Friction (w/ passive pressure)	0.35
Coefficient of Friction (w/out passive pressure)	0.45

All backfill must be compacted to not less than 95 percent (ASTM D-698) to mobilize these passive values at low strain. *For thrust block design by the pipeline engineer, it is recommended to use a lateral bearing capacity of 1,500 psf for thrust block calculations in the upper 10 feet, not the 3000 psf noted in MAG Detail 380. The higher value is suitable in dense to very dense soils zones.*

3.6 Bedding, Backfill, and Fill

The native soils are suitable for trench backfill (above any required bedding) and roadway fill provided oversize rock (plus 6 inches) is removed. The trench backfill should be moisture conditioned, placed in suitable lifts and mechanically compacted as specified. **Water settling is not recommended.** Pipe bedding should meet the project specifications as specified by the governing municipality. Special granular pipe bedding or cementitious slurry meeting MAG Standard Specifications Section 728 for Controlled Low Strength Material (CLSM) may be required depending on the pipe materials and trench loading conditions. As noted above, it is recommended that for any section where loose/soft soils are encountered at the bottom of the trench, the loose/soft soils be over-excavated down to at least 12 inches below the pipe. The over-excavated zone should then be replaced with compacted bedding material. This process will require close inspection during trenching to identify any loose soils and to permit any necessary over-excavation to be performed during the initial excavation process.

If imported common fill for use in site grading is required, it should be examined by a Soils Engineer to ensure that it is of low swell potential and free of organic or otherwise deleterious material. In general, the fill should have 100 percent passing the 3-inch sieve and no more than 60 percent passing the #200 sieve. For the fine fraction (passing the 40 sieve), the liquid limit and plasticity index should not exceed 30 percent and 10 percent, respectively. It should exhibit less than 1.5 percent swell potential when compacted to 95 percent of maximum dry density (ASTM D-698) at a moisture content of 2 percent below optimum, confined under a 100 psf surcharge, and inundated.

Fill should be placed on subgrade which has been properly prepared and approved by a Soils Engineer. Fill must be wetted and thoroughly mixed to achieve optimum moisture content, ± 2 percent. Fill should be placed in horizontal lifts of 8-inch thickness (or as dictated by compaction equipment) and compacted to the percent of maximum dry density per ASTM D-698 set forth as follows:

- | | | |
|----|------------------------------------|-----------------|
| A. | Manhole and Minor Structures | |
| | 1. Below footing level | 95 |
| B. | Pavement/Sidewalk Subgrade or Fill | 95 |
| C. | Utility Trench Backfill | 95 (full depth) |

Under any roadways, the backfill above the top of any pipe shall meet the requirements of MAG Standard Specification Section 601, Type I backfill using a MAG specified aggregate base or concrete slurry. **To reduce trench settlement potential, all fill under roadways should be compacted to 95 percent full depth.**

Accurate prediction of the amount of construction water necessary for compaction is not possible due to the varying factors. These include variable natural soil moisture, seasonal changes in moisture content, air temperature and wind speed that impact evaporation. The optimum moisture contents reported on the moisture-density relations data is based on the minus #4 materials. It will be corrected downward depending on the percentage of rock (plus #4 fraction) in the matrix. For ADOT highway projects, a range of 80 to 100 gallons per cubic yard, for winter to summer months respectively, is typically recommended.

The value for the Modulus of Soil Reaction Value (E') is dependent on the pipe backfill material utilized, the laying conditions and pipe backfill compaction. Based on the soil test data and field observations, the following Modulus of Soil Reaction Value (E') values may be used.

Table 3.6.1 Modulus of Soil Reaction (E')

Pipe Backfill Material	Compaction (%)	E' (psi)	Comments
Native Fill	95	2,000	1,2
Granular Fill	95	3,000	1,3
Undisturbed Native Soils	N/A	800	4

Note:

- Standard Proctor maximum dry density (ASTM D-698).
- Must meet Fill and Backfill specifications. Assumes well mixed 3-inch minus native soils obtained from pipe trench/excavation. Must meet the following Unified Soil classification: (1) fine-grained soils with Liquid limit < 50% and medium to no plasticity (CL, ML, ML-CL) and more than 25% retained on #200 sieve; or (2) coarse-grained soils with fines (GM, GC, SM, SC) containing more than 12% fines.
- Must meet fill and backfill specifications. Assumes 3-inch minus coarse-grained soils with little or no fines (GW, GP, SW, SP) containing less than 12% fines or soils meeting the requirements of M.A.G. section 702 Table 702-1 Type A or Type B select.
- Assumes stiff/medium dense to hard/dense native soils.

3.7 Asphalt Pavement

If earthwork in paved areas is carried out to finish subgrade elevation as set forth herein, the subgrade will provide adequate support for pavements. It is assumed that Miller Road will be either a major collector or arterial street. A traffic study was not provided, therefore the minimum section per the City of Buckeye of 6-inches of asphaltic concrete over 12-inches of aggregate base for arterial streets should be sufficient and is recommended for new full or half street design for Miller Road. If only required to patch saw cut section for the trench excavation then it is recommended to match the existing section.

Pavement base course material should be aggregate base per M.A.G. Section 702 Specifications. Asphalt concrete materials and mix design should conform to M.A.G. 710 for high traffic. It is recommended that a ½-inch or ¾-inch mix designation be used for the pavements. The actual mix design may be dependent on the selected pavement section and the specified minimum lift thicknesses for the different types of mixes. **Follow M.A.G. Section 710 for recommended minimum lift thicknesses.** Pavement installation should be carried out under applicable portions of M.A.G. Section 321 and municipality standards. The asphalt supplier should be informed of the pavement use and be required to provide a mix that will provide stability and be aesthetically acceptable. Some of the newer M.A.G. mixes are very coarse and could cause placing and finish problems. A mix design should be submitted for review to determine if it will be acceptable for the intended use. For sidewalks and other areas not subjective to vehicular traffic a 4-inch section of concrete will be enough.

3.8 Corrosion

Laboratory pH values are 8.0 to 8.9. Sulfate concentrations are 59 to 120 ppm with chloride concentrations at 221 to 483 ppm. Resistivity tests conducted indicate that values measured from 480 to 960 ohm-cm. Depending on areas, this reflects a **very corrosive to severe** degree of corrosiveness to buried metal. Accordingly, suitable pipe wall thickness and/or corrosion protection should be selected by the designer per the trench/traffic loading and lifetime requirements of the project. A recommendation for corrosion protection is beyond the scope of work for this investigation.

4.0 GENERAL

The scope of this investigation and report includes only regional published considerations for seismic activity and ground fissures resulting from subsidence due to groundwater withdrawal, not any site-specific studies. The scope does not include any considerations of hazardous releases or toxic contamination of any type.

Our analysis of data and the recommendations presented herein assume that soil conditions do not vary significantly from those found at specific sample locations. Our work has been performed in accordance with generally accepted engineering principles and practice; this warranty is in lieu of all other warranties expressed or implied.

We recommend that a representative of the Geotechnical Engineer observe and test the earthwork and foundation portions of this project to ensure compliance to project specifications and the field applicability of subsurface conditions which are the basis of the recommendations presented in this report. If any significant changes are made in the scope of work or type of construction that was assumed in this report, we must review such revised conditions to confirm our findings if the conclusions and recommendations presented herein are to apply.

Respectfully submitted,
SPEEDIE & ASSOCIATES, INC.



Nicholas J. Vitale, E.I.T.



Keith R. Gravel P.E.

APPENDIX

FIELD AND LABORATORY INVESTIGATION

SOIL BORING LOCATION PLANS

SOIL LEGEND

LOG OF SOIL BORINGS

TABULATION OF TEST DATA

MOISTURE-DENSITY RELATIONS

CORROSION TEST DATA

FIELD AND LABORATORY INVESTIGATION

On August 26, 2019 soil test borings were drilled at the approximate locations shown on the attached Soil Boring Location Plan. Test pits for percolation testing were dug using a backhoe. All exploration work was carried out under the full-time supervision of our staff engineer, who recorded subsurface conditions and obtained samples for laboratory testing. The soil borings were advanced with a truck-mounted CME-75 drill rig utilizing 7-inch diameter hollow stem flight augers. Detailed information regarding the borings and samples obtained can be found on an individual Log of Test Boring prepared for each drilling location.

Laboratory testing consisted of moisture content, dry density, grain-size distribution and plasticity (Atterberg Limits) tests for classification and pavement design parameters. Remolded swell tests were performed on samples compacted to densities and moisture contents expected during construction. Compression tests were performed on a selected ring sample in order to estimate settlements and determine effects of inundation. All field and laboratory data are presented in this appendix.



⊕ - APPROXIMATE SOIL BORING LOCATIONS



DR: MM	CHK: XXX	DATE: 07/22/19	PROJECT NO. 182459SA	SHEET: 1 OF 3
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**SOIL BORING
LOCATION PLAN**

MILLER ROAD SEWER
YUMA ROAD TO BROADWAY ROAD
BUCKEYE, ARIZONA

**SPEEDIE
AND ASSOCIATES**
GEOTECHNICAL/ENVIRONMENTAL/MATERIALS ENGINEERS
3331 E. WOOD ST. PHOENIX, ARIZONA 85040 (602) 997-6391



⊕ - APPROXIMATE SOIL BORING LOCATIONS



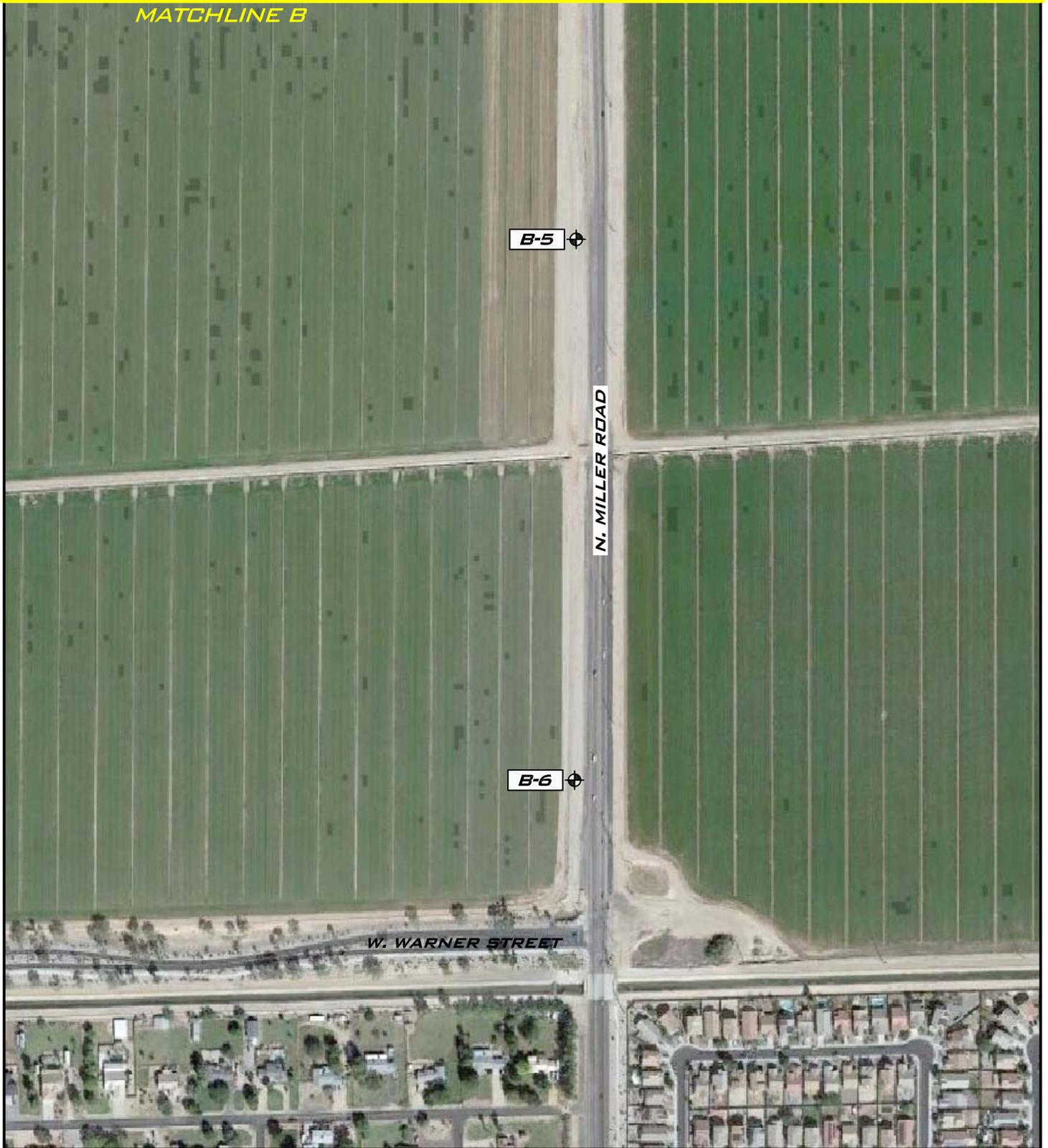
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**SOIL BORING
LOCATION PLAN**

MILLER ROAD SEWER
YUMA ROAD TO BROADWAY ROAD
BUCKEYE, ARIZONA

**SPEEDIE
AND ASSOCIATES**
GEOTECHNICAL/ENVIRONMENTAL/MATERIALS ENGINEERS
3331 E. WOOD ST. PHOENIX, ARIZONA 85040 (602) 997-6391

MATCHLINE B



 - APPROXIMATE SOIL BORING LOCATIONS



DR: MM

CHK: XXX

DATE: 07/22/19

PROJECT NO. 182459SA

SHEET: 3 OF 3

**SOIL BORING
LOCATION PLAN**

MILLER ROAD SEWER
YUMA ROAD TO BROADWAY ROAD
BUCKEYE, ARIZONA

**SPEEDIE
AND ASSOCIATES**
GEOTECHNICAL/ENVIRONMENTAL/MATERIALS ENGINEERS
3331 E. WOOD ST. PHOENIX, ARIZONA 85040 (602) 997-6391

SOIL LEGEND

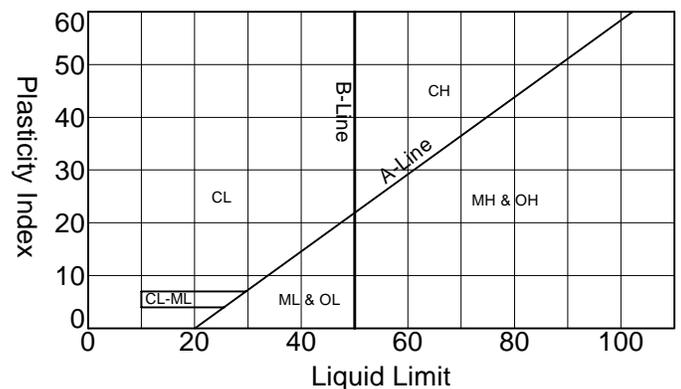
SAMPLE DESIGNATION	DESCRIPTION		
AS	Auger Sample	A grab sample taken directly from auger flights.	
BS	Large Bulk Sample	A grab sample taken from auger spoils or from bucket of backhoe.	
S	Spoon Sample	Standard Penetration Test (ASTM D-1586) Driving a 2.0 inch outside diameter split spoon sampler into undisturbed soil for three successive 6-inch increments by means of a 140 lb. weight free falling through a distance of 30 inches. The cumulative number of blows for the final 12 inches of penetration is the Standard Penetration Resistance.	
RS	Ring Sample	Driving a 3.0 inch outside diameter spoon equipped with a series of 2.42-inch inside diameter, 1-inch long brass rings, into undisturbed soil for one 12-inch increment by the same means of the Spoon Sample. The blows required for the 12 inches of penetration are recorded.	
LS	Liner Sample	Standard Penetration Test driving a 2.0-inch outside diameter split spoon equipped with two 3-inch long, 3/8-inch inside diameter brass liners, separated by a 1-inch long spacer, into undisturbed soil by the same means of the Spoon Sample.	
ST	Shelby Tube	A 3.0-inch outside diameter thin-walled tube continuously pushed into the undisturbed soil by a rapid motion, without impact or twisting (ASTM D-1587).	
--	Continuous Penetration Resistance	Driving a 2.0-inch outside diameter "Bullnose Penetrometer" continuously into undisturbed soil by the same means of the spoon sample. The blows for each successive 12-inch increment are recorded.	

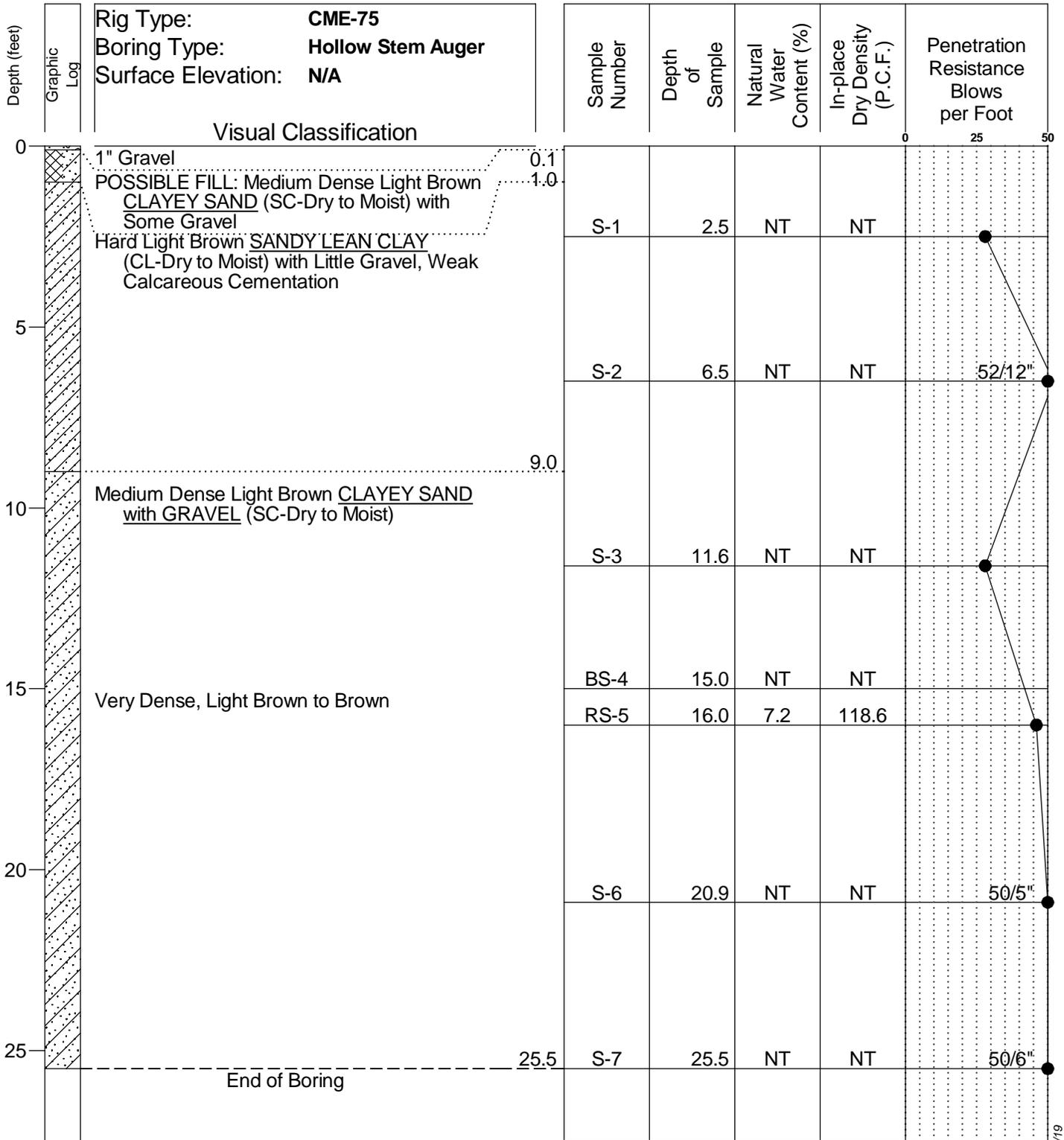
CONSISTENCY			RELATIVE DENSITY	
Clays & Silts	Blows/Foot	Strength (tons/sq ft)	Sands & Gravels	Blows/Foot
Very Soft	0 - 2	0 - 0.25	Very Loose	0 - 4
Soft	2 - 4	0.25 - 0.5	Loose	5 - 10
Firm	5 - 8	0.5 - 1.0	Medium Dense	11 - 30
Stiff	9 - 15	1 - 2	Dense	31 - 50
Very Stiff	16 - 30	2 - 4	Very Dense	> 50
Hard	> 30	> 4		

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SC	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS <small>LIQUID LIMIT GREATER THAN 50</small>		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL OR MODIFIED SYMBOLS MAY BE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS OR TO PROVIDE A BETTER GRAPHICAL PRESENTATION OF THE SOIL

MATERIAL SIZE	PARTICLE SIZE				
	Lower Limit		Upper Limit		
	mm	Sieve Size ♦	mm	Sieve Size ♦	
SANDS	Fine	0.075	#200	0.42	#40
	Medium	0.420	#40	2.00	#10
	Coarse	2.000	#10	4.75	#4
GRAVELS	Fine	4.75	#4	19	0.75" x
	Coarse	19	0.75" x	75	3" x
COBBLES	75	3" x	300	12" x	
BOULDERS	300	12" x	900	36" x	
♦U.S. Standard		xClear Square Openings			





Boring Date: 8-26-19
 Field Engineer/Technician: R. Bainum
 Driller: C. Riley
 Contractor: Geomechanics SW

Water Level		
Depth	Hour	Date
Free Water was Not Encountered		

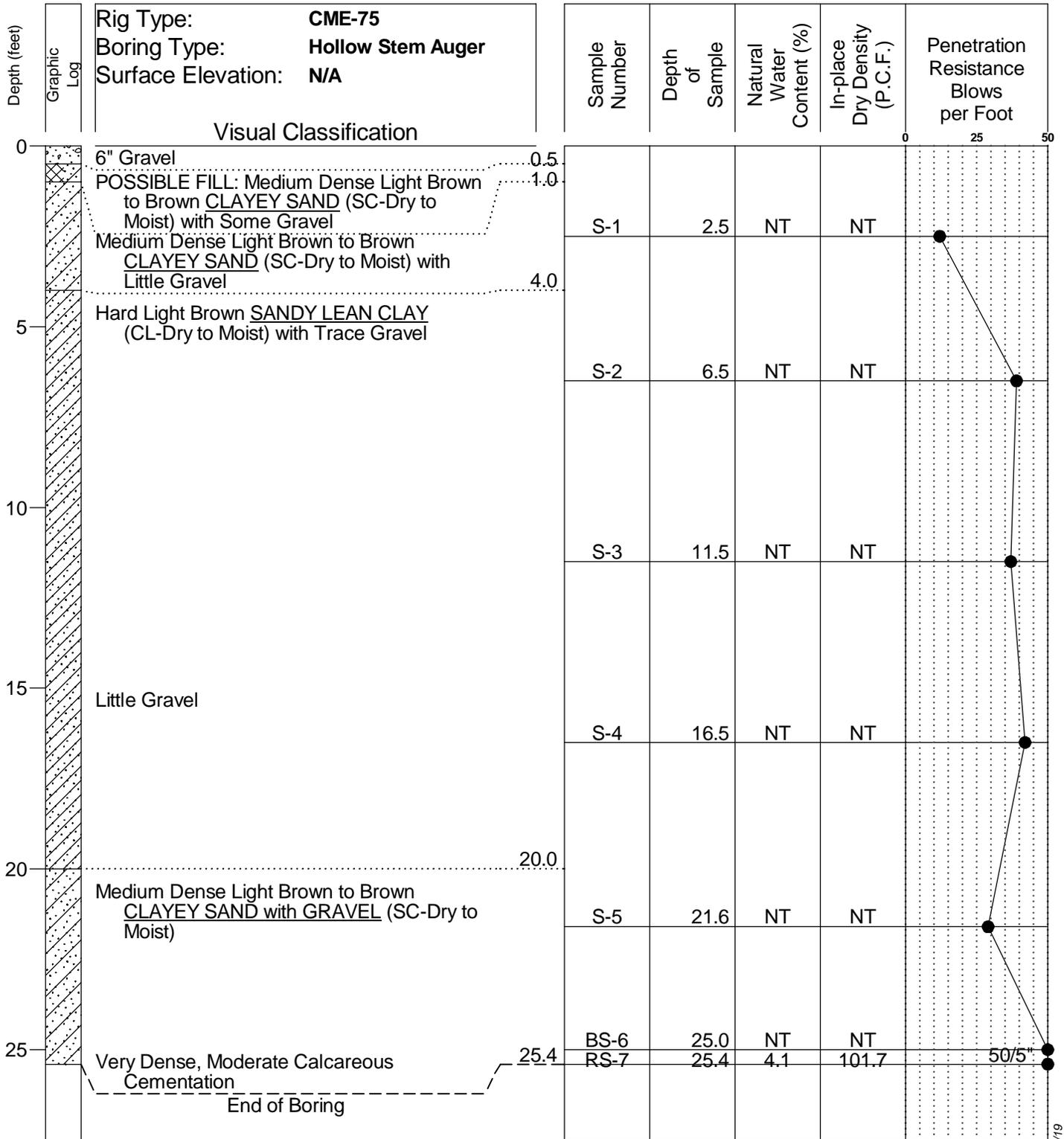
NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Boring Number: B-1

Miller Road Sewer
 Yuma Road to Broadway Road
 Buckeye, Arizona

Project No.: 182459SA



Boring Date: 8-26-19
 Field Engineer/Technician: R. Bainum
 Driller: C. Riley
 Contractor: Geomechanics SW

Water Level		
Depth	Hour	Date
<i>Free Water was Not Encountered</i>		

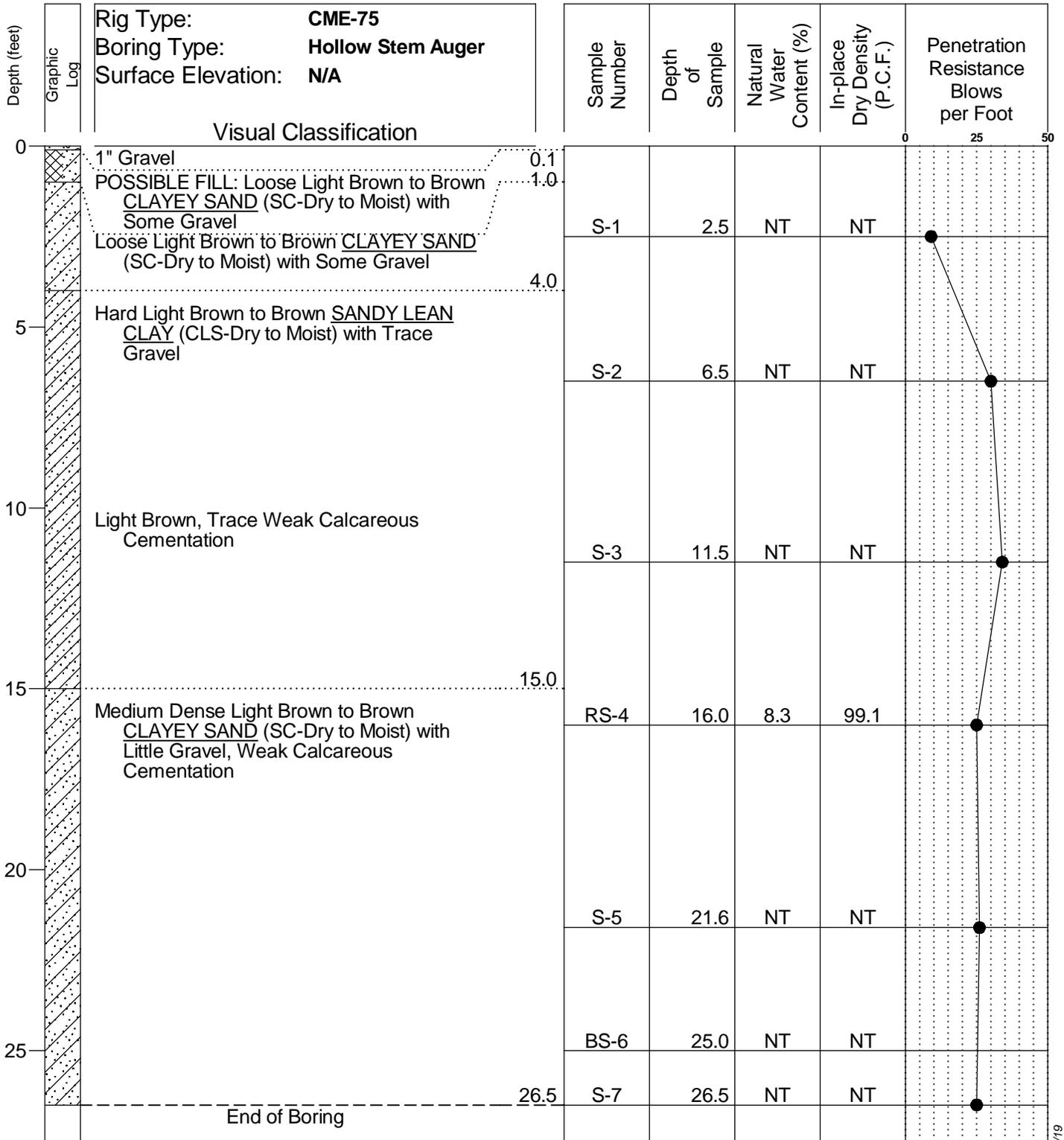
NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Boring Number: **B- 2**

Miller Road Sewer
 Yuma Road to Broadway Road
 Buckeye, Arizona

Project No.: 182459SA



Boring Date: **8-26-19**
 Field Engineer/Technician: **R. Bainum**
 Driller: **C. Riley**
 Contractor: **Geomechanics SW**

Water Level		
Depth	Hour	Date
Free Water was Not Encountered		

NT = Not Tested

SPEEDIE AND ASSOCIATES

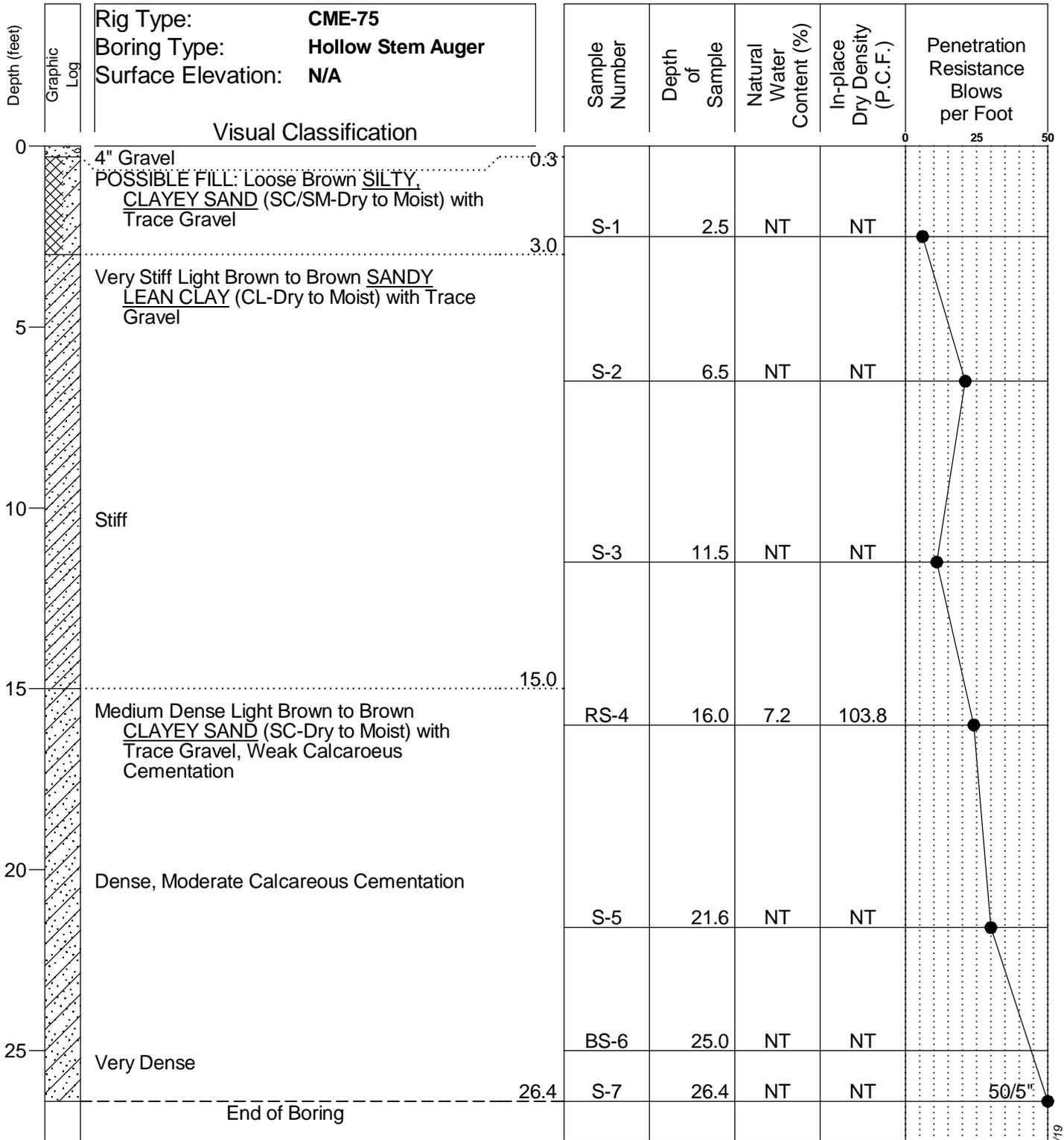
Log of Test Boring Number: **B-3**

Miller Road Sewer

Yuma Road to Broadway Road

Buckeye, Arizona

Project No.: **182459SA**



Boring Date: 8-26-19
Field Engineer/Technician: R. Bainum
Driller: C. Riley
Contractor: Geomechanics SW

Water Level		
Depth	Hour	Date
<i>Free Water was Not Encountered</i>		

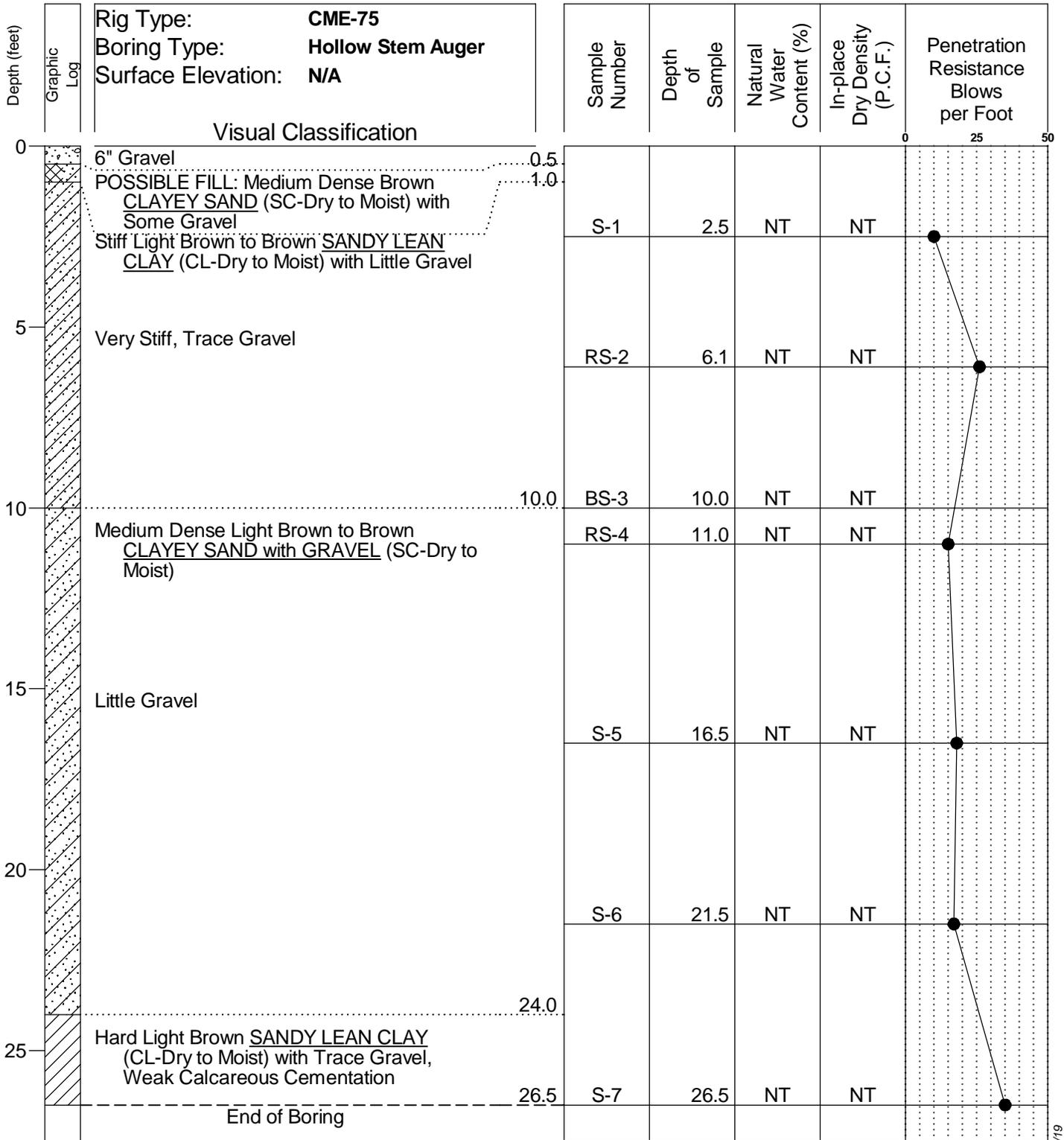
NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Boring Number: **B- 4**

Miller Road Sewer
Yuma Road to Broadway Road
Buckeye, Arizona

Project No.: **182459SA**



Boring Date: **8-26-19**
 Field Engineer/Technician: **R. Bainum**
 Driller: **C. Riley**
 Contractor: **Geomechanics SW**

Water Level		
Depth	Hour	Date
Free Water was Not Encountered		

NT = Not Tested

SPEEDIE AND ASSOCIATES

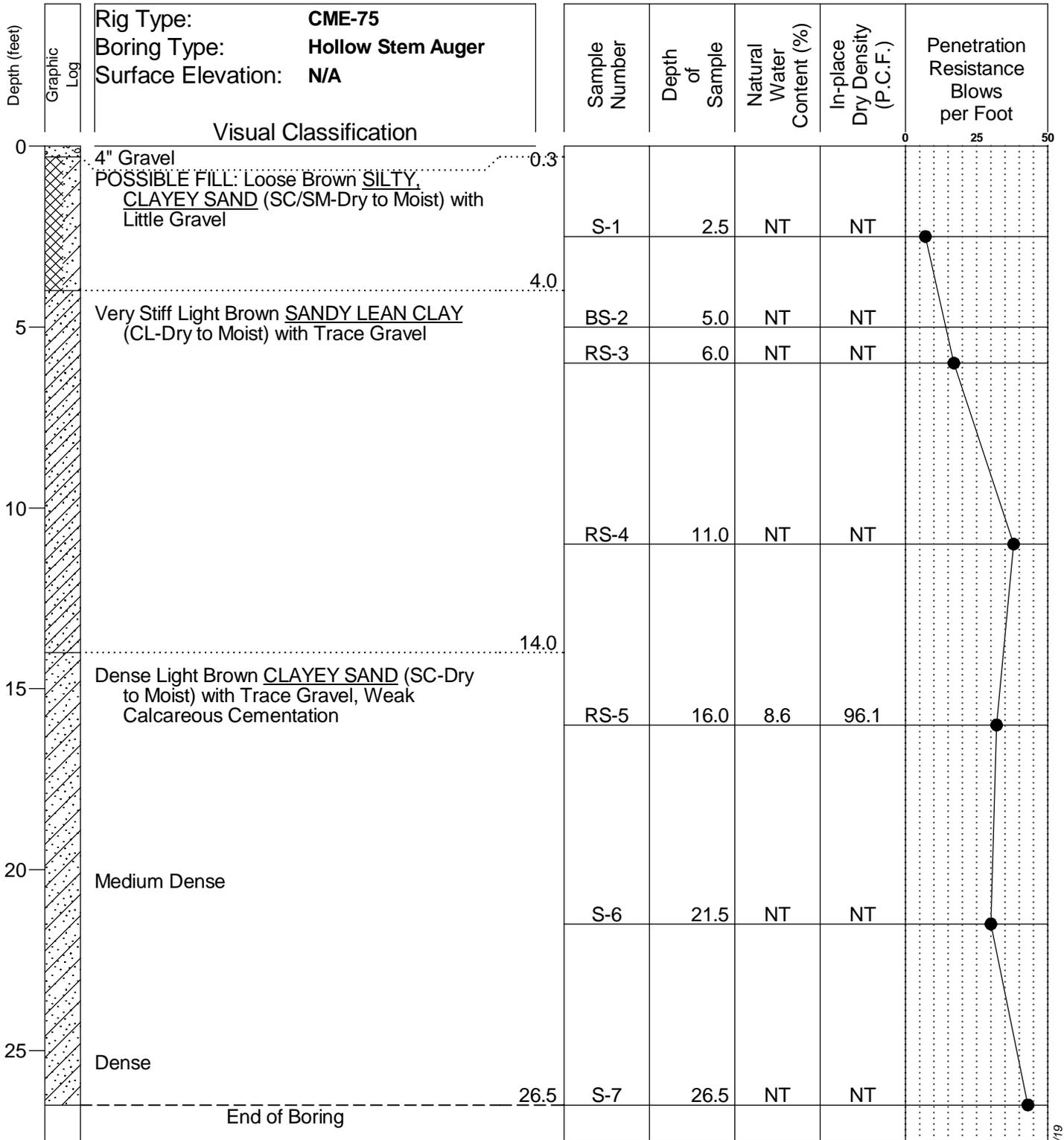
Log of Test Boring Number: **B- 5**

Miller Road Sewer

Yuma Road to Broadway Road

Buckeye, Arizona

Project No.: **182459SA**



Boring Date: 8-26-19
 Field Engineer/Technician: R. Bainum
 Driller: C. Riley
 Contractor: Geomechanics SW

Water Level		
Depth	Hour	Date
<i>Free Water was Not Encountered</i>		

NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Boring Number: **B- 6**

Miller Road Sewer
 Yuma Road to Broadway Road
 Buckeye, Arizona

Project No.: 182459SA

TABULATION OF TEST DATA

SOIL BORING or TEST PIT NUMBER	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE INTERVAL (ft)	NATURAL WATER CONTENT (Percent of Dry Weight)	IN-PLACE DRY DENSITY (Pounds Per Cubic Foot)	PARTICLE SIZE DISTRIBUTION (Percent Finer)					ATTERBERG LIMITS			UNIFIED SOIL CLASSIFICATION	SPECIMEN DESCRIPTION
						#200 SIEVE	#40 SIEVE	#10 SIEVE	#4 SIEVE	3" SIEVE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX		
B- 1	BS-4	BULK	10.0 - 15.0	NT	NT	20.1	36	61	77	100	44	23	21	SC	CLAYEY SAND with GRAVEL
B- 1	RS-5	RING	15.0 - 16.0	7.2	118.6	NT	NT	NT	NT	NT	NT	NT	NT		
B- 2	BS-6	BULK	20.0 - 25.0	NT	NT	19.6	33	59	74	100	45	23	22	SC	CLAYEY SAND with GRAVEL
B- 2	RS-7	RING	25.0 - 25.4	4.1	101.7	NT	NT	NT	NT	NT	NT	NT	NT		
B- 3	RS-4	RING	15.0 - 16.0	8.3	99.1	NT	NT	NT	NT	NT	NT	NT	NT		
B- 3	BS-6	BULK	20.0 - 25.0	NT	NT	29.7	47	72	88	100	50	22	28	SC	CLAYEY SAND
B- 4	RS-4	RING	15.0 - 16.0	7.2	103.8	NT	NT	NT	NT	NT	NT	NT	NT		
B- 4	BS-6	BULK	20.0 - 25.0	NT	NT	34.1	52	78	92	100	52	23	29	SC	CLAYEY SAND
B- 5	RS-4	RING	10.0 - 11.0	NT	NT	18.3	34	59	75	100	45	23	22	SC	CLAYEY SAND with GRAVEL
B- 6	RS-5	RING	15.0 - 16.0	8.6	96.1	36.7	59	88	94	100	45	22	23	SC	CLAYEY SAND

Sieve analysis results do not include material greater than 3". Refer to the actual boring logs for the possibility of cobble and boulder sized materials.

NT=Not Tested
Sheet 1 of 1

Miller Road Sewer
Yuma Road to Broadway Road
Buckeye, Arizona
Project No. 182459SA

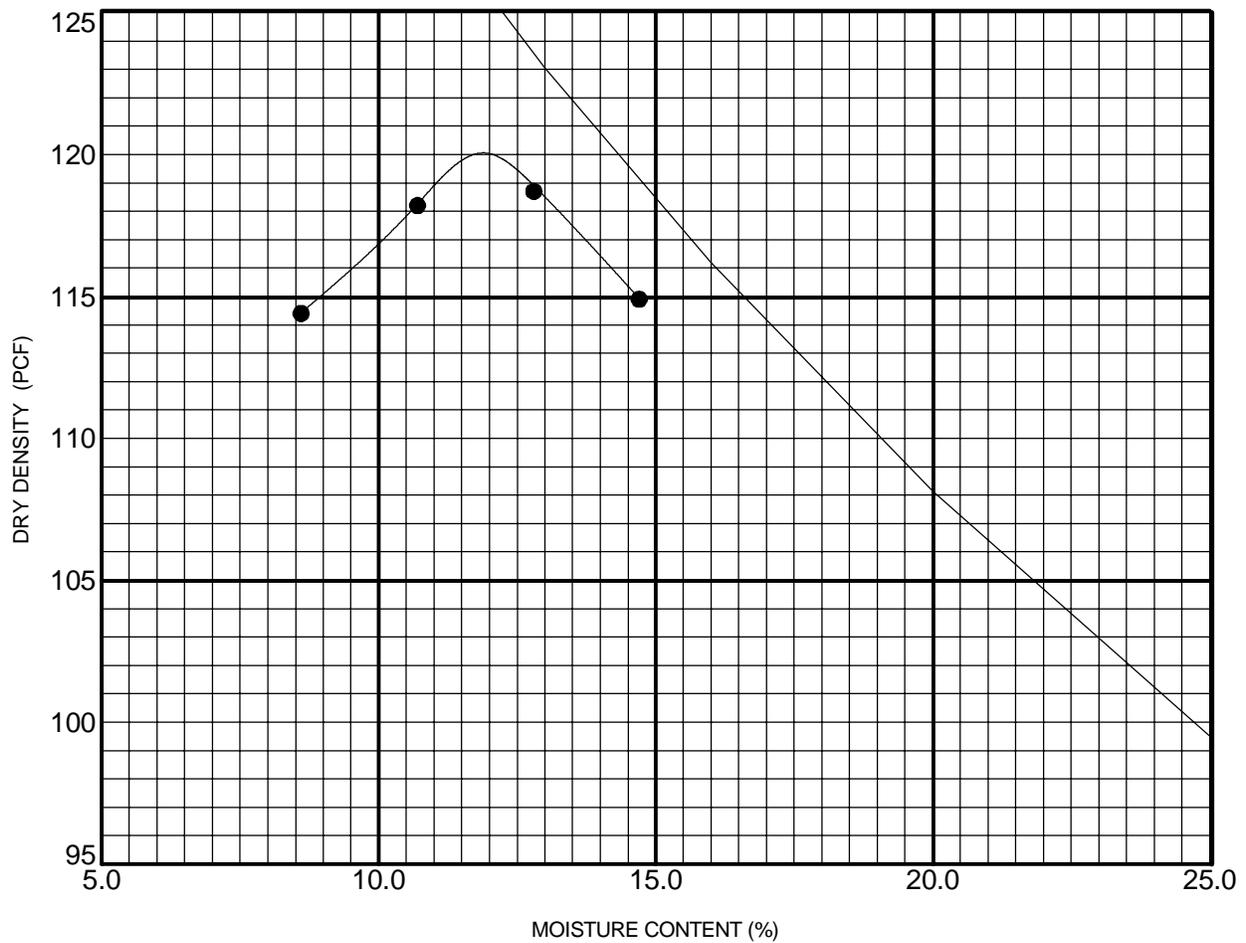
**SPEEDIE
AND ASSOCIATES**

MOISTURE-DENSITY RELATIONS

PROJECT: Miller Road Sewer PROJECT NO.: 182459SA
LOCATION: Yuma Road to Broadway Road DATE: 8/26/19
BORING NO.: B-1 SAMPLE NO.: BS-4 SAMPLE DEPTH: 10 to 15 LABORATORY NO.:
METHOD OF COMPACTION: D698A
LIQUID LIMIT: 44 PLASTIC LIMIT: 23 PLASTICITY INDEX: 21
CLASSIFICATION: SC ASTM SOIL DESCRIPTION: CLAYEY SAND with GRAVEL

MAXIMUM DRY DENSITY: 120.0 PCF

OPTIMUM MOISTURE CONTENT: 11.9%

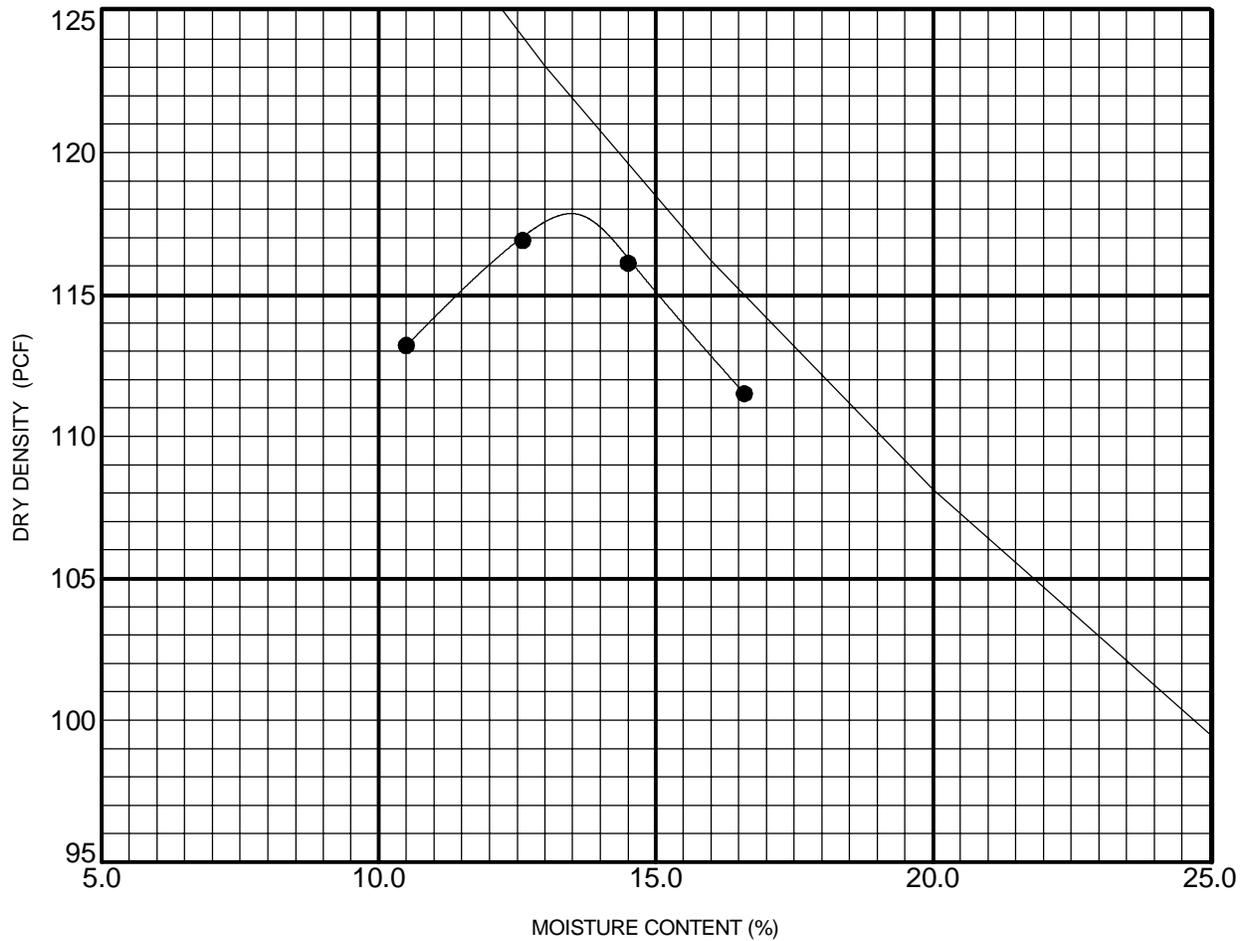


MOISTURE-DENSITY RELATIONS

PROJECT: Miller Road Sewer PROJECT NO.: 182459SA
LOCATION: Yuma Road to Broadway Road DATE: 8/26/19
BORING NO.: B-3 SAMPLE NO.: BS-6 SAMPLE DEPTH: 20 to 25 LABORATORY NO.:
METHOD OF COMPACTION: D698A
LIQUID LIMIT: 50 PLASTIC LIMIT: 22 PLASTICITY INDEX: 27
CLASSIFICATION: SC ASTM SOIL DESCRIPTION: CLAYEY SAND

MAXIMUM DRY DENSITY: 117.9 PCF

OPTIMUM MOISTURE CONTENT: 13.5%

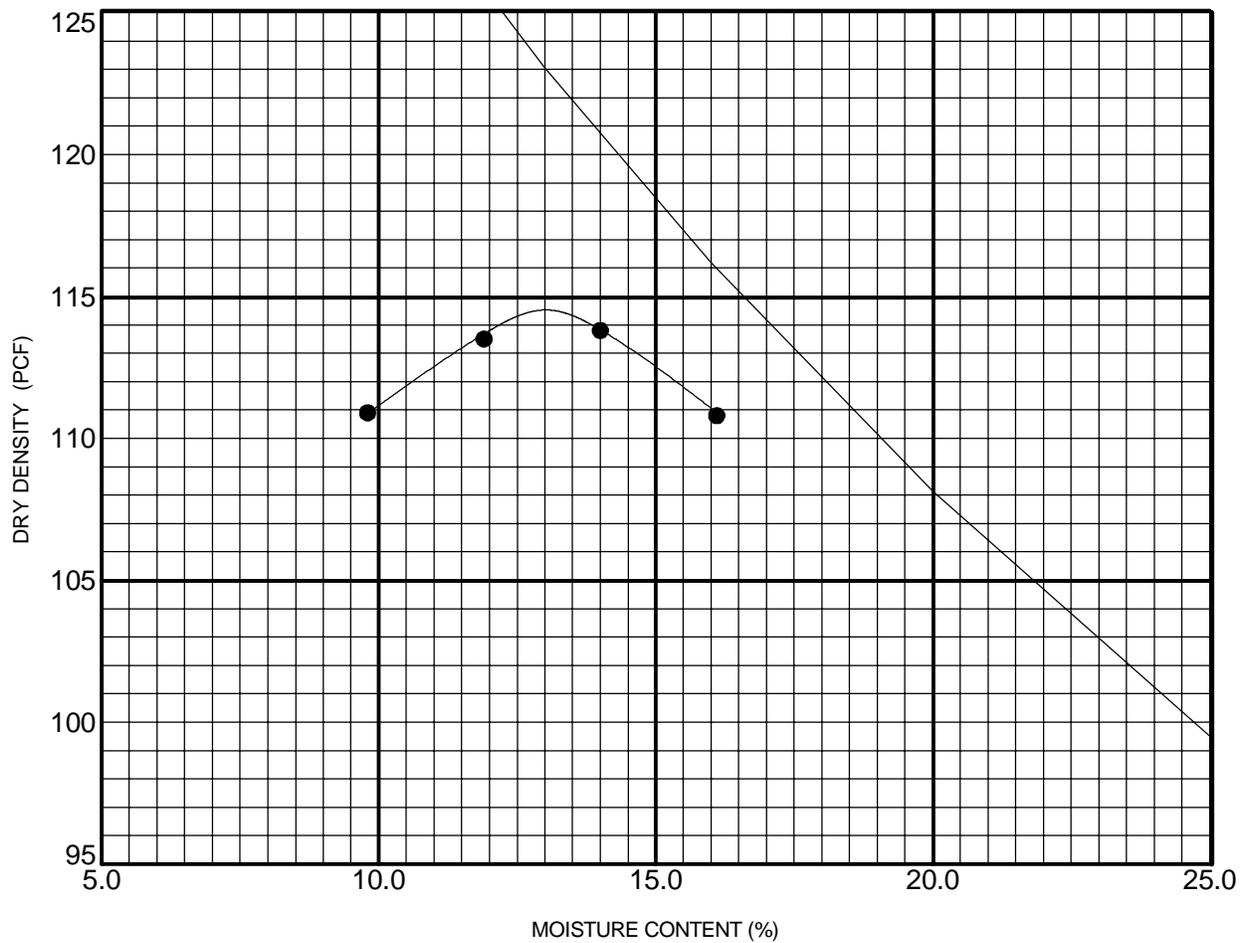


MOISTURE-DENSITY RELATIONS

PROJECT: Miller Road Sewer PROJECT NO.: 182459SA
LOCATION: Yuma Road to Broadway Road DATE: 8/26/19
BORING NO.: B-4 SAMPLE NO.: BS-6 SAMPLE DEPTH: 20 to 25 LABORATORY NO.:
METHOD OF COMPACTION: D698A
LIQUID LIMIT: 52 PLASTIC LIMIT: 23 PLASTICITY INDEX: 28
CLASSIFICATION: SC ASTM SOIL DESCRIPTION: CLAYEY SAND

MAXIMUM DRY DENSITY: 114.5 PCF

OPTIMUM MOISTURE CONTENT: 13.1%



CORROSIVE TEST DATA

SOIL BORING or TEST PIT NUMBER	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE INTERVAL (ft)	PERCENT FINER #200 SIEVE	pH	RESISTIVITY (Ohm-Centimeters)	SULFATE (SO ₄) (ppm)	CHLORIDE (CL) (ppm)	SULFIDE (+ or -)	REDOX (millivolts)	UNIFIED SOIL CLASSIFICATION	SPECIMEN DESCRIPTION
B- 1	BS-4	BULK	10.0 - 15.0	20.1	8.9	960	120	221	NT	NT	SC	CLAYEY SAND with GRAVEL
B- 3	BS-6	BULK	20.0 - 25.0	29.7	8.7	750	120	381	NT	NT	SC	CLAYEY SAND
B- 4	BS-6	BULK	20.0 - 25.0	34.1	8	480	59	483	NT	NT	SC	CLAYEY SAND

Miller Road Sewer
 Yuma Road to Broadway Road
 Buckeye, Arizona
 Project No. 182459SA



APPENDIX 2

POTHOLE RESULTS – Safesite Utility Services, LLC



TEST HOLE SUMMARY REPORT

Report Prepared for: Stanley Consultants Address: N Miller Rd & RWCD Canal, Buckeye, AZ 85326 Date of Report: 9/20/2019

Description of Project: N Miller Rd Sanitary Sewer Design Cust Job #: On Call Contract No. 2016-020-014 Safe Site Project #: 809026

Test Hole #	Facility Owner & Type	Description/Pipe Size	Direction	Location / Northing-Easting	Ground Elevation	Depth to Top of Facility of Facility (Feet)		Top Elevation	Bottom Elevation	Pipe OD or Structure Height (Inches)	Structure/Material	Date Verified	Comments
						Depth to Bottom of Facility (Feet)	Depth to Top of Facility (Feet)						
1	APS Electric	Encased	North & South	876729.58	999.58	8.96	10.13	990.62	989.45	14.00	Encased	08/14/19	Hit Caliche 14" below top. Could not undercut bottom of slurry to verify it ends
1A	Cox Communications	6" 2" PVC	North & South	878729.77	999.58	7.28	7.86	992.30	991.72	6.90	PVC	08/14/19	Side by Side
2	APS Electric	Encased	East & West	878737.46	999.72	9.76		989.96			Encased	08/14/19	
2A	Cox Communications	4" 2" PVC	East & West	878735.54	999.70	2.76	3.16	996.94	996.54	4.80	PVC	08/14/19	Side by Side & Stacked
3	Private Irrigation	30" RCP	East & West	879749.15	1,009.81	6.34	9.44	1,003.47	1,000.37	37.20	RCP	08/14/19	Farmer Owned
3A	City of Buckeye Water	8" PVC	North & South	879749.24	1,009.86	3.58	4.33	1,006.28	1,005.53	9.05	PVC	08/14/19	Possibly Abandoned
4	City of Buckeye Water	8" PVC	North & South	884031.69	1,057.38	5.47	6.22	1,051.91	1,051.15	9.05	PVC	09/09/19	
5	Century Link Communications	1" Direct Buried Cable	North & South	884033.57	1,057.49	4.63	4.73	1,052.86	1,052.76	1.25	Cable	09/09/19	
7	City of Buckeye Water	16" DIP	East & West	884075.47	1,058.27	7.21	8.66	1,051.06	1,049.61	17.40	DIP	09/10/19	
8	APS Electric	Encased	North & South	884030.39	1,057.06	5.38		1,051.68			Encased	09/10/19	Concrete Encasement
9	Cox Fiber Optic	4" 2" PVC	North & South	884025.38	1,056.77	3.26	3.77	1,053.51	1,053.00	6.12	PVC	09/10/19	Side by Side & Stacked
10	City of Buckeye Water	18" DIP	North & South	884016.15	1,057.45	6.70	8.33	1,050.75	1,049.12	19.50	DIP	09/12/19	Map Records Show 16" Black Plastic Wrap on pipe says 18"
11	City of Buckeye Water	18" DIP	North & South	884025.57	1,057.02	7.81	9.44	1,048.21	1,047.58	19.50	DIP	09/12/19	Map Records Show 16" Black Plastic Wrap on pipe says 18"
12	Joint Trench CLN / APS	2" 4" PVC & 2" 2" PVC	North & South	881430.13	1,027.01	4.45	6.69	1,022.56	1,020.32	26.88	PVC	09/12/19	AFS Electric & Century Link Communications - Side by Side & Stacked
13	City of Buckeye Sewer	8" PVC	North & South	881464.59	1,026.83	8.90	9.65	1,016.93	1,016.17	9.05	PVC	09/13/19	
14	City of Buckeye Sewer	8" PVC	North & South	881463.92	1,026.84	9.97	10.72	1,016.87	1,016.11	9.05	PVC	09/13/19	
15	City of Buckeye Sewer	6" PVC	North & South	881464.21	1,027.60	11.11	11.69	1,016.49	1,015.91	6.90	PVC	09/13/19	
16	City of Buckeye Sewer	6" PVC	North & South	881473.38	1,028.03	11.18	11.76	1,016.85	1,016.27	6.90	PVC	09/13/19	
17	City of Buckeye Water	18" DIP	North & South	881452.23	1,026.51	4.87	6.32	1,021.64	1,020.19	17.40	DIP	09/13/19	Map Records Show 16" Black Plastic Wrap on pipe says 18"
18	Century Link Communications	Slurry/Encased	North & South	881453.47	1,026.47	2.09		1,024.38			Encased	09/13/19	Hit Cement Encasement. Caliche Soil on both sides of the trench. Could not get bottom
19	Century Link Communications	1" Direct Buried Cable	North & South	881756.82	1,029.74	4.32	4.42	1,025.42	1,025.31	1.25	Cable	09/13/19	
20	APS Electric	4" PVC	North & South	881459.99	1,026.32	3.26	3.66	1,023.06	1,022.66	4.80	PVC	09/13/19	
21	Cox Communications	2" 2" PVC	East & West	886717.92	1,093.96	4.25	4.75	1,089.71	1,089.21	6.00	PVC	09/16/19	Side by Side
22	City of Buckeye Water	18" DIP	East & West	881483.52	1,027.81	4.79	6.42	1,023.02	1,021.40	19.50	DIP	09/16/19	Map Records Show 16" Black Plastic Wrap on pipe says 18"
22A	City of Buckeye Sewer	6" PVC	North & South	881482.03	1,027.83	11.12	11.87	1,016.71	1,015.96	9.05	PVC	09/16/19	
23	City of Buckeye Sewer	8" PVC	North & South	881459.52	1,027.09	8.79	9.54	1,018.30	1,017.55	9.05	PVC	09/16/19	
24	APS Electric	Encased	Northeast & Southwest	87873.95	999.20	3.89		995.31			Encased	09/16/19	
24A	Century Link Communications	2" PVC	Southeast & Northwest	878771.45	999.30	9.32	9.82	993.98	989.48	6.00	PVC	09/16/19	
26	AT&T Communications	Encased	East & West	885497.41	1,072.67	4.59	6.59	1,068.08	1,066.08	24.00	Encased	09/16/19	
27	Century Link Communications	2" PE	East & West	885466.47	1,072.53	3.62	3.82	1,068.91	1,068.71	2.38	PVC	09/16/19	
28	City of Buckeye Water	6" DIP	East & West	884376.65	1,062.11	5.78	6.36	1,056.33	1,055.76	6.90	DIP	09/16/19	
29	City of Buckeye Water	18" DIP	East & West	878537.63	999.13	4.76	6.39	994.37	992.74	19.50	DIP	09/16/19	

Horizontal and vertical locations of utilities obtained by actual exposure and subsequent measurement of subsurface utilities at a specific point. Diameters shown are estimated visually and may not be exact.



TEST HOLE SUMMARY REPORT

Report Prepared for: Stanley Consultants
 Description of Project: N Miller Rd Water

Address: N Miller Rd from Yuma Rd to Canal, Buckeye, AZ
 Cust Job #: 806029B

Date of Report: 7/11/2019
 Safe Site Project #: 806029B

Test Hole #	Facility Owner & Type	Description/Pipe Size	Direction	Location / Northing-Easting	Ground Elevation	Depth to Top of Facility (Feet)	Depth to Bottom of Facility (Feet)	Top Elevation	Bottom Elevation	Pipe OD or Structure Height (Inches)	Structure/Material	Date Verified	Comments
101	Century Link Communications	4" PVC	East & West	885046.36 494318.96	1069.59	4.24	4.64	1,065.35	1,064.95	4.80	PVC	06/17/19	Joint Trench With Elec
101A	APS Electric	4" PVC	East & West	885046.36 494318.96	1069.59	5.16	5.56	1,064.43	1,064.03	4.80	PVC	06/17/19	Joint Trench With Comm
102	City of Buckeye Water	8" DIP	East & West	885026.73 494318.94	1069.48	5.93	6.68	1,063.55	1,062.80	9.05	DIP	06/17/19	
102A	Century Link Communications	2" HDPE	East & West	885026.66 494319.40	1069.48	4.73	4.93	1,064.75	1,064.56	2.38	HDPE	06/17/19	
103	APS Electric	2) 3" PVC	Southeast & Northwest	883964.26 494314.01	1056.10	2.65	2.94	1,053.45	1,053.16	3.50	PVC	06/17/19	Side by Side
105	City of Buckeye Water	8" DIP	East & West	883401.08 494318.81	1048.70	7.74	8.49	1,040.96	1,040.21	9.05	DIP	06/17/19	
105A	Century Link Communications	1" Direct Buried Cable	North & South	883400.54 494318.43	1048.79	4.12	4.22	1,044.67	1,044.57	1.25	Direct Buried Cable	06/17/19	
109	City of Buckeye Water	8" PVC	North & South	882926.79 494299.10	1042.94	3.92	4.67	1,038.02	1,038.27	9.05	PVC	06/18/19	
110	City of Buckeye Water	8" DIP	East & West	882751.06 494323.08	1040.42	7.47	8.22	1,032.95	1,032.20	9.05	DIP	06/18/19	
111	Century Link Communications	1" Direct Buried Cable	North & South	882750.22 494317.17	1039.85	3.51	3.61	1,036.34	1,036.24	1.25	Direct Buried Cable	06/18/19	
112	Century Link Communications	1" Direct Buried Cable	North & South	882427.30 494315.32	1036.92	3.80	3.90	1,033.12	1,033.02	1.25	Direct Buried Cable	06/18/19	
113	City of Buckeye Water	8" PVC	North & South	882427.81 494297.07	1037.97	4.14	4.89	1,033.83	1,033.08	9.05	PVC	06/18/19	
114	City of Buckeye Sewer	8" VCP	East & West	882151.08 494306.47	1033.48	5.42	6.25	1,028.06	1,027.22	10.00	VCP	06/18/19	
115	City of Buckeye Water	8" DIP	East & West	882092.19 494306.11	1032.72	7.26	8.01	1,025.46	1,024.70	9.05	DIP	06/18/19	
117	City of Buckeye Water	8" PVC	North & South	882093.49 494296.47	1033.82	4.06	4.81	1,029.76	1,029.01	9.05	PVC	06/18/19	
118	City of Buckeye Water	8" PVC	North & South	885200.77 494309.80	1070.52	5.78	6.53	1,064.74	1,063.99	9.05	PVC	06/19/19	
119	City of Buckeye Water	8" PVC	North & South	885030.41 494309.52	1070.01	4.86	5.61	1,065.15	1,064.39	9.05	PVC	06/19/19	
120	City of Buckeye Water	8" PVC	North & South	884188.62 494305.97	1058.71	5.14	5.89	1,053.57	1,052.81	9.05	PVC	06/19/19	
121	City of Buckeye Water	8" PVC	North & South	883850.63 494304.22	1054.53	4.52	5.27	1,050.01	1,049.26	9.05	PVC	06/19/19	
122	City of Buckeye Water	8" PVC	North & South	883402.94 494301.85	1048.21	4.36	5.11	1,043.85	1,043.09	9.05	PVC	06/19/19	
123	City of Buckeye Water	8" PVC	North & South	881556.86 494292.58	1026.66	2.72	3.47	1,023.94	1,023.18	9.05	PVC	06/19/19	

APPENDIX 3

BID FORM

Bid Form**Project Name: North Miller Road Trunk Sewer Extension**

Bid Item #	Bid Item Description	Quantity	Unit	Unit \$	Total Cost
105	Survey	1	LS		
109	Mobilization/Demobilization	1	LS		
201	Remove, Salvage, and Reinstall Existing Traffic Sign Post and Panel per COB STD DTL 65120	11	EA		
301	Subgrade Preparation	2643	SY		
321.1	Remove & Replace Asphalt (N. Miller Road & W. Lower Buckeye Road)	2507	SY		
321.2	Remove & Replace Asphalt (W. Durango Street)	97	SY		
321.3	Remove & Replace Asphalt (N. 247th Avenue)	15	SY		
321.4	Remove & Replace Asphalt (Private Driveway-Saint Henry Roman Catholic Church)	24	SY		
331	Microseal	40,191	SY		
345.1	Adjust Existing Water Valve (MAG Std Det 391-2)	11	EA		
346	Adjusting Frames, Covers, Valve Boxes on Existing Non-City Utilities, Contingent Item	10	EA		
401.1	Temporary Traffic Control	1	LS		
401.2	Allowance for Uniformed, Off-Duty Law Enforcement Officer	1	LS		
602.1	42" Steel Casing by Jack & Bore (ASTM A-252 Grade B)	423	LF		
615.1	Install 24" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	34	LF		
615.2	Install 24" Sewer Pipe, "NO DIG VCP" Pipe (ASTM C1208) Per MAG Section 615 & 643	447	LF		
615.3	Install 21" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	6,630	LF		
615.4	Install 18" Sewer Pipe, VCP Pipe (ASTMC700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	4	LF		
615.5	Install 12" Sewer Pipe, VCP Pipe (ASTM C700) Per MAG Section 615 & 643, and COB STD DTLS 41300-1 & 41300-2	2912	LF		
615.6	Install 8" Sewer Pipe, VCP Pipe (ASTM C700) Per MAG Section 615 & 743, and COB STD DTLS 41300-1 & 41300-2	88	LF		
615.7	Install 6" Sewer Pipe, VCP Pipe (ASTM C700) Per MAG Section 615 & 743, and COB STD	34	LF		

Bid Item #	Bid Item Description	Quantity	Unit	Unit \$	Total Cost
	DTLS 41300-1 & 41300-2				
615.8	Install 6" PVC Pipe (SDR-26), Per ASTM D3034	105	LF		
615.9	Install 8" PVC Pipe (SDR-26), Per ASTM D3034	32	LF		
615.10	Install Stub Out and Plug Per MAG Standard Detail 427	3	EA		
615.11	Connect Existing Sewer to New Manhole Per MAG Specification Section 615 and COB Standard Detail 41240	7	EA		
615.12	Connect Existing Sewer Pipe to Manhole Per MAG Specification Section 615	6	EA		
615.13	Testing Cleanout Per COB Std Dtl 41270	3	EA		
615.14	Remove Existing Sanitary Sewer Manhole	9	EA		
615.15	Remove Existing 8" Sewer Pipe	0	LF		
615.16	Remove Existing 12" Sewer Pipe	2,010	LF		
615.17	Abandon In-Place 10" Sewer Pipe per Project Specifications	4,240	LF		
615.18	Abandon In-Place 12" Sewer Pipe per Project Specifications	3,747	LF		
615.19	Abandon Existing Manhole Per Project Specifications	20	EA		
615.20	Cut & Plug Per MAG Std Dtl 427	25	EA		
615.21	Remove Existing Manhole and Connect to Existing Service	4	EA		
615.22	Bypass Existing Sanitary Sewer	1	LS		
625.1	Install 5' Dia Acid Resistant Polymer Manhole Base with Precast Polymer Manhole Shafts and Cone Sections per Project Specifications	40	EA		
625.2	Install 30" Manhole Frame/Cover (New Manholes) Per MAG Section 345 & MAG Std Dtl's 422 & 424-2 (Lettering Per COB Std Dtl 41260 – Addendum Dated 06-21-2016)	40	EA		
625.INT	Internal Drop Connection per COB STD DTL 41255	8	EA		
	Total				

APPENDIX 4

WATER & SEWER SERVICE INTERRUPTION NOTICE



ATTENTION

NORTH MILLER ROAD TRUNK SEWER EXTENSION

Date of Notice:

MM/DD/YYYY

The sewer construction project on NORTH MILLER ROAD TRUNK SEWER EXTENSION requires a temporary service interruption in your area. You will experience an interruption of service to your home/business during the dates and time below:

TYPE OF SERVICE INTERRUPTION

Water Service Interruption Sewer Service Interruption

DURATION OF SERVICE INTERRUPTION

From:_(MM/DD/YY)_(HH:MM) To:

_____(MM/DD/YY)_(HH:MM)

Approximate Duration:_____hours

We appreciate your support and realize that this project may be of some inconvenience in the short term but will provide long-term water and sewer service benefits for you and your neighbors.

For more information, or if you have questions regarding this notice, please contact the site Contractor Superintendent,_____, at ()____-_____.

If you have a comment, question or concern about this project, please call the 24-Hour Project Hotline at: ()____-_____.

Thank You!

APPENDIX 5

WATER SERVICE INTERRUPTION NOTICE REPORT



NORTH MILLER ROAD TRUNK SEWER
EXTENSION

Water Service Interruption Notice Report

Date of Notice: _____ (MM/DD/YY)

Location of Service Outage: _____

Duration of Service Outage: From _____ (MM/DD/YY) _____ (HH:MM)

To _____ (MM/DD/YY) _____ (HH:MM)

Approximate Duration _____ hours

Number of Customers Affected: _____

Number of Customers Contacted: _____

Copy of Notice Attached (check one): Yes No

Arrangement Details: (attach additional sheets for extended table)

No.	Customer Address	Arrangements Made with Customer (Service Outage, Continuous Service, Alternate Accommodation, etc.)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

APPENDIX 6

AZG-2013-001 GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES OPERATOR'S COMPLIANCE EVALUATION REPORT AND CERTIFICATIONS

PERMITTEE'S CERTIFICATION

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

Company

Name: _____

Title: _____

Signature: _____

Date: _____

CONTRACTOR CERTIFICATION

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

General Contractor and Responsibility

Name: _____

Title: _____

Signature: _____

SUBCONTRACTOR'S CERTIFICATION

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

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Construction Activities: _____

Verification of Completion and Acceptance of Subcontractor's Work

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

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Verified by (General Contractor): _____

Authorized Representative of General Contractor: _____

Signature: _____ Date: _____

To assist the Contractor in preparing the Storm Water Pollution Prevention Plan (SWPPP), the Contractor may download the Construction SWPPP Checklist from ADEQ at the following web address:

https://www.azdeq.gov/envirom/water/permits/download/cgp_swapp_checklist.pdf

Some examples are shown on the following 4 pages, just for reference.

	<h2 style="margin: 0;">NOTICE OF INTENT (NOI)</h2> <h3 style="margin: 0;">for Construction Activity Discharges</h3> <p style="margin: 0;">to Waters of the United States under the AZPDES Stormwater Construction General Permit (AZG2013-001)</p>
<p>FOR COVERAGE, A COMPLETE AND ACCURATE NOI (INCLUDING REQUIRED FEE) MUST BE SUBMITTED TO: Arizona Department of Environmental Quality, Surface Water Section / Stormwater and General Permits Unit 1110 West Washington Street, 5415A-1, Phoenix, Arizona 85007</p>	
<p>Is this NOI a revision to a project filed under the 2013 AZPDES Stormwater Construction General Permit? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO If Yes, complete the following:</p> <ul style="list-style-type: none"> ➤ Provide your current authorization number: AZCON - _____ ➤ Provide the name of the project / site in Part II below. You do not need to complete the entire form. Provide only the information that is being changed from the original NOI. ➤ Complete the certification in Part VI (including signature of authorized signatory) 	<p style="text-align: right; font-size: small;">(ADEQ Use Only)</p> <p>Authorization Number: _____</p> <hr/> <p style="font-size: x-small;">Is the site located on Indian Country Lands?</p> <p style="text-align: right;">_____ YES <input checked="" type="checkbox"/> NO</p>
<p>I. OPERATOR (Applicant) INFORMATION:</p> <ul style="list-style-type: none"> ➤ Contact Name: _____ Phone Number: _____ ➤ E-mail address: _____ Fax Number: _____ ➤ Operator's Business Name: _____ ➤ Operator's Mailing Address: _____ ➤ City: _____ State: _____ Zip Code: _____ ➤ Business Status: Federal: _____ State: _____ Other Public: _____ Private: _____ Other: _____ 	
<p>II. CONSTRUCTION ACTIVITY INFORMATION:</p> <ul style="list-style-type: none"> ➤ Project/Site Name: (Fill in Project Description Here) _____ ➤ Site physical location (Provide address. If no address, provide driving directions from nearest municipality): _____ _____ ➤ City: Phoenix State: AZ Zip Code: @ Project County: Maricopa ➤ County Parcel No. (at main entrance): _____ Phone Number: _____ ➤ Type of Project (subdivision, commercial, road, pipeline, utility, ADOT project, etc.): (Road Paving, Storm Drain) 	

II. CONSTRUCTION ACTIVITY INFORMATION (continued)

➤ Estimated Project Start Date: _____ Estimated Project Completion Date: _____
Month/Day/Year Month/Day/Year

➤ Is the project part of a larger common plan of development? ____ YES NO

➤ Estimate of total acres (to nearest whole acre) to be disturbed by the entire construction activity: _____

➤ Estimate of total acres (to nearest tenth of an acre, if <1) to be disturbed by your operations: _____

III. DISCHARGE LOCATION

➤ Provide the latitude and longitude of the construction site at the point nearest the receiving water (natural water course):
Latitude: []° []' []" Longitude: []° []' []"
(Degrees, minutes, seconds) (Degrees, minutes, seconds)

➤ Identify the closest receiving water to the construction site (e.g., wash, named and unnamed waterbodies, etc.):
(Fill in this item) _____

➤ Is there a potential for any discharges from the site to enter a municipal separate storm sewer system (MS4), canal, or a privately owned conveyance? ____ YES ____ NO
If yes, enter the name of the MS4, canal, or conveyance owner: _____

➤ Is the site located within 2.5 miles of a perennial or intermittent water? ____ YES ____ NO

IV. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A SWPPP must be developed in accordance with the terms of the general permit before completing and submitting this NOI.

➤ I confirm that a SWPPP meeting the requirements of the Stormwater Construction General Permit (No. AZG2013-001) has been developed and will be implemented prior to commencing construction activities at this site. The SWPPP will be located at the site during construction activities. If this is a late NOI, a SWPPP has been developed and implemented prior to submitting this NOI.

➤ When construction activities are not actively underway, the SWPPP will be available at the following location:

➤ Name of SWPPP Contact Person: _____

➤ Telephone Number of SWPPP Contact Person: _____

➤ Is the site located within 1/4 mile of an Impaired or Outstanding Arizona Water: ____ YES ____ NO
____ If yes, a copy of my SWPPP is included with this NOI for review by ADEQ.

V. PERMITTING FEE SCHEDULE (AZPDES fees are set in Arizona Administrative Code, R18-14-109)

___ I confirm that the correct fee payment is included with the NOI:

- ___ Less than or equal to 1 acre: \$250.00 *
- ___ Greater than 1 acre, but less than or equal to 50 acres: \$350.00
- ___ Greater than 50 acres: \$500.00
- ___ Review of SWPPP by ADEQ, if required (see section IV above): add \$1,000.00

Total fee payment included: \$ _____

- ___ No fee is required. The signer below represents an Arizona state agency (exempt from AZPDES fees).
- ___ No fee is required. This is an amendment of an NOI previously filed under the Stormwater Construction General Permit, for which the fee was paid or not required.

* (If the project will disturb less than one acre, Stormwater Construction General Permit coverage is required only if the project is part of a larger common plan of development or sale that will ultimately disturb one acre or more.)

VI. CERTIFICATION BY AUTHORIZED SIGNATORY (see Appendix B of the General Permit for requirements)

Pursuant to A.R.S. § 41-1030:(1) ADEQ shall not base a licensing decision, in whole or in part, on a requirement or condition not specifically authorized by statute or rule. General authority in a statute does not authorize a requirement or condition unless a rule is made pursuant to it that specifically authorizes the requirement or condition.(2) Prohibited licensing decisions may be challenged in a private civil action. Relief may be awarded to the prevailing party against ADEQ, including reasonable attorney fees, damages, and all fees associated with the license application. (3) ADEQ employees may not intentionally or knowingly violate the requirement for specific licensing authority. Violation is cause for disciplinary action or dismissal, pursuant to ADEQ's adopted personnel policy. ADEQ employees are still afforded the immunity in A.R.S. §§ 12-821.01 and 12-821.02.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision, in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, I believe the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, as the operator, I certify that I have reviewed and will comply with all the terms and conditions stipulated in the Stormwater Construction General Permit (AZG2013-001)."

- Printed Name: _____ Title: _____
- Signature: _____ Date: _____
- E-mail: _____ Phone: _____
- Business Name: _____
- Address: _____
- City: _____ State: _____ Zip Code: _____



NOTICE OF TERMINATION (NOT)
for Construction Activity Discharges to Waters of the United States

Submission of this NOT constitutes notice that the party identified on this form is terminating coverage under the AZPDES Stormwater Construction General Permit. Authorization for construction activity discharges to waters of the United States terminates at midnight on the day the NOT is received by ADEQ. To terminate your project, fax or submit a complete and accurate NOT to:

Arizona Department of Environmental Quality
Surface Water Section — Stormwater & General Permits Unit
1110 West Washington, 5415A-1; Phoenix, Arizona 85007
FAX (602) 771-4528

I. PERMITTEE INFORMATION

AZPDES Stormwater Construction Authorization Number: AZCON – _____
Name of Operator on Notice of Intent (NOI): _____
Operator Business: _____ Address: _____
City: _____ State: _____ Zip: _____ Phone: _____

II. CONSTRUCTION SITE INFORMATION

Project/Site Name: (Fill in Project Description Here) _____
Site address or physical location: (Fill in Project Description of Physical Location Here) _____
City: **Phoenix** State: **AZ** Zip: _____ Phone: _____

III. REASON FOR TERMINATING COVERAGE: (Check as applicable)

- Final stabilization has been achieved for all portions of the site for which the operator is responsible.
- Another operator has assumed control over all areas of the site that have not been finally stabilized. Provide new operator's NOI/AZCON Number(s): _____
- For residential construction only, temporary stabilization has been completed and the residence has been transferred to the home owner.
- The operator has obtained coverage under another NOI authorization certificate or under an alternative AZPDES permit. If you are applying for this condition, you must provide the new AZCON number or AZPDES permit number: New AZCON or AZPDES Number(s): _____
- Construction activity was never initiated and plans have been abandoned or postponed.
- The operator qualifies for alternative stabilization pursuant to Part 3.1.2.3 of the CGP and the supporting documentation is included with this NOT submission, including a copy of the most recent Stormwater Pollution Prevention Plan and \$1,000.00 review fee (see permit for additional documentation requirements).

IV. CERTIFICATION BY AUTHORIZED SIGNATORY

"I certify under penalty of law that all stormwater discharges associated with construction activity from the identified facility that are authorized by a general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by an AZPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act."

Printed Name: _____ Title: _____
Signature: _____ Date: _____
Address (if different from above): _____
City: _____ State: _____ Zip: _____ Phone: _____

AZG-2013-001 General Permit for Construction Activities

Operator's Compliance Evaluation Report

This project requires inspection of storm water pollution controls (BMPs) on a choice of frequency described in the General Permit, Part IV.2. Attach sheets if more space is needed.

Project: _____ Date: _____

Name & Title of Inspector: _____

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

Periodic Inspection; or Rain Event inspection

Relevant weather information: _____

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

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

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

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

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

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

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

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

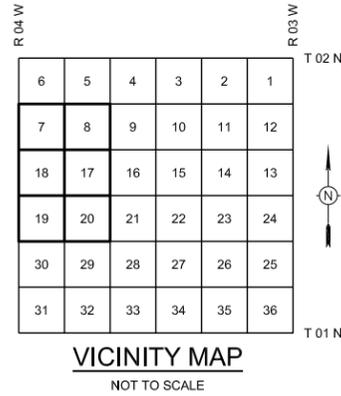
I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage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

Certifying Signature: _____ Date: _____

Printed Name: _____

CITY OF BUCKEYE

NORTH MILLER ROAD TRUNK SEWER EXTENSION

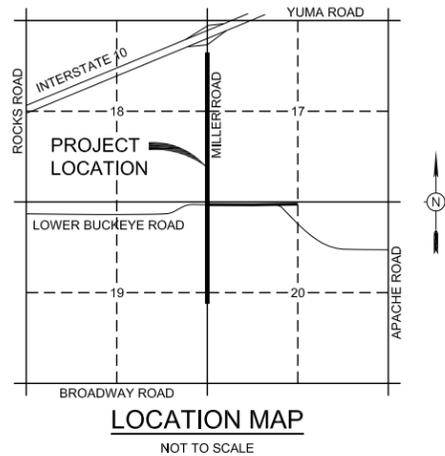


A PORTION OF THE WEST HALF OF SECTIONS 17 AND 20, AND EAST HALF OF SECTIONS 18 AND 19, TOWNSHIP 1 NORTH, RANGE 3 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

FEMA FLOOD ZONE INFORMATION

COMMUNITY NUMBER	PANEL #	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEV. (IN AO ZONE, USE DEPTH)
040039	04013C2115	L	11/04/2015	AH	997.0 FT
	10/16/2013				

ALL FLOOD ZONES ARE SHOWN IN THIS PLAN SET.



SUMMARY OF QUANTITIES

ITEM	UNIT	QTY
24" SEWER PIPE, VCP PIPE (ASTM C700)	LF	34
24" SEWER PIPE, "NO DIG VCP" PIPE (ASTM C1208)	LF	447
21" SEWER PIPE, VCP PIPE (ASTM C700)	LF	6,630
18" SEWER PIPE, VCP PIPE (ASTM C700)	LF	4
12" SEWER PIPE, VCP PIPE (ASTM C700)	LF	2,912
8" SEWER PIPE (SERVICE) VCP PIPE (ASTM C700)	LF	88
6" SEWER PIPE (SERVICE) VCP PIPE (ASTM C700)	LF	34
42" STEEL CASING BY JACK & BORE, (ASTM A-252 GRADE B)	LF	423
60" DIA ACID RESISTENT POLYMER MANHOLE BASE WITH PRECAST MANHOLE SHAFTS & CONE SECTION	EA	40
INSIDE DROP CONNECTION	EA	8
PAVEMENT REPLACEMENT	SY	2,643

GENERAL PERMITTING NOTES

- ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF BUCKEYE DESIGN STANDARDS. IF THERE IS A CONFLICT, THE CITY OF BUCKEYE STANDARDS WILL GOVERN.
- THE APPROVAL OF THE PLANS IS VALID FOR ONE (1) YEAR FROM THE DATE OF THE CITY ENGINEER'S SIGNATURE. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN ONE (1) YEAR, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
- A CITY OF BUCKEYE INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF BUCKEYE RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY THE CITY 24 HOURS PRIOR TO THE INSPECTION BY CALLING (623) 349-6248.
- CITY PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. A CITY PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER ALL FEES HAVE BEEN PAID AND THE PERMIT HAS AN APPROVED MARICOPA COUNTY ENVIRONMENTAL SERVICES DUST PERMIT AND AN APPROVED STORM WATER POLLUTION PREVENTION PLAN ATTACHED. THE SWPPP SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS.
- COPIES OF ALL PERMITS AND MOST RECENT APPROVED PLANS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS AND PLANS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL PROPER PERMIT DOCUMENTATION AND/OR PLANS ARE OBTAINED. ALL OF THESE REQUIREMENTS APPLY TO ONSITE GRADING AND IMPROVEMENT PLANS.

UTILITY COMPANIES

DATE SUBMITTED

ELECTRIC	ARIZONA PUBLIC SERVICE	5/20/19
ELECTRIC	SALT RIVER PROJECT	NO FACILITIES
ELECTRIC	CAP	NO FACILITIES
ELECTRIC	WAPA	5/16/19
TELEPHONE, FIBER	CENTURYLINK	5/16/19
TELEPHONE	AT&T	5/16/19
CATV, FIBER	COX COMMUNICATIONS	5/20/19
GAS	SOUTHWEST GAS	5/20/19
IRRIGATION	ROOSEVELT IRRIGATION DISTRICT	5/16/19
FIBER	SPRINT NEXTEL	5/16/19
ELECTRIC, FIBER	ADOT	5/16/19

MAYOR

JACKIE MECK

VICE MAYOR

ERIC ORSBON - DISTRICT 6

CITY COUNCIL

TONY YOUNGKER - DISTRICT 1
JEANINE GUY - DISTRICT 2
MICHELLE HESS - DISTRICT 3
PATRICK HAGESTAD - DISTRICT 4
CRAIG HEUSTIS - DISTRICT 5

ENGINEER

STANLEY CONSULTANTS
CONTACT: LARRY LEISCHNER PE
1661 EAST CAMELBACK ROAD, SUITE 400
PHOENIX, AZ 85016
PHONE (602) 333-2200
FAX (602) 333-2333

BASIS OF BEARING

GRID NORTH NAD 83 (92) STATE PLANE ARIZONA
CENTRAL ZONE MARICOPA COUNTY RECORD OF SURVEY,
BOOK 638, PAGE 32, MARICOPA COUNTY RECORDERS
OFFICE, MARICOPA COUNTY, ARIZONA

BENCH MARK

2" BRASS CAP IN HAND HOLE AT THE INTERSECTION OF
MILLER ROAD AND LOWER BUCKEYE ROAD.
N=881431.15 E=494338.18, ELEVATION 1025.50,
NORTHWEST CORNER OF SECTION 20, T-1-N, R-3-W,
HORIZONTAL CONTROL: NAD 83 DATUM (GROUND)
VERTICAL CONTROL: NAVD 88
GRID ADJUSTMENT FACTOR (G.A.F.) = 1.000095923
APPLIED AROUND N=0.0, E=0.0
MCDOT GDACS - GEO-DENSIFICATION AND CADASTRAL
SURVEY SYSTEM

APPROVAL

DISCLAIMER:

THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY AND ACCEPTS NO LIABILITY FOR ERRORS AND OMISSIONS.

BY: _____ DATE _____
CITY OF BUCKEYE ENGINEER

BY: _____ DATE _____
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT

ROOSEVELT IRRIGATION DISTRICT APPROVAL

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

ROOSEVELT IRRIGATION DISTRICT _____ DATE _____
RID PERMIT NUMBER _____

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "AS-BUILT" INFORMATION SHOWN HEREON WAS OBTAINED UNDER MY DIRECT SUPERVISION AND IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

ARIZONA REGISTERED LAND SURVEYOR _____ DATE _____

ARIZONA REGISTRATION NUMBER _____

TELEPHONE NUMBER _____



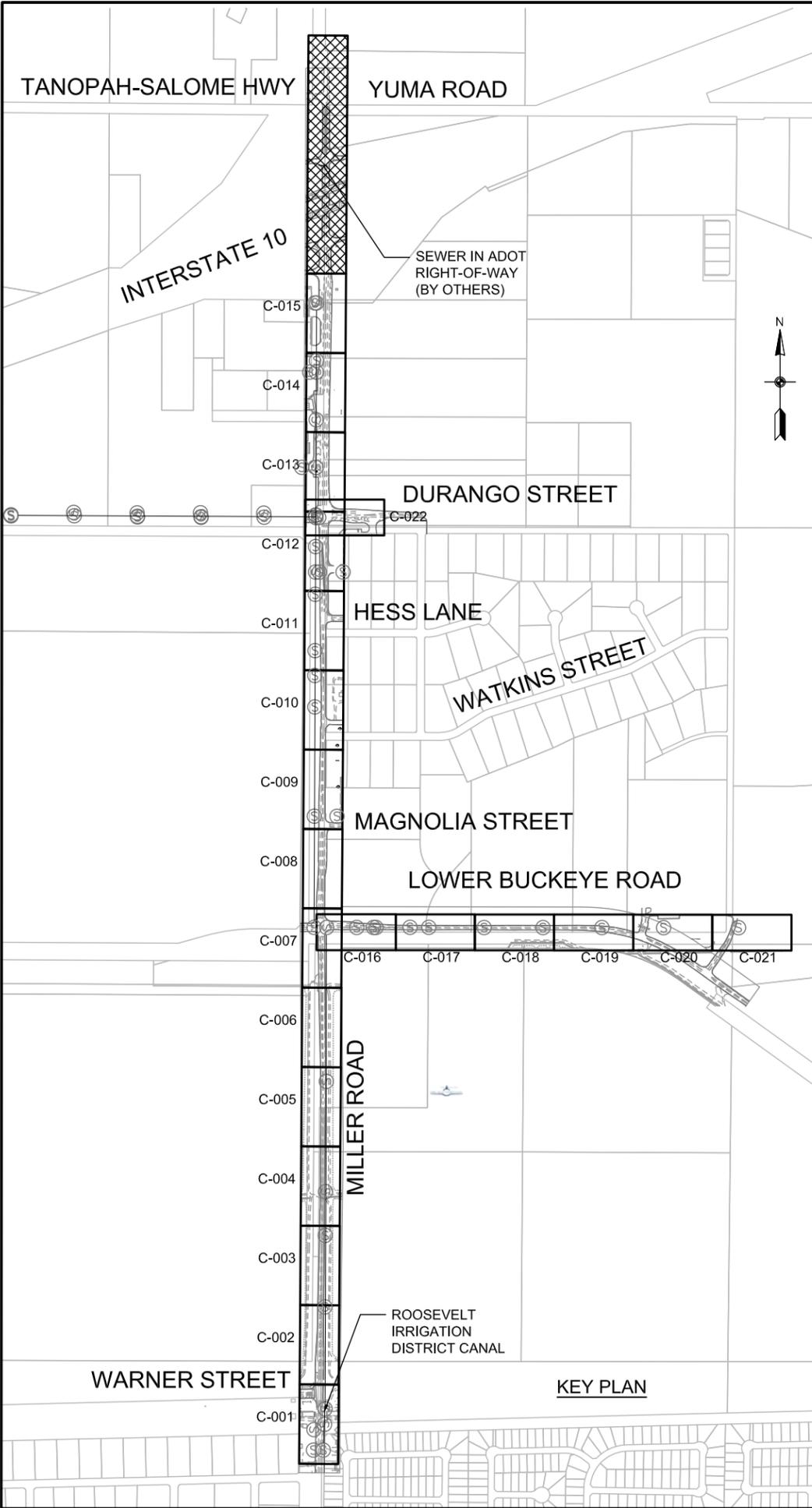
SHEET INDEX

SHEET NO. DRAWING LIST

SHEET NO.	DRAWING LIST
1	G-001 COVER SHEET
2	G-002 KEY PLAN - ABBREVIATIONS - SURVEY CONTROL
3	G-003 GENERAL LEGEND
4	G-004 GENERAL NOTES
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6	C-001 PLAN AND PROFILE MILLER ROAD
7	C-002 PLAN AND PROFILE MILLER ROAD
8	C-003 PLAN AND PROFILE MILLER ROAD
9	C-004 PLAN AND PROFILE MILLER ROAD
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20	C-015 PLAN AND PROFILE MILLER ROAD
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28	D-001 JACK AND BORE CROSSING DETAIL
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30	D-003 BORING LOGS

REVISIONS: 1 2 3 PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION COVER SHEET MILLER ROAD	
ENGINEER INFORMATION 1661 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE 12/12/19	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 1 OF 30
G-001	

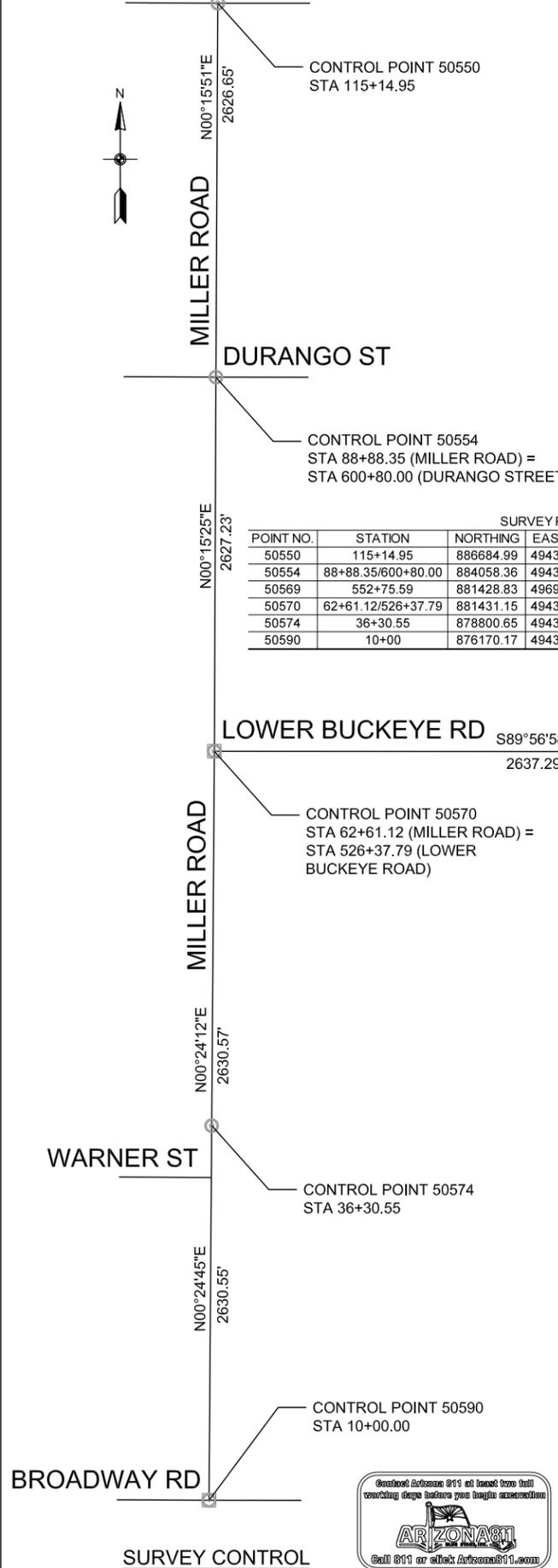
SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



ABBREVIATIONS

A	ARCHITECTURAL	M	MARICOPA COUNTY DEPARTMENT
AA	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	MCDOT	OF TRANSPORTATION
ABC	AGGREGATE BASE COURSE	MFT	MANUFACTURER
AC	ASPHALT CONCRETE	MANH	MANHOLE
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION	MIN	MINIMUM
ALT	ALTERNATE	MINS	MINUTES
ALUM	ALUMINUM	MJ	MECHANICAL JOINT
APPROX	APPROXIMATELY	MV	MILLIVOLT
ASP	ASPHALT PAVEMENT	MW	MEGAWATT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	N	NORTH
B		NC	NORMALLY CLOSED
BF	BLIND FLANGE	NE	NORTHEAST
BCFL	BRASS CAP FLUSH	NO	NORMALLY OPEN
BCHH	BRASS CAP HANDHOLE	NOM	NOMINAL
BHP	BRAKE HORSEPOWER	NPW	NON-POTABLE WATER
BM	BENCHMARK	NS	NON SALVAGEABLE
BOT	BOTTOM	NTS	NOT TO SCALE
C		NW	NORTHWEST
CC	CENTER TO CENTER	O	ON CENTER
C OR CL	CENTER LINE	OC	ODOR CONTROL DRAIN
CISP	CAST IRON SOIL PIPE	OD	OUTSIDE DIAMETER
CLR	CLEAR OR CLEARANCE	OF	OVERFLOW
CLSM	CONTROLLED LOW STRENGTH MATERIAL	OHE	OVERHEAD ELEC. POWER LINES
CO	CLEAN OUT	P	
CONC	CONCRETE	PCU	PROCESS CONTROL UNIT
CONN	CONNECTION	PB	PULL BOX
CONT	CONTINUOUS OR CONTINUATION	PE	PLAIN END
COB	CITY OF BUCKEYE	PF	POWER FACTOR
CLPG	COUPLING	PI	PRESSURE INDICATOR
CV	CHECK VALVE	PL/PLT	PLATE/PROPERTY LINE
D		PLC	PROGRAMMABLE LOGIC CONTROLLER
DBL	DOUBLE	PMP	PUMP
DEGREE	ANGULAR DEGREES	PRESS	PRESSURE
DG	DECOMPOSED GRANITE	PS	PRESSURE SWITCH
DI	DUCTILE IRON	PV	PLUG VALVE
DIP	DUCTILE IRON PIPE	Q	QUANTITY
DIA	DIAMETER	QTY	
D	DRAIN/DESTROY	R	
DTL	DETAIL	R/W	RIGHT OF WAY
DWG	DRAWING	RD	ROAD
E		REINF	REINFORCING, REINFORCEMENT
EA	ELECTRICAL/EAST	REQ'D	REQUIRED
EACH		RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
ECC	ECCENTRIC	RGS	RIGID GALVANIZED STEEL
EFF	EFFICIENCY	RIP	REMAIN IN PLACE
EJ	EXPANSION JOINT	RPM	REVOLUTIONS PER MINUTE
EL/ELEV	ELEVATION	RTU	REMOTE TERMINAL UNIT
EMER	EMERGENCY	S	
EMH	ELECTRICAL MANHOLE	S	STRUCTURAL/SOUTH/SALVAGEABLE/SALVAGE
EQUIP	EQUIPMENT	SCH	SCHEDULE
EX	EXISTING	SE	SOUTHEAST
EW	EACH WAY	SECS	SECONDS
F		SECT	SECTION
FA	FOUL AIR	SHT	SHEET
FC	FLEXIBLE CONNECTOR	SIM	SIMILAR
FH	FIRE HYDRANT	SL	SECTION LINE
FIN	FINISHED GRADE	SMH	SANITARY SEWER MANHOLE
FM	FORCE MAIN	SPECS	SPECIFICATIONS
FO	FIBER OPTIC	SQ	SQUARE/ SQUARE YARDS
FT	FOOT OR FEET	SRP	SALT RIVER PROJECT
G		SRW	SERVICE WATER
GA	GUAGE	SS	SANITARY SEWER
GALL	GALLON	SST	STAINLESS STEEL
GALV	GALVANIZED	STA	STATION
GLV	GLOBE VALVE	STD	STANDARD
GLV	GLOBE VALVE	STDR	STORM DRAIN
GND	GROUND	STL	STEEL
GPH	GALLONS PER HOUR	SW	SOUTHWEST
GPM	GALLONS PER MINUTE	T	
GSP	GALVANIZED STEEL PIPE	T	TELEPHONE
GV	GATE VALVE	T	TOP OF
H		TB	TERMINATION BOX/ TOP AND BOTTOM
H	HIGH	TEMP	TEMPERATURE OR TEMPORARY
HCP	HORIZONTAL CONTROL POINT	THK	THICK
HDPE	HIGH DENSITY POLYETHYLENE	TMH	TELEPHONE MANHOLE
HORIZ	HORIZONTAL	TOC	TOP OF CONCRETE
HPT	HIGH POINT	TOG	TOP OF GRATING
HP	HORSEPOWER	TOW/TW	TOP OF WALL
HZ	HERTZ	TOS	TOP OF SLAB
I		TR	TRANSUDER
ID	INSIDE DIAMETER	TYP	TYPICAL
IE	INVERT ELEVATION	U	
IN.	INCH/INCHES	UG	UNDERGROUND
IP	IRON PIPE	V	
IPS	IRON PIPE SIZE	V	VENT
IRG	IRRIGATION	VAC	VACUUM
J		VACBK	VACUUM BREAKER
JB	JUNCTION BOX	VB	VALVE BOX
JT	JOINT	VCP	VITRIFIED CLAY PIPE
L		VERT	VERTICAL
L	LEFT OF SECTION LINE/ CONSTRUCTION CENTERLINE	W	
∠	ANGLE	W	WATER/ WEST
LB	POUND	W	WITH
LCP	LOCAL CONTROL PANEL	WC	WATER COLUMN
LF	LINEAR FEET	WIDE	WIDE
LGTH	LENGTH	WS	WATER SURFACE
LI	LEVEL INDICATOR	WW	WASTE WATER
LP	LOW POINT	X	
LRFD	LOAD AND RESISTANCE FACTOR DESIGN	XP	EXPLOSION PROOF
LS	LIFT STATION	XFER	TRANSFER
M			
M	MECHANICAL		
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS		
MAX	MAXIMUM		
MCC	MOTOR CONTROL CENTER		

SALOME / YUMA



SURVEY NOTES:

1. SURVEYED UNDER SUPERVISION OF ALAN DILL, RLS, CERTIFICATE NO. 45362, DURING THE MONTH OF MARCH 2019.
2. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROLS IN THE FIELD PRIOR TO CONSTRUCTION.

BASIS OF BEARING:

GRID NORTH NAD 83 (92) STATE PLANE ARIZONA CENTRAL ZONE MARICOPA COUNTY RECORD OF SURVEY, BOOK 638, PAGE 32, MARICOPA COUNTY RECORDERS OFFICE, MARICOPA COUNTY, ARIZONA

BENCH MARK:

2" BRASS CAP IN HAND HOLE AT THE INTERSECTION OF MILLER ROAD AND LOWER BUCKEYE ROAD, N=881431.15 E=494338.18, ELEVATION 1025.50, NORTHWEST CORNER OF SECTION 20, T-1-N, R-3-W, HORIZONTAL CONTROL: NAD 83 DATUM (GROUND) VERTICAL CONTROL: NAVD 88 GRID ADJUSTMENT FACTOR (G.A.F.)= 1.000095923 APPLIED AROUND N=0.0, E=0.0 MCDOT GDACS - GEO-DENSIFICATION AND CADASTRAL SURVEY SYSTEM

SURVEY POINT DATA TABLE

POINT NO.	STATION	NORTHING	EASTING	EL	DESCRIPTION
50550	115+14.95	886684.99	494362.07	-	FD 3/4" IP SALOME-YUMA/MILLER RD
50554	88+88.35/600+80.00	884058.36	494349.97	1056.83	GDACS SEC COR DURANGO/MILLER RD
50569	552+75.59	881428.83	496975.47	1025.46	FD 3/4" BAR LOWER BUCKEYE S1/4 COR
50570	62+61.12/526+37.79	881431.15	494338.18	1025.50	FD BCHH LOWER BUCKEYE/MILLER RD
50574	36+30.55	878800.65	494319.66	1000.69	FD BCFL WARNER/MILLER RD
50590	10+00	876170.17	494300.71	973.71	FD 3" BCHH BROADWAY/MILLER RD

REVISIONS:

1	
2	
3	

PLAN NAME

CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
KEY PLAN - ABBREVIATIONS - SURVEY CONTROL
MILLER ROAD

ENGINEER INFORMATION

Stanley Consultants inc.
1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016
www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL

ORIGINAL PLAN DATE 12/12/19

LATEST REVISION DATE 12/12/19

PROJECT NUMBER 28688

SHEET NUMBER 2 OF 30

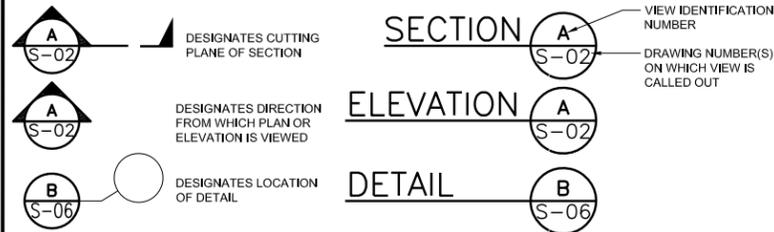
G-002

ARIZONA
Professional Engineer
24001 LARRY J. LEISCHNER
No. 123456789
Expires 12/31/2024

COB PLAN TRACKING #

COB PERMIT #

VIEW MARKERS



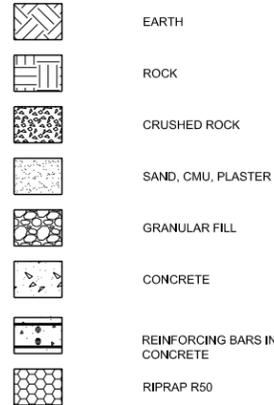
DIMENSIONS AND SCALE

DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+/-) MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. DIMENSIONS ARE GENERALLY TO SCALE, BUT SHOULD NOT BE SCALED. USE DIMENSIONS SHOWN. NTS (NOT TO SCALE) IS SHOWN ONLY WHERE DIMENSION IS OBVIOUSLY OUT OF SCALE. NUMERIC SCALE VALUES (1/4"=1'-0", ETC) APPLY ONLY AT FULL SIZE.

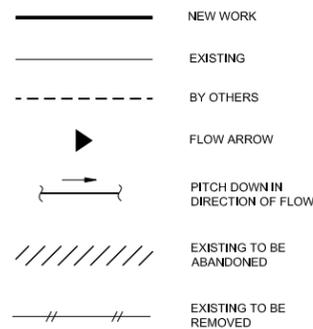
FIELD MEASUREMENT NOTES

- ALL DIMENSIONS OF EXISTING CONSTRUCTION ARE APPROXIMATE. CONTRACTOR SHALL SURVEY AND MAKE ALL NECESSARY FIELD MEASUREMENTS OF EXISTING STRUCTURES AND EQUIPMENT TO VERIFY DIMENSIONS SHOWN ON DRAWINGS, AND TO PROVIDE DIMENSIONS NOT SHOWN PRIOR TO FABRICATION. ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED SHALL BE REPORTED IN WRITING TO THE DESIGN PROFESSIONAL AND OWNER'S REPRESENTATIVE WITHIN TWENTY-FOUR (24) HOURS. COSTS FOR MODIFICATIONS OF NEW CONSTRUCTION, DUE TO LACK OF CONFIRMATION OF DIMENSIONS BY FIELD MEASUREMENTS, SHALL BE BORNE BY CONTRACTOR.
- CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS TO DETERMINE THE EXACT LOCATION OF ALL WORK AND VERIFY SPATIAL RELATIONSHIPS OF ALL WORK. ANY QUESTION CONCERNING LOCATION OR SPATIAL RELATIONSHIPS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE. SPECIFIC LOCATIONS FOR EQUIPMENT, PIPELINES, DUCTWORK AND OTHER SUCH ITEMS OF WORK, WHERE NOT DIMENSIONED ON DRAWINGS, SHALL BE DETERMINED "IN CONSULTATION WITH OWNER'S REPRESENTATIVE AND DESIGN PROFESSIONAL" "BY CONTRACTOR". CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF THE WORK IN PLACE.

MATERIALS LEGEND

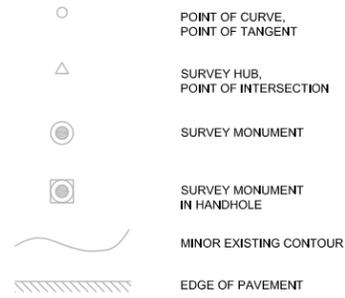


GENERAL

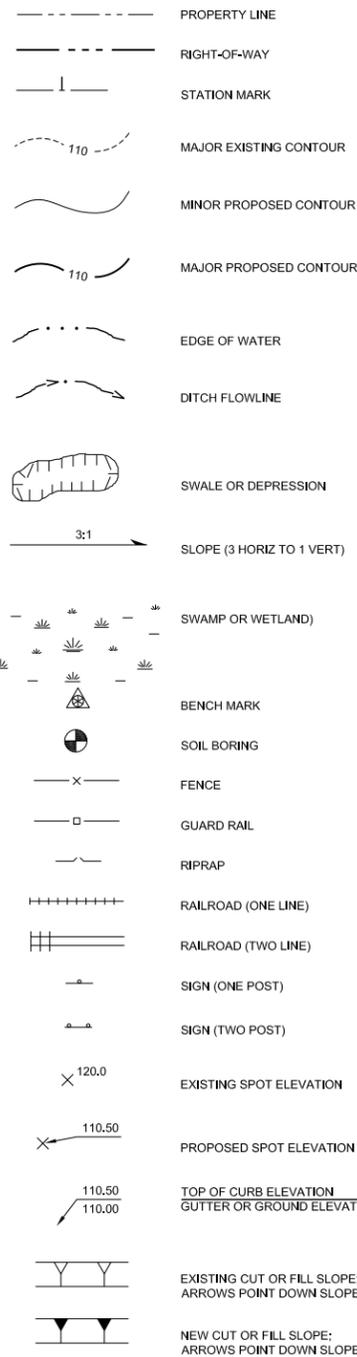


SYMBOLS

EXISTING FEATURES

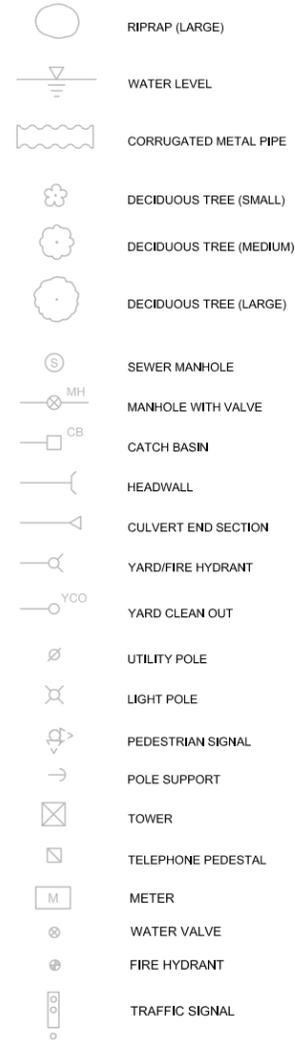


PROPOSED FEATURES

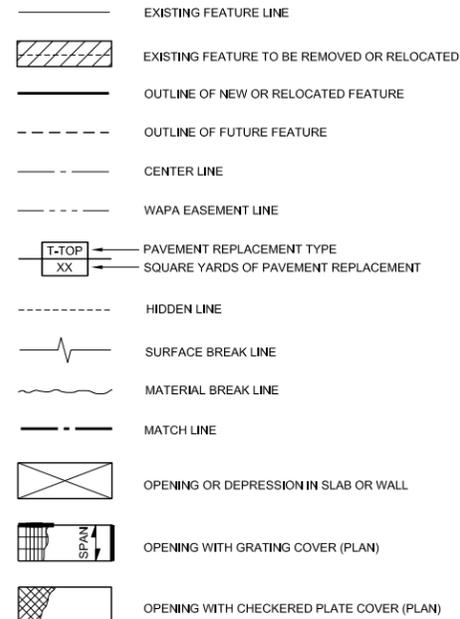


SYMBOLS

EXISTING FEATURES



PROPOSED FEATURES

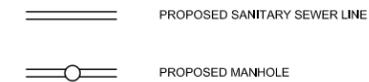


UTILITY LINES

EXISTING FEATURES



PROPOSED FEATURES



REVISIONS:



PLAN NAME

CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
GENERAL LEGEND
MILLER ROAD

ENGINEER INFORMATION



COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

AS-BUILT SEAL

DESIGN SEAL



ORIGINAL PLAN DATE

LATEST REVISION DATE

PROJECT NUMBER

SHEET NUMBER

28688

3 OF 30

G-003

SUBMITTAL

COB PLAN TRACKING #
COB PERMIT #



CITY OF BUCKEYE GENERAL CONSTRUCTION NOTES

- CITY OF BUCKEYE BUILDING DEPARTMENT SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY ON-SITE OR OFF SITE CONSTRUCTION. PHONE 623-349-6248 FOR THE HOTLINE. ALL OTHERS FAX THE INSPECTION REQUEST FORM TO 623-349-6221, OR USE THE WEB BASED PERMIT PORTHOLE ACCESS TO SCHEDULE AN INSPECTION (WWW.BUCKEYEAZ.GOV).
- ALL WORK AND MATERIALS MUST CONFORM WITH THESE SPECIFICATIONS. THE CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION AS SPONSORED AND DISTRIBUTED BY THE MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) AND AS AMENDED BY THE CITY OF BUCKEYE (COB).
- A PERMIT IS REQUIRED FROM THE COB FOR ALL CONSTRUCTION WITHIN THE RIGHTS-OF-WAY (ROW).
- THE CONTRACTOR WILL EXPOSE ALL EXISTING UTILITY LINES BEING TIED IN TO VERIFY THEIR LOCATION.
- THE CONTRACTOR WILL LOCATE, OR HAVE LOCATED, ALL EXISTING UNDERGROUND UTILITIES (ELECTRIC, TELEPHONE, PIPELINE, ETC.) AND STRUCTURES IN ADVANCE OF CONSTRUCTION AND WILL ELIMINATE ALL CONFLICTS PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE TO CALL BLUE STAKE PRIOR TO STARTING ANY CONSTRUCTION. NO WORK SHALL BEGIN UNTIL BLUE STAKE IS COMPLETED. BLUE STAKE TELEPHONE NUMBER 602-263-1100 OR 1-800-STAKE-IT.
- A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO STARTING ANY WORK OR NEW PHASE OF WORK. THE CONTRACTOR, KEY SUB-CONTRACTORS, COB INSPECTOR AND REPRESENTATIVE OF THE CITY ENGINEER SHALL ATTEND THIS MEETING.
- ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE COB AND/OR ALL WORK AND MATERIAL NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- DISPOSAL OF EXCESS MATERIAL WITHOUT A PERMIT WITHIN THE COB LIMITS IS PROHIBITED. A USE PERMIT IS REQUIRED FOR DISPOSAL OR STOCKPILING OF MATERIALS WITHIN A RESIDENTIAL AREA. STOCKPILING OF EXCAVATED MATERIAL SHALL NOT EXCEED A HEIGHT OF 6 FEET ABOVE THE NATURAL GROUND ELEVATION. THE SLOPES ON ALL SIDES OF THE STOCKPILED EXCAVATED MATERIAL SHALL NOT EXCEED A 4:1 RATIO OF LENGTH TO HEIGHT.
- EXCAVATION CONTRACTORS MUST IDENTIFY LOCATION FOR DISPOSING OF EXCESS EXCAVATION MATERIAL ALONG WITH A LETTER FROM THE LAND OWNER, GIVING PERMISSION FOR DUMPING PRIOR TO STARTING ANY CONSTRUCTION.
- TRAFFIC CONTROL SHALL BE PROVIDED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE CITY OF PHOENIX BARRICADING MANUAL, MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION, M.A.G. UNIFORM STANDARD DETAIL 401, AND COB REQUIREMENTS. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN AND BARRICADE PLAN TO THE COB FOR APPROVAL WHERE THE CONSTRUCTION OF THE NEW IMPROVEMENTS ARE ADJACENT TO OR CONNECTING TO ANY EXISTING ROADWAY OR PEDESTRIAN FACILITIES. THE TRAFFIC CONTROL PLAN AND BARRICADE PLAN SHALL BE APPROVED BEFORE A PERMIT FOR THE WORK WILL BE ISSUED. THE CONTRACTOR SHALL INSTALL APPROVED BARRICADING AND TRAFFIC CONTROL, AS APPROVED BY THE COB, BEFORE WORK CAN TAKE PLACE. ALL OVERNIGHT BARRICADES SHALL BE LIT AND FUNCTIONING.
- A HAUL PLAN FOR MATERIAL IMPORT OR EXPORT SHALL BE REQUIRED FOR COB REVIEW AND APPROVAL PRIOR TO THE START OF HAULING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY AND FINAL CLEAN-UP OPERATIONS OF ADJACENT, EXISTING PAVED STREETS USED BY CONSTRUCTION TRAFFIC. THIS WORK INCLUDES STREET SWEEPING, POWER BROOM AND WATER AS NEEDED OR DIRECTED BY THE COB.
- ENVIRONMENTAL REQUIREMENTS:
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL RELATED TO THE PROJECT CONSTRUCTION AND SHALL TAKE WHATEVER MEANS NECESSARY TO CONTROL ANY ABNORMAL CONDITIONS.
 - THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING PUBLIC STREETS, AND TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT ALL ROADS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY AND FINAL CLEAN-UP OPERATIONS OF ADJACENT, EXISTING PAVED STREETS USED BY CONSTRUCTION TRAFFIC.
 - TEMPORARY DRAINAGE CONTROL MEASURES MAY BE REQUIRED DURING AND AFTER CONSTRUCTION UNTIL FINAL PROJECT BUILD-OUT IN ACCORDANCE WITH THE APPROVED PLANS AND IN ACCORDANCE WITH ANY ESTABLISHED OR REQUIRED BEST MANAGEMENT PRACTICES (BMP) AS PART OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET ALL REQUIREMENTS.
 - THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL AIR QUALITY PERMITS.
 - THE CONTRACTOR SHALL SUBMIT TO THE COB A COPY OF THEIR APPROVED COUNTY (AIR QUALITY) DUST CONTROL PLAN, EROSION CONTROL PLAN (SWPPP), AND PERMIT PRIOR TO THE START OF WORK.
- STREET CUTS: APPLICATIONS FOR STREET CUT PERMITS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO APPROVAL OF IMPROVEMENT PLANS. THE PAVEMENT REPLACEMENT SECTION FOR ALL LONGITUDINAL AND TRANSVERSE TRENCHES LOCATED IN AN EXISTING PAVED STREET SHALL BE CONSTRUCTED IN ACCORDANCE M.A.G. UNIFORM STANDARD DETAIL NO. 200 TT-TOP, BACKFILL, PAVEMENT SURFACE REPLACEMENT, MODIFIED AS FOLLOWS: THE WIDTH OF THE REPLACED PAVEMENT SECTION EXTEND 1 FOOT BEYOND THE TRENCH SIDE EDGE LINE, ON EITHER SIDE OF THE TRENCH. THE DEPTH OF THE PERMANENT SURFACE REPLACEMENT SHALL BE A MINIMUM OF 3 INCHES OR MATCH THE EXISTING THICKNESS OF THE PAVEMENT, WHICHEVER IS GREATER. SAWCUT OR CONSTRUCTION JOINTS SHALL BE ADEQUATELY TACK OILED WITH A MINIMUM OF 95% COVERAGE. ASPHALT MATERIAL SHALL BE A COB APPROVED MIX DESIGN WITH COMPACTED LIFTS NO GREATER THAN 3 INCHES. SLURRY BACKFILL OR OPEN TRENCHES IN EXISTING ROADWAYS MUST BE PROPERLY STEEL PLATED AND BARRICADED OVER NIGHT. STEEL PLATES TO BE MILLED FLUSH WITH ROADWAY SURFACE PER NOTE 24. "COLD MIX" TEMPORARY ASPHALT PATCHES MUST BE REPLACED AS SOON AS POSSIBLE AND CANNOT REMAIN FOR MORE THAN 5 DAYS TIME OR AS REQUIRED BY THE COB. DURING THE 5 DAY PERIOD THE CONTRACTOR IS REQUIRED TO MAINTAIN THE PATCH TO WITHIN MAG STD SPEC 321.5.3. ASPHALT IN PLACE FOR LESS THAN 5 YEARS SHALL BE MILLED AND OVERLAYED A MINIMUM OF 20 FEET PAST TRENCH WALLS, AND IN THE CASE OF MULTIPLE STREET CUTS, THE CONTINUOUS MILL AND OVERLAY SHALL EXTEND A MINIMUM OF 20-FEET PAST END OF THE FURTHEST TRENCH WALLS.
- POTHOLING: NO POTHOLING SHALL BE DONE ON ANY STREET NEWER THAN 2 YEARS OLD. ALL POTHOLING IN EXISTING STREETS SHALL BE DONE USING WATER/AIR/VACUUM TYPE METHOD. POTHOLE SIZE SHALL BE LIMITED TO A 12 INCH BY 12 INCH SQUARE HOLE. REMOVAL MATERIAL CANNOT BE USED FOR BACK FILL. THE CONTRACTOR SHALL USE SLURRY PER MAG SEC. 728. PAVEMENT REPLACEMENT SHALL BE BY APPROVED HOT MIX ASPHALT ONLY. A 3 FOOT BY 3 FOOT PAVEMENT SLURRY SEAL SHALL BE APPLIED AFTER THE ASPHALT IS PLACED.
- AN APPROVED, UP-TO-DATE SET OF PLANS AND A RIGHT-OF-WAY PERMIT SHALL BE MAINTAINED ON THE JOB SITE AT ALL TIMES WHILE WORK IS IN PROGRESS. IF THE PLANS AND PERMITS ARE NOT ON SITE, THE WORK SHALL BE STOPPED UNTIL THE APPROVED PLANS ARE PROVIDED. DEVIATION FROM THE PLANS SHALL NOT BE ALLOWED WITHOUT THE COB'S APPROVAL.
- DAMAGE TO ANY AND ALL ITEMS CAUSED BY CONSTRUCTION OR CONSTRUCTION RELATED WORK SHALL BE REPLACED OR REPAIRED TO THE SAME OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
- ALL PARCEL CONSTRUCTION ACCESS LOCATIONS ARE SUBJECT TO THE CITY ENGINEER'S APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PROPER AND ADEQUATE ACCESS ROADS INSIDE AND THROUGHOUT THE PARCEL ALLOWING FOR INSPECTION ACCESSIBILITY. THIS INCLUDES GRADING, GRADE FILL AND/OR TRENCH PLATES AS REQUIRED.
- THE CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE COB AND THE COB CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE COB.
- THE COB SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES UTILIZED IN CONNECTION WITH THE WORK. THE COB WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS COMPLYING WITH MAG OR COB REQUIREMENTS.

CITY OF BUCKEYE GENERAL CONSTRUCTION NOTES (CONTINUED)

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING CERTIFIED AS-BUILT RECORD DOCUMENTS TO THE COB FOR REVIEW AND APPROVAL. NO FINAL ACCEPTANCE SHALL BE ISSUED UNTIL "AS-BUILT" PLANS CERTIFIED BY THE PROJECT ENGINEER/LAND SURVEYOR HAVE BEEN SUBMITTED AND ACCEPTED BY THE COB. FINAL CONSTRUCTION ACCEPTANCE OR THE RELEASE OF CERTIFICATE OF OCCUPANCIES SHALL NOT BE ISSUED UNTIL ALL AS-BUILT DRAWINGS AND OTHER REQUIRED DOCUMENTS PER THE COB'S FINAL PROJECT SUBMITTAL CHECKLIST, HAVE BEEN REVIEWED AND APPROVED BY THE CITY ENGINEER.
- ARRANGEMENTS FOR CONSTRUCTION WATER CAN BE MADE BY CALLING THE WATER RESOURCE DEPARTMENT AT (623) 349-6800.
- THE COB IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGES TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION. ALSO, THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR RELOCATION OF UTILITIES.
- ALL CONTRACTORS SHALL CONTRACT FOR TRASH PICKUP THROUGH A LICENSED CITY OF BUCKEYE SOLID WASTE HAULER (602-237-2078) AND DISPOSED OF AT THE SOUTHWEST REGIONAL LANDFILL IN BUCKEYE.
- OPEN TRENCHES ACROSS DRIVEWAYS, STREETS AND CROSS-STREETS SHALL BE PLATED FOR OVERNIGHT, WEEKEND OR EXTENDED PERIODS, PER M.A.G. UNIFORM STANDARD DETAIL 211.
- ALL ABC SHALL BE FROM AN ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) APPROVED SOURCE LIST.
- LONGITUDINAL TRENCH BACKFILL IN EXISTING ARTERIAL, COLLECTOR, OR LOCAL ROADWAYS OR ADJACENT TO EXISTING ROADWAY (WHEN THE TRENCH EXCAVATION FALLS WITHIN 2 FEET OF EDGE OF PAVEMENT) SHALL REQUIRE 1/2 SACK CLSM PER MAG SPEC 728 FULL DEPTH OR ABC FULL DEPTH AS DIRECTED BY THE COB. ABC BACKFILL COMPACTION SHALL BE BY AN APPROVED MECHANICAL METHOD (NO WATER SETTLING) WITH BACKFILL MATERIAL LIFTS AS FOLLOWS:
 - 12 INCH LIFTS (LOOSE) TO BE USED IN THE TOP 4 FEET OF THE TRENCH
 - 24 INCH LIFTS (LOOSE) TO BE USED FROM 1 FOOT OVER THE PIPE TO 4 FEET FROM THE TOP OF THE TRENCH PER MAG SEC. 601.4.
- ALL BACKFILL WITHIN OR ADJACENT TO EXISTING ROADWAYS SHALL BE MECHANICALLY COMPACTED.
- TRANSVERSE TRENCH BACKFILL IN ALL EXISTING ROADWAYS SHALL REQUIRE 100% FULL DEPTH HALF SACK CLSM PER MAG SPEC 728.
- ALL MATERIAL SUBMITTALS INCORPORATED IN THE PROJECT SHALL BE SUBMITTED AT OR BEFORE THE PRECONSTRUCTION MEETING FOR REVIEW AND APPROVAL BY THE CITY ENGINEER.

ROOSEVELT IRRIGATION DISTRICT GENERAL NOTES:

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

ROOSEVELT IRRIGATION DISTRICT GRADING NOTES:

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

ROOSEVELT IRRIGATION DISTRICT LANDSCAPE NOTES:

- CONTRACTOR/INSTALLER TO MARK A NO-TREE ZONE - AT 50' INTERVALS, WHICH WILL INCLUDE THE CENTERLINE OF RID PIPE AND A XX' OFFSET BOTH SIDES OF RID PIPE. ALL PLANTINGS WITHIN THIS ZONE TO BE CONFIRMED TO MATCH PLANS PRIOR TO INSTALLATION.
- PLANT IDENTIFICATION TAGS FOR ALL PLANTINGS WITHIN NO-TREE ZONE TO REMAIN ON PLANTS UNTIL RID CONSTRUCTION OBSERVER HAS CONFIRMED AND ACCEPTED PLANTING LOCATION.
- ANY PLANTINGS NOT SPECIFICALLY INDICATED IN APPROVED LANDSCAPE PLANS CANNOT BE SUBSTITUTED WITHOUT RID REVIEW AND WRITTEN CONSENT.

ROOSEVELT IRRIGATION DISTRICT STREET LIGHT AND TRAFFIC SIGNAL NOTES:

- ALL NEW STREET LIGHT & TRAFFIC SIGNAL CONSTRUCTION TO BE STAKED IN ADVANCE AND THE RID CONSTRUCTION OBSERVER TO VERIFY FOR COMPLIANCE WITH MINIMUM CLEARANCES TO RID FACILITIES.

ROOSEVELT IRRIGATION DISTRICT SIGNAGE AND STRIPING NOTES:

- ALL NEW SIGNAGE CONSTRUCTION TO BE STAKED IN ADVANCE AND THE RID CONSTRUCTION OBSERVER TO VERIFY FOR COMPLIANCE WITH MINIMUM CLEARANCES TO RID FACILITIES.

CITY OF BUCKEYE GRADING NOTES

- ALL DESIGN AND CONSTRUCTION MUST BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION PUBLISHED BY THE MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) EXCEPT AS AMENDED BY THE CITY OF BUCKEYE STANDARD CONSTRUCTION DETAILS. ALL IMPROVEMENTS WITHIN THE DEVELOPMENT INCLUDING OFFSITE IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE LATEST CITY OF BUCKEYE ENGINEERING DESIGN STANDARDS.
- NO GRADING SHALL BEGIN WITHOUT A PERMIT FROM THE CITY OF BUCKEYE.
- OFFSITE CONSTRUCTION REQUIRES A SEPARATE PERMIT BY THE CITY OF BUCKEYE.
- CONTRACTOR SHALL NOTIFY THE CITY OF BUCKEYE PUBLIC WORKS DEPARTMENT ASSIGNED INSPECTOR AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF ANY REQUIRED CONSTRUCTION INSPECTION.
- CONTRACTOR MUST CALL THE ARIZONA BLUE STAKE CENTER (602) 263-1100 FORTY-EIGHT (48) HOURS BEFORE DIGGING OR EXCAVATING FOR LOCATION OF ALL UNDERGROUND UTILITIES.
- IT IS THE RESPONSIBILITY OF THE DEVELOPER AND HIS/HER AGENT IN COORDINATING THE RELOCATION OF POWER POLES FROM THE APPLICABLE UTILITY COMPANY.
- NO MINIMUM FINISHED FLOOR ELEVATION SHALL BE ALTERED, UNLESS APPROVED BY PUBLIC WORKS AND THE DEVELOPER'S CIVIL ENGINEER.
- ALL STAKING INCLUDING FINISHED FLOOR ELEVATIONS IS THE SOLE RESPONSIBILITY OF THE DEVELOPER'S REGISTERED CIVIL ENGINEER AND LAND SURVEYOR. SUBMISSION OF CERTIFIED PAD ELEVATIONS IS REQUIRED PRIOR TO FINAL ACCEPTANCE.
- CONTRACTOR SHALL PROVIDE GRADING FOR POSITIVE DRAINAGE IN ALL RETENTION BASINS AT ELEVATIONS AS ABUTTING PUBLIC RIGHT OF WAY.
- DRYWELL INLET GRATE SHALL BE 0,30 FEET ABOVE FINISH GRADE AT BOTTOM ELEVATION OF THE RETENTION BASIN.
- DRILLING LOGS FOR DRYWELLS AT 5.0 FOOT INTERVALS INCLUDING LITHOLOGY CHANGES WILL BE FURNISHED TO THE CITY OF BUCKEYE PUBLIC WORKS DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
- PERCOLATION TESTS WILL BE REQUIRED OF COMPLETED DRYWELLS PRIOR TO ACCEPTANCE. SHOULD EXISTING SOIL CONDITIONS BE ENCOUNTERED WHICH LACK SUFFICIENT PERCOLATION RATES, ADDITIONAL DRYWELLS OR AN ALTERNATE METHOD OF STORM WATER RUN-OFF DISPOSAL WILL BE REQUIRED. FINAL CERTIFIED PERCOLATION TEST RATES FROM ASTM D 3385 SHALL BE SUBMITTED AT THE TIME OF AS-BUILTS, WITH THE REQUIRED 50% REDUCTION FACTOR.
- DRYWELL CONSTRUCTION SHALL BE DONE ONLY BY A CONTRACTOR LICENSED BY THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY WITH THE APPROVED REGISTRATION FOR EACH DRYWELL.
- THE APPROVED DRYWELL REGISTRATION SHALL BE SUBMITTED TO THE CITY BY THE DEVELOPER OR HIS/HER CIVIL ENGINEER AT THE TIME AS-BUILTS ARE SUBMITTED.
- CONTRACTOR SHALL COMPLY WITH THE PROVISIONS FOR WORK ZONE SAFETY AND TRAFFIC CONTROL PROTECTION AS INDICATED IN PART IV OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD 2003 EDITION) AND WHERE APPLICABLE ACROSS JURISDICTIONAL AUTHORITIES BUT WITHIN THE CITY OF BUCKEYE, MCDOT, AND ADOT'S TRAFFIC CONTROL MANUAL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE (MOST CURRENT EDITION).
- ALL RETENTION BASINS MUST DRAIN ANY STORM EVENT UP TO AND INCLUDING THE 100 YEAR 2 HOUR STORM WITHIN THIRTY-SIX(36) HOURS OF POST DEVELOPMENT CONSTRUCTION. OWNER(S) OF ANY BASIN FAILING TO MEET THIS REQUIREMENT MUST TAKE CORRECTIVE ACTION TO BRING THE BASIN INTO COMPLIANCE.
- THE CONTRACTOR SHALL NOT DISTURB EXISTING SURVEY MONUMENTS OR BENCHMARKS NOTED ON THE PLANS. REMOVAL AND REPLACEMENT SHALL BE DONE BY AN ARIZONA REGISTERED LAND SURVEYOR ONLY.
- THE CONTRACTOR SHALL HAVE SUFFICIENT MEANS TO PROVIDE DUST CONTROL. DUST SHALL BE CONTROLLED IN ACCORDANCE WITH THE MARICOPA COUNTY ENVIRONMENTAL SERVICES.
- PERIMETER WALL FENCES ARE REQUIRED TO BE COMPACTED NO LESS THAN 90% BY THE CONTRACTOR.
- ARRANGEMENTS FOR CONSTRUCTION WATER CAN BE MADE BY CALLING THE CITY OF BUCKEYE PUBLIC WORKS DEPARTMENT AT 623-349-6800.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR THE ELIMINATION OF MUD AND DUST ACCUMULATION IN PUBLIC STREETS BY TRUCKS LEAVING THE SITE (TRACK OUT DEVICES), PUBLIC RIGHT OF WAYS SHALL BE KEPT CLEAN AND FREE OF DEBRIS FROM CONSTRUCTION SITES.
- DISPOSAL OF EXCESS MATERIAL WITHIN THE CITY'S LIMITS IS PROHIBITED. A USE PERMIT IS REQUIRED FOR DISPOSAL AND/OR STOCKPILING MATERIALS WITHIN A RESIDENTIAL AREA.
- APPROVED CONSTRUCTION PLANS SHALL BE KEPT ON THE JOBSITE AT ALL TIMES. DEVIATION FROM THE PLANS IS NOT ACCEPTABLE UNLESS AN APPROVED PLAN REVISION HAS BEEN GRANTED BY PUBLIC WORKS DEPARTMENT.

PROJECT NOTES

- SOILS REPORT PROJECT NO. 182459SA BY SPEEDIE & ASSOCIATES
- THE TOPOGRAPHIC SURVEY INFORMATION SHOWN ON THESE DRAWINGS WERE PROVIDED BY AEROTECH MAPPING INC. 8433 N. BLACK CANYON HWY., SUITE 120 PHOENIX AZ. 85021 (623)242-7656

PROJECT SITE:

TOTAL AREA OF DISTURBANCE = 2.20 AC
TOTAL LENGTH OF PROJECT = 9,516 LF



REVISIONS:	
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PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION GENERAL NOTES MILLER ROAD	
ENGINEER INFORMATION	
 <small>1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com</small>	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
28688	4 OF 30
G-004	

SUBMITTAL
COB PLAN TRACKING #
COB PERMIT #

CITY OF BUCKEYE ENGINEERING NOTES

- THE CONTRACTOR SHALL PROVIDE ALL SURVEY CONSTRUCTION STAKING FOR THE PROJECT.
- NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.
- THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK AND HE WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN LOCATED ACCORDING TO INFORMATION PROVIDED BY THE AGENCY OPERATING EACH UTILITY. LOCATIONS SHOWN ARE APPROXIMATE ONLY, AND ARE NOT RELIABLE FOR CONSTRUCTION PURPOSES. CALL BLUE STAKE FOR FIELD LOCATION AT (602) 263-1100, 48 HOURS PRIOR TO CONSTRUCTION.
- THE ENGINEER AND APPLICABLE AGENCY MUST APPROVE, PRIOR TO CONSTRUCTION, ANY ALTERATION OR VARIANCE FROM THESE PLANS. ANY VARIATIONS FROM THESE PLANS SHALL BE PROPOSED ON CONSTRUCTION FIELD PRINTS AND TRANSMITTED TO THE ENGINEER.
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING UTILITIES ON THE SITE. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT ON THE DRAWINGS, SHALL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING FEATURES AND FENCING SHALL BE REPLACED IN KIND.
- ANY INSPECTION BY THE CITY, COUNTY OR THE ENGINEER, SHALL NOT IN ANYWAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH APPLICABLE CODES AND AGENCY REQUIREMENTS.
- CONTRACTOR TO LOCATE ALL EXISTING PROPERTY MONUMENTS PRIOR TO CONSTRUCTION. ANY MONUMENTS DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL STORM DRAIN PIPES AND DRAINAGE FACILITIES FROM DAMAGE DURING ALL STAGES OF CONSTRUCTION. THE DEPTH OF COVER ON THE STORM DRAINAGE PIPE IS DESIGNED FOR FINAL GRADE. THEREFORE, EXTRA CARE SUCH AS BERMING OVER PIPES, FLAGGING OR SIGNAGE SHOULD BE USED DURING CONSTRUCTION TO MAINTAIN COVER OR PROTECT THE PIPES.
- CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND PROVIDING ALL NECESSARY MATERIALS AND LABOR FOR ALL LUMP SUM ITEMS SUCH AS EARTHWORKS, SIGNING AND STRIPING, ETC. TO ACHIEVE THE GRADE AND LAYOUT AS SHOWN ON THE PLANS.
- THE ENGINEER MAKES NO REPRESENTATION OR GUARANTEE REGARDING EARTHWORK QUANTITIES OR THAT THE EARTHWORK FOR THIS PROJECT WILL BALANCE DUE TO THE VARYING FIELD CONDITIONS, CHANGING SOIL TYPE, ALLOWABLE CONSTRUCTION TOLERANCES AND CONSTRUCTION METHODS THAT ARE BEYOND THE CONTROL OF THE ENGINEER.
- PRIOR TO BIDDING THE WORK THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF OR HERSELF AS TO THE ACTUAL CONDITIONS AND EARTHWORK QUANTITIES. IF ANY, NO CLAIM SHALL BE MADE AGAINST THE OWNER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY HEREIN, ACTUAL OR RELATIVE.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL THE REQUIRED PERMITS FOR THE COMPLETION OF THE PROJECT PRIOR TO THE START OF CONSTRUCTION.
- ALL DEBRIS AND EXCESS EXCAVATION MATERIAL SHALL BE REMOVED FROM THE SITE ACCORDING TO THE GENERAL NOTES.
- NO IMPORT MATERIAL WILL BE INCORPORATED INTO THE PROJECT WITHOUT PRIOR TESTING AND APPROVAL BY A REGISTERED GEOTECHNICAL ENGINEER. ALL IMPORTED MATERIAL MUST BE TESTED FOR ENVIRONMENTAL CONTAMINATION, AT NO COST TO THE CITY.
- SUBGRADE SOILS PREPARATION, SITE GRADING, FILL AND COMPACTION SHALL CONFORM TO M.A.G. SECTION 301.
- THE GYRATORY ASPHALT CEMENT PAVEMENT SHALL BE CITY OF BUCKEYE APPROVED.
- THE CONTRACTOR SHALL COORDINATION WITH GLOBAL WATER RESOURCES (JEFF McDONALD, MOBIL 602-361-1294) AND TAKE ALL NECESSARY PRECAUTION TO PROTECT THE EXISTING WATERLINE FACILITIES LOCATED WITHIN THE MILLER ROAD RIGHT-OF-WAY AND ADJACENT STREET CONNECTING TO MILLER ROAD. THE CONTRACTOR SHALL LIMIT THE SPEED OF THE HEAVY EARTH MOVING EQUIPMENT TO 10 M.P.H. IN ORDER TO MINIMIZE THE IMPACT LOADING ON THESE EXISTING WATERLINE FACILITIES.

CITY OF BUCKEYE SPECIAL SEWER NOTES

- EXISTING MANHOLES TO BE CONNECTED TO SHALL BE CLEANED, LINED, AND TESTED PER COB STANDARD SEWER NOTES.
- ALL SEWER LINE TRENCHES PERPENDICULAR OR SKEWED TO CENTERLINE ARE TO BE BACKFILLED WITH 1/2 SACK CLSM TO THE TOP OF SUBGRADE OR AS REQUIRED BY THE CITY OF BUCKEYE ENGINEER.

CITY OF BUCKEYE SEWER NOTES

- BACKFILLING SHALL NOT BE STARTED UNTIL ALL PIPING IS INSPECTED AND APPROVED BY THE COB INSPECTOR.
- ALL SEWER MAINS SHALL BE PRESSURE TESTED AND MANDREL TESTED (FOR FLEXIBLE PIPE) PER MAG SPECIFICATIONS. CONTRACTOR SHALL NOT COMMENCE TESTING WITHIN 30-DAYS OF INSTALLATION.
- UPON COMPLETION OF TESTING AND FLUSHING, ALL SEWER LINE SHALL BE VIDEO INSPECTED NOT SOONER THAN 30 DAYS FOLLOWING BACKFILLING WITH THE CD/DVD PROVIDED TO THE CITY ENGINEER.
- STEPS SHALL NOT BE ALLOWED IN MANHOLES.
- ALL MANHOLE RINGS AND COVERS TO BE CAST IRON PER MAG. MANHOLE LIDS SHALL HAVE THE COB LOGO IMPRINTED ON IT.
- ALL NEW SERVICE TAPS SHALL BE A WYE TYPE. TAPS TO EXISTING MAINS SHALL BE WYE OR "T" TYPE.
- ALL TAPS TO EXISTING MAINS SHALL BE CORE DRILLED OR HOLE SAWED WITH A COB APPROVED BIT. NO CHOP SAWING OR BREAKING OUT OF THE MAIN IS ALLOWED. A COB REPRESENTATIVE FROM THE WATER RESOURCES DEPARTMENT SHALL BE ON SITE DURING ANY TAPPING OF EXISTING MAINS. A COB APPROVED SADDLE SHALL BE USED FOR THE TAP CONNECTION.
- ALL SEWER LINE COMPACTION SHALL BE MAG BACKFILL TYPE 1 PER MAG SECTION 601. BACKFILL AROUND MANHOLES OUTSIDE OF PAVEMENT LIMITS SHALL BE MAG BACKFILL TYPE 3 BACKFILL PER MAG SECTION 601. BACKFILL AROUND MANHOLES INSIDE PAVEMENT LIMITS SHALL BE FULL DEPTH 1/2 SACK CONTROLLED LOW STRENGTH MATERIAL (CLSM) PER MAG SPEC 728 AND COB STD DTL 12100-3.
- ALL SEWER SERVICE CONNECTIONS SHALL BE EXTENDED A SUFFICIENT DISTANCE BEYOND THE PUE LINES TO CLEAR ALL FACILITIES TO BE INSTALLED IN PUBLIC UTILITY EASEMENTS WHICH PARALLEL THE STREET RIGHT OF WAY.
- APPROVED COB COATING SHALL BE USED IN THE FOLLOWING LOCATIONS: ALL MANHOLES IN ARTERIAL STREETS, ALL 5 FOOT DIAMETER OR LARGER MANHOLES, ALL MANHOLES ON SEWERS 18 INCH AND LARGER ALL MANHOLES WITH A FLOW LINE DIFFERENCE GREATER THAN 8 INCHES.
- ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE. VACUUM TESTING SHALL ONLY COMMENCE AFTER FINAL PAVING AND FINAL ADJUSTMENT OF THE RING AND COVER.
- WHERE MANHOLES ARE LOCATED OUTSIDE OF THE STREET OR SIDEWALK THERE SHALL BE A CLASS "B" CONCRETE RING 6 INCHES THICK AND 12 INCHES WIDE WITH FIBER MESH PLACED AROUND THE MANHOLE FRAME AND COVER FLUSH WITH THE TOP OF THE FRAME. THE MANHOLE FRAME SHALL BE SET 6 TO 12 INCHES ABOVE FINISH GRADE. THERE SHALL BE A NO 4 REINFORCING BAR CENTERED IN THE CONCRETE. A GREEN CARSONITE MARKER SHALL BE INSTALLED.
- ALL MANHOLES GREATER THAN 10 FEET DEEP FROM RIM TO THE LOWEST INVERT SHALL BE 5 FEET IN DIAMETER.
- ALL MATERIALS SHALL BE NEW AND UNMATERIALIZED. ANY PIPE SHOWING EVIDENCE OF DEGRADATION SHALL NOT BE ACCEPTED. ALL REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE IMMEDIATELY, OR A CEASE WORK ORDER WILL BE ISSUED.
- ALL UNDERGROUND UTILITIES SHALL BE INSTALLED AND COMPLETELY BACKFILLED PRIOR TO THE TESTING OF THE COB INFRASTRUCTURE. IN THE EVENT PRIVATE AND/OR PUBLIC UTILITIES NEED TO BE RE-EXCAVATED THE PRIOR TEST OF THE COB FACILITIES WILL BE CONSIDERED NULL AND VOID AND RETESTING WILL BE AT THE CONTRACTORS EXPENSE.
- NO UPSTREAM SEWER CONSTRUCTION SHALL START UNTIL THE DOWNSTREAM SEWER MAIN IS COMPLETED AND APPROVED BY THE COB INSPECTOR. PIPE LAYING SHALL COMMENCE AT THE PROPOSED PROJECT OUTFALL ON THE EXISTING COB SEWER AND PROCEED UP STREAM. ANY EXCEPTIONS TO THIS SPECIFICATION SHALL BE APPROVED IN WRITING BY THE CITY ENGINEER.
- A MAG STANDARD DETAIL 427 PLUG SHALL BE INSTALLED IN THE FURTHEST DOWNSTREAM MANHOLE AND REMAIN IN PLACE UNTIL ALL SEWER TESTING AND CLEANING IS COMPLETED. REMOVAL OF THE PLUG SHALL ONLY BE DONE WITH THE SUPERVISION OF THE COB INSPECTOR. UNDER NO CIRCUMSTANCES SHALL THE PLUG BE REMOVED PRIOR TO COB INSPECTION. IN THE EVENT THAT THE PLUG IS REMOVED, THE CONTRACTOR SHALL AT HIS EXPENSE, CLEAN WITH A HYDRO-VAC THE SEWER MAIN DOWNSTREAM TO A LOCATION APPROVED BY THE COB INSPECTOR TO ADEQUATELY REMOVE ALL DEBRIS CARRIED INTO THE COB MAIN. SHOULD THE SEWER PLUG FAIL PRIOR TO THE COB INSPECTION, THE CONTRACTOR SHALL AT HIS EXPENSE, CLEAN WITH A HYDRO-VAC, THE SEWER MAIN DOWNSTREAM TO A LOCATION APPROVED BY THE COB INSPECTOR TO ADEQUATELY REMOVE ALL DEBRIS CARRIED INTO THE COB MAIN. A VIDEO INSPECTION AFTER CLEANING WILL ALSO BE REQUIRED OF THE EXISTING MAIN AND ALL EXPENSES WILL BE PAID BY THE CONTRACTOR. ANY DAMAGES OR CLEANING EXPENSES AT AFFECTED LIFT STATIONS AND LEVIED FINES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO BE LIABLE FOR ANY DAMAGE TO PRIVATE PROPERTY AND/OR ENVIRONMENTAL DAMAGE/CLEANUP.
- NO FERRIS MATERIAL SHALL BE USED ON THE INTERIOR OF THE MANHOLE UNLESS COMPLETELY COATED WITH A COB APPROVED COATING.
- ANY CURB AND GUTTER REMOVED WITH UTILITY MARKINGS SHALL BE REPLACED AND THE UTILITY MARKING SHALL BE RE-STAMPED IN THE CURB.
- MATERIAL SHALL BE SUBMITTED AT OR BEFORE THE PRE-CONSTRUCTION MEETING AND ARE REQUIRED TO INCLUDE:
 - 24" AND 30" FRAME AND COVER
 - 48", 60" AND 72" MANHOLE SHAFT AND CONE
 - 48", 60" AND 72" MANHOLE PRECAST BASE
 - MANHOLE ADJUSTING RINGS
 - MANHOLE LINING SYSTEM
 - MAG SPEC, ABC
 - PRECAST MANHOLE BASE GASKET SYSTEM
 - MANHOLE JOINT SEALANT
 - CAST IN PLACE MANHOLE BASE CONCRETE
 - WATER STOP GASKETS
 - SEWER PIPE FITTINGS
 - COUPLINGS
 - PIPE ZONE MATERIAL: ABC, #57 ROCK, 1/2 SACK SLURRY
 - ADJUSTING RING CONCRETE
 - MARKER BALLS
 - STEEL CASING
 - CASING SPACERS
 - CASING END SEAL
 - PIPE MATERIAL

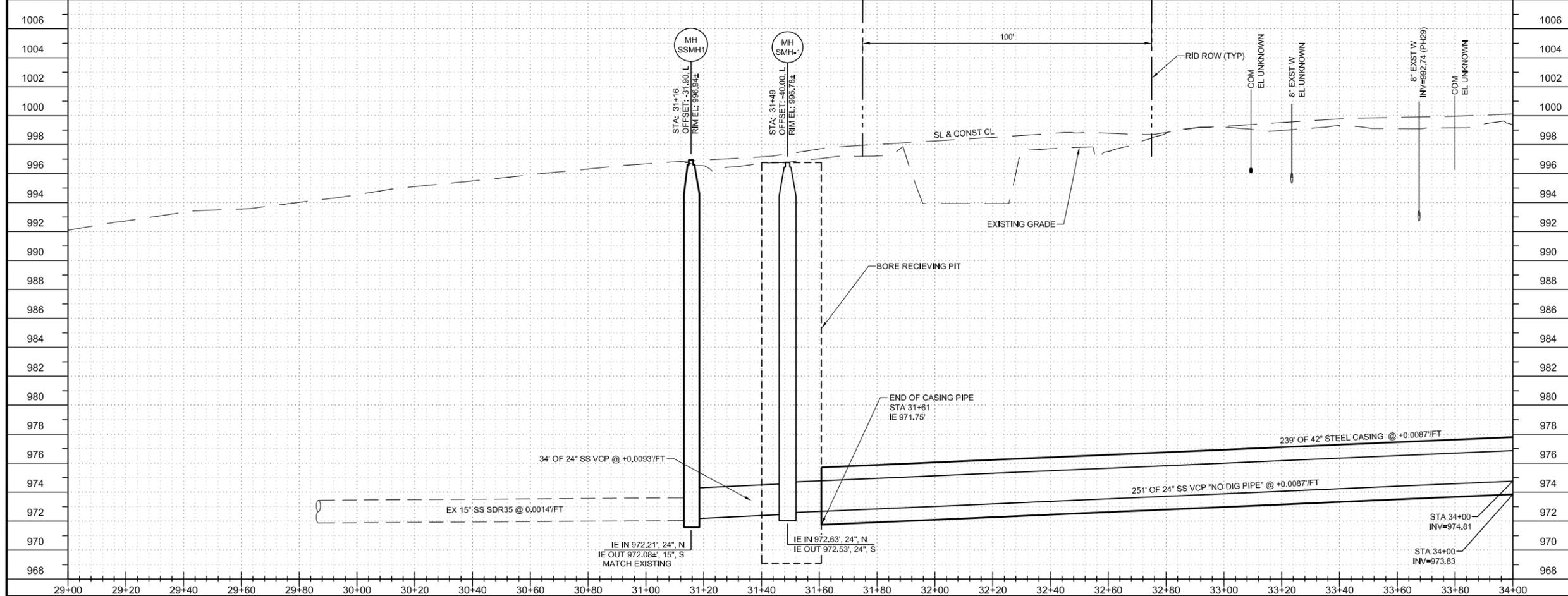
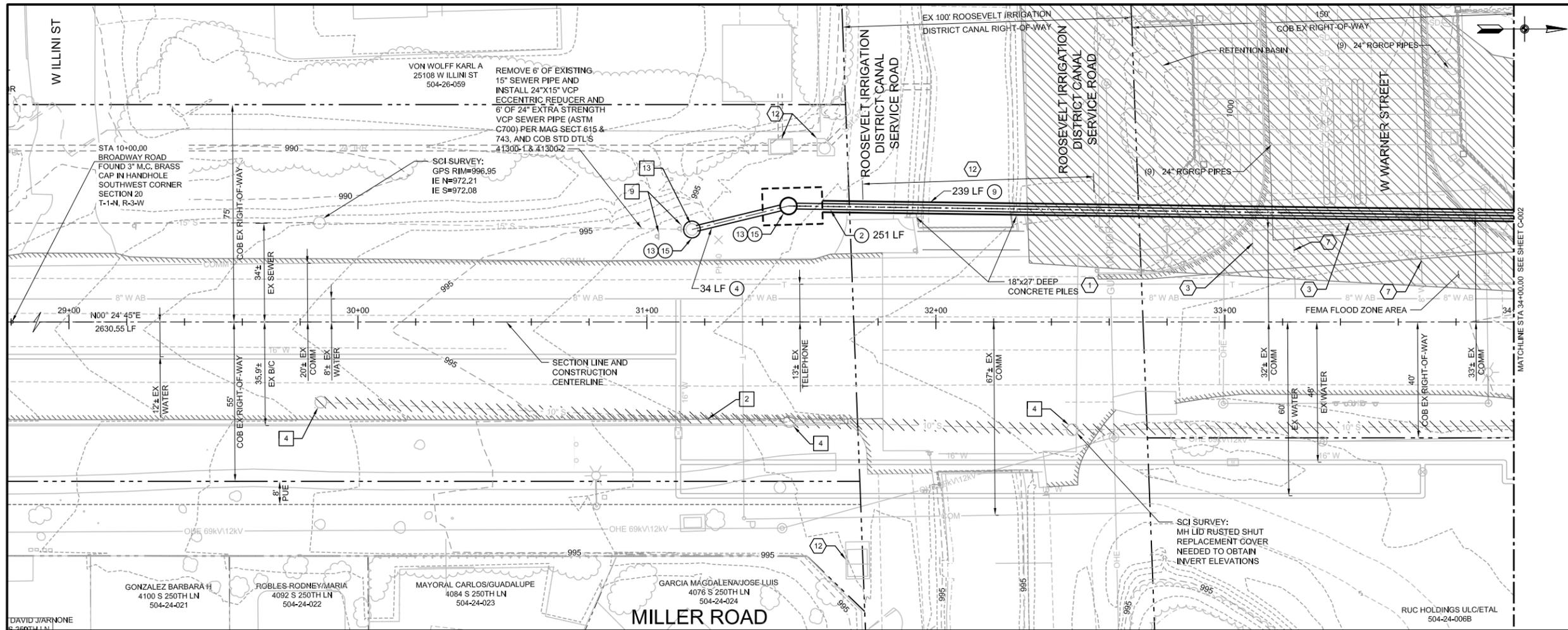
ENGINEER'S NOTES

- 6' MINIMUM COVER IS REQUIRED FOR ALL SEWER PIPE.
- CONNECTIONS TO EXISTING SEWER MAINS OR SERVICES SHALL MAINTAIN EXISTING DIRECTION OF SLOPE UNLESS OTHERWISE INDICATED ON THE PLANS.
- SANITARY SEWER TO MAINTAIN A MINIMUM OF 10' HORIZONTAL CLEARANCE TO DRY UTILITIES.
- SANITARY SEWER TO MAINTAIN A MINIMUM OF 6' HORIZONTAL SEPARATION TO STORM DRAINS, WATER MAINS, RECLAIMED LINES, RAW WATER MAINS, CULVERTS, ETC.
- SEPARATION BETWEEN WATER AND SANITARY SEWER SHALL COMPLY WITH MAG DETAIL NO. 404.
- NO DIP SHALL BE USED FOR SANITARY SEWER.
- SEWER SHALL MAINTAIN 2' MINIMUM VERTICAL SEPARATION FROM ALL UTILITIES.
- MANHOLE SPACING FOR SEWER 8" TO 15" SHALL BE 400' MAXIMUM.
- MANHOLE SPACING FOR SEWER 18" TO 30" SHALL BE 500' MAXIMUM.
- REMOVAL OF SHRUBS AND GROUND COVER FOR TRENCHING IS INCIDENTAL TO PIPE INSTALLATION.

REVISIONS:	
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PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION GENERAL NOTES MILLER ROAD	
ENGINEER INFORMATION  1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL 
ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 5 OF 30
G-005	



SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



NOTES

- 2 INSTALL 24" SEWER PIPE, "NO DIG VCP" PIPE (ASTM C1208) PER MAG SECT 615 & 743.
- 4 INSTALL 24" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 9 INSTALL 42" STEEL CASING BY JACK & BORE, ASTM A-252 GRADE B) PER MAG SECT'S 602 & RID JACK & BORE STANDARDS (SEE RID STANDARDS & DETAIL ON SHEET D-001).
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 13 REMOVE EXISTING SANITARY SEWER MANHOLE.
- 1 PROTECT EXISTING FEATURE IN PLACE.
- 3 PROTECT EXISTING COMMUNICATION IN PLACE.
- 7 PROTECT EXISTING WATER LINE IN PLACE.
- 12 ROOSEVELT IRRIGATION DISTRICT FACILITY CONTRACTOR SHALL PROTECT IN PLACE AT ALL TIMES. CONTRACTOR SHALL CONTACT THE DISTRICT'S CONSTRUCTION OBSERVER AT (602) 284-7017, A MINIMUM OF 15 CALENDAR DAYS PRIOR TO ANY EXCAVATION IN THIS AREA. SEE SHEETS G-005 FOR ROOSEVELT IRRIGATION DISTRICT GENERAL AND GRADING NOTES AND JACK/BORE CROSSING OF RID MAIN CANAL.

Arizona 911 at least two full working days before you begin excavation
ARIZONA 911
 Call 911 or click Arizona911.com

0 10' 20' 40'

SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

REVISIONS:	
1	
2	
3	
PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION Stanley Consultants inc. 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 6 OF 30
C-001	

NOTES

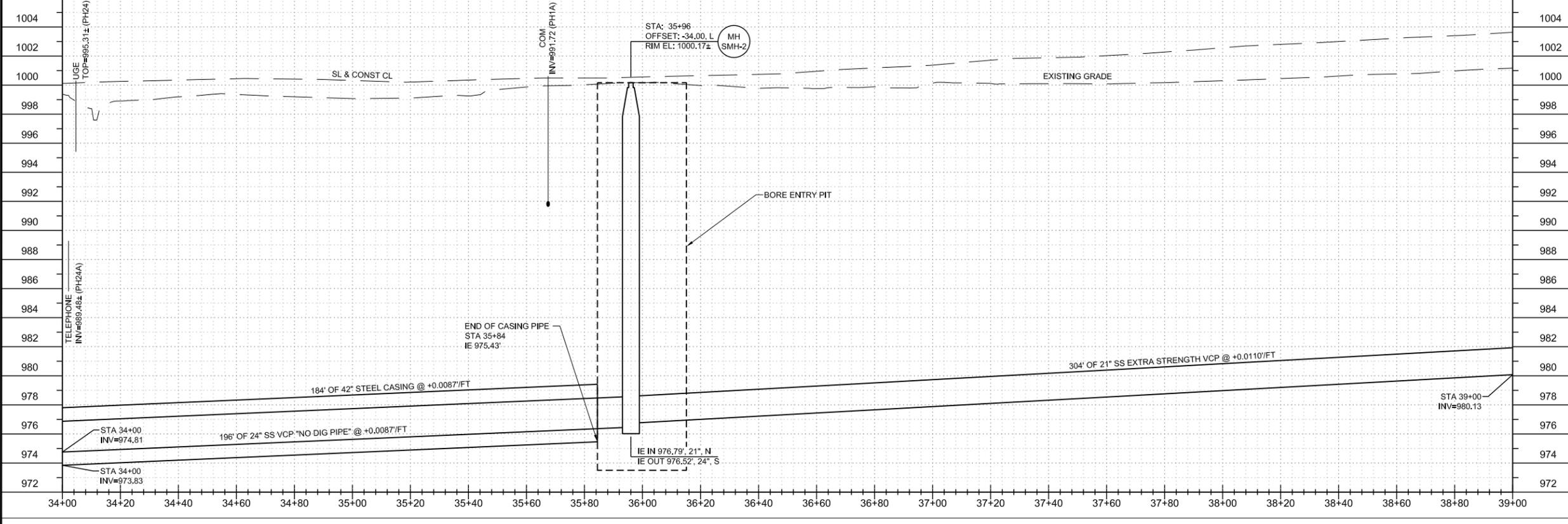
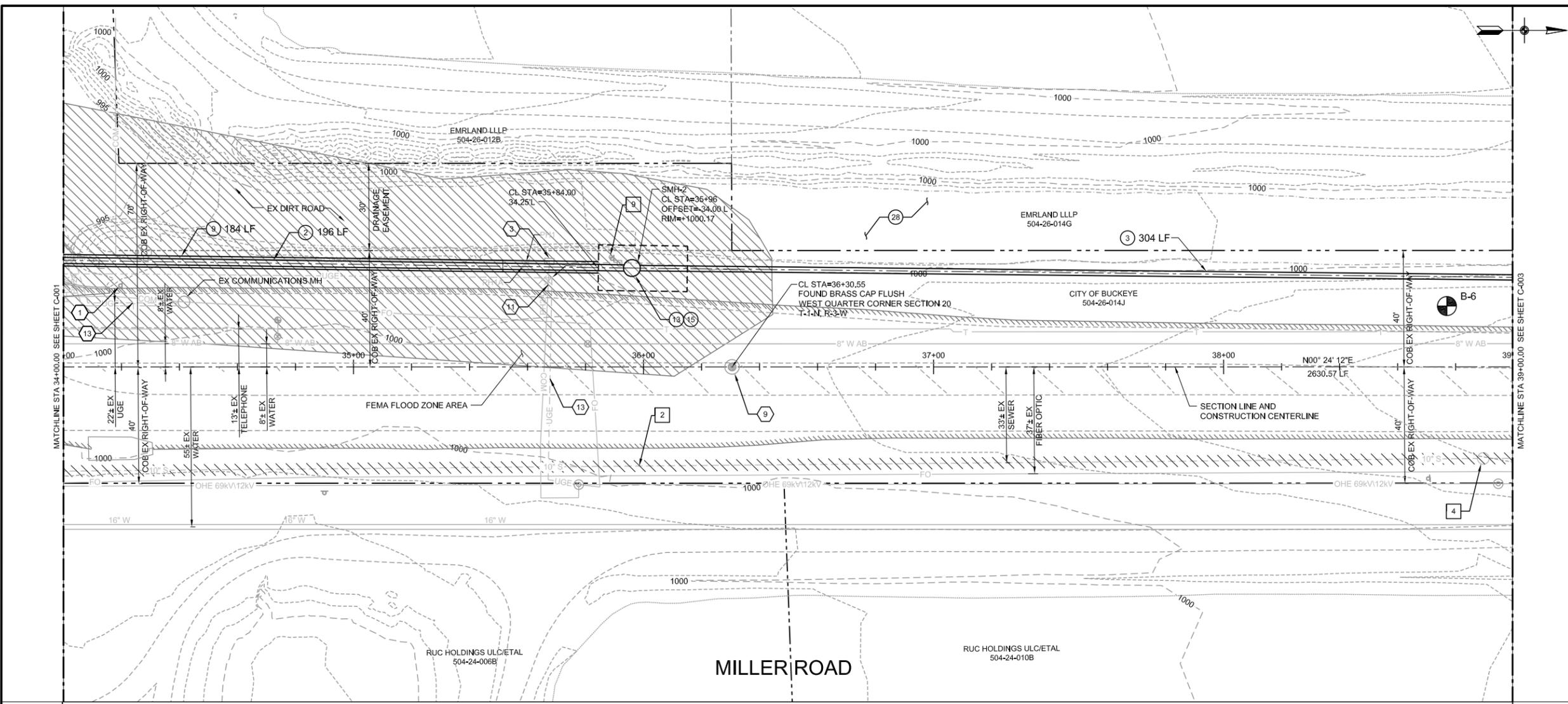
- 2 INSTALL 24" SEWER PIPE, "NO DIG VCP" PIPE (ASTM C1208) PER MAG SECT 615 & 743.
- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 9 INSTALL 42" STEEL CASING BY JACK & BORE, ASTM A-252 GRADE B) PER MAG SECT'S 602 & RID JACK & BORE STANDARDS (SEE RID STANDARDS & DETAIL ON SHEET D-001).
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 28 RESTORE EXISTING DRAINAGE CHANNEL TO ORIGINAL SLOPE AND INVERT ELEVATIONS.
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 1 PROTECT EXISTING FEATURE IN PLACE.
- 3 PROTECT EXISTING COMMUNICATION IN PLACE.
- 9 PROTECT EXISTING SURVEY MARKER IN PLACE.
- 11 PROTECT EXISTING FIBER OPTIC IN PLACE.
- 13 PROTECT EXISTING UGE IN PLACE.

Arizona 811 at least two full working days before you begin excavation
 Call 811 or click Arizona811.com

0 10' 20' 40'

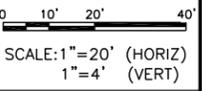
SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

1004	REVISIONS:	
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1000	2	
998	3	
996	PLAN NAME	CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD
994	ENGINEER INFORMATION	 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com
992	COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
990	AS-BUILT SEAL	DESIGN SEAL
988	ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
986	PROJECT NUMBER	SHEET NUMBER 7 OF 30
984	28688	
982		
980		
978		
976		
974		
972		



NOTES

- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 28 RESTORE EXISTING DRAINAGE CHANNEL TO ORIGINAL SLOPE AND INVERT ELEVATIONS.
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.

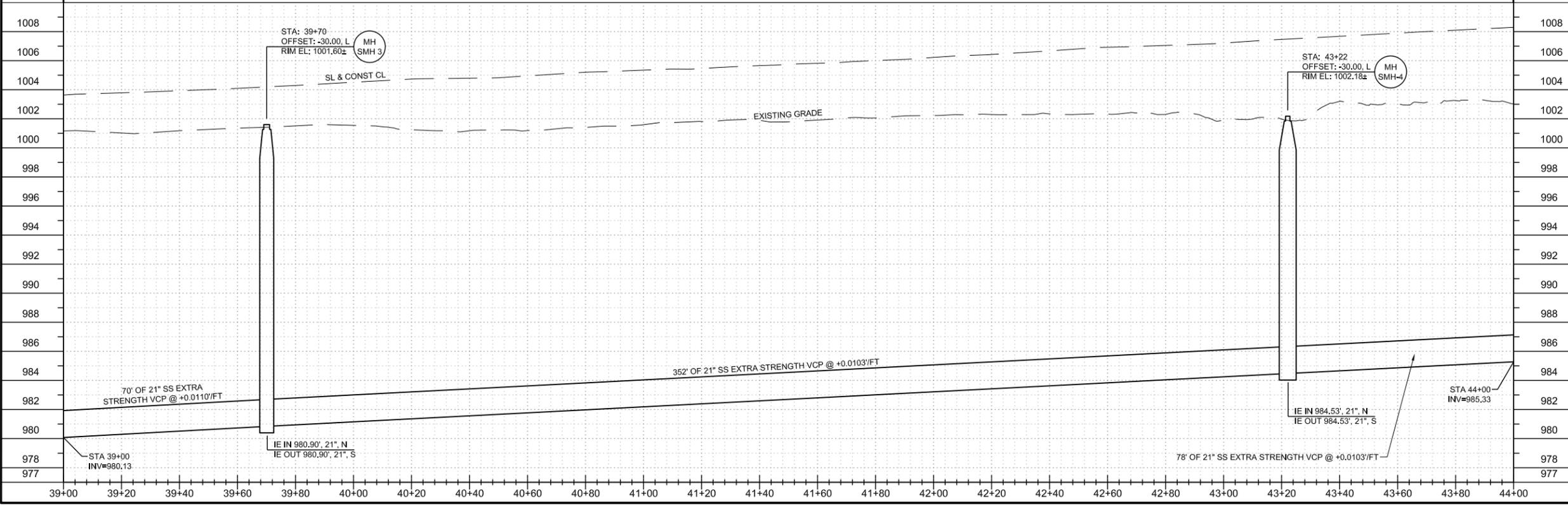
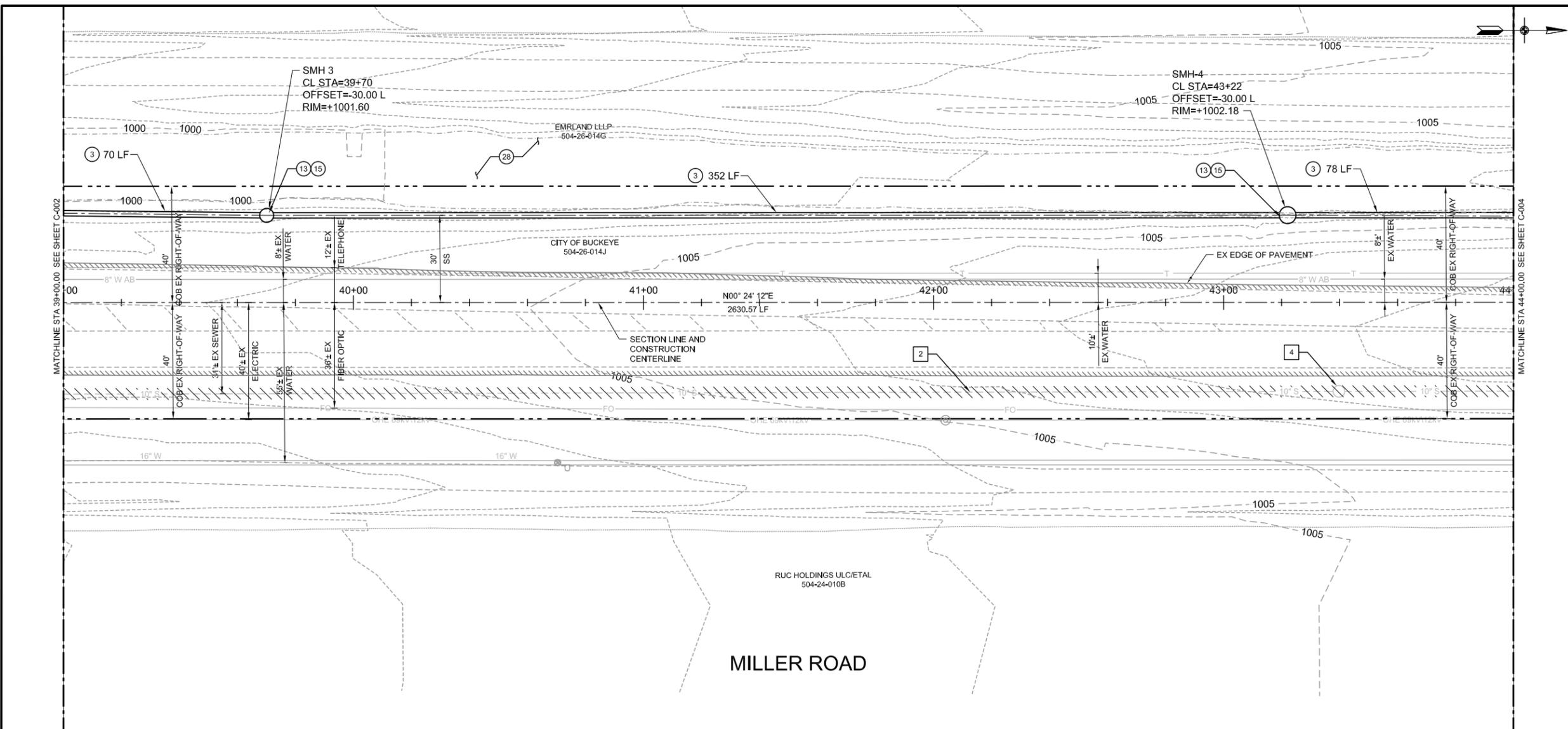


REVISIONS:

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PLAN NAME
**CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 MILLER ROAD**

ENGINEER INFORMATION	
Stanley Consultants inc.	
1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER



SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #

NOTES

- ③ INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- ⑮ INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- ② ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- ④ ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- ① PROTECT EXISTING FEATURE IN PLACE.
- ③ REMOVE, SALVAGE, AND REINSTALL EXISTING CMP DRAIN PIPE PER CONTRACT DOCUMENTS.
- ⑩ PROTECT AND SUPPORT EXISTING IRRIGATION PIPE/PIPES IN-PLACE PER MAG SPEC SECTION 601.



0 10' 20' 40'
SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:

- ①
- ②
- ③

PLAN NAME

CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
PLAN AND PROFILE
MILLER ROAD

ENGINEER INFORMATION



1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016
www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL

COB ENGINEERING APPROVED SEAL

AS-BUILT SEAL

DESIGN SEAL



ORIGINAL PLAN DATE

LATEST REVISION DATE

PROJECT NUMBER

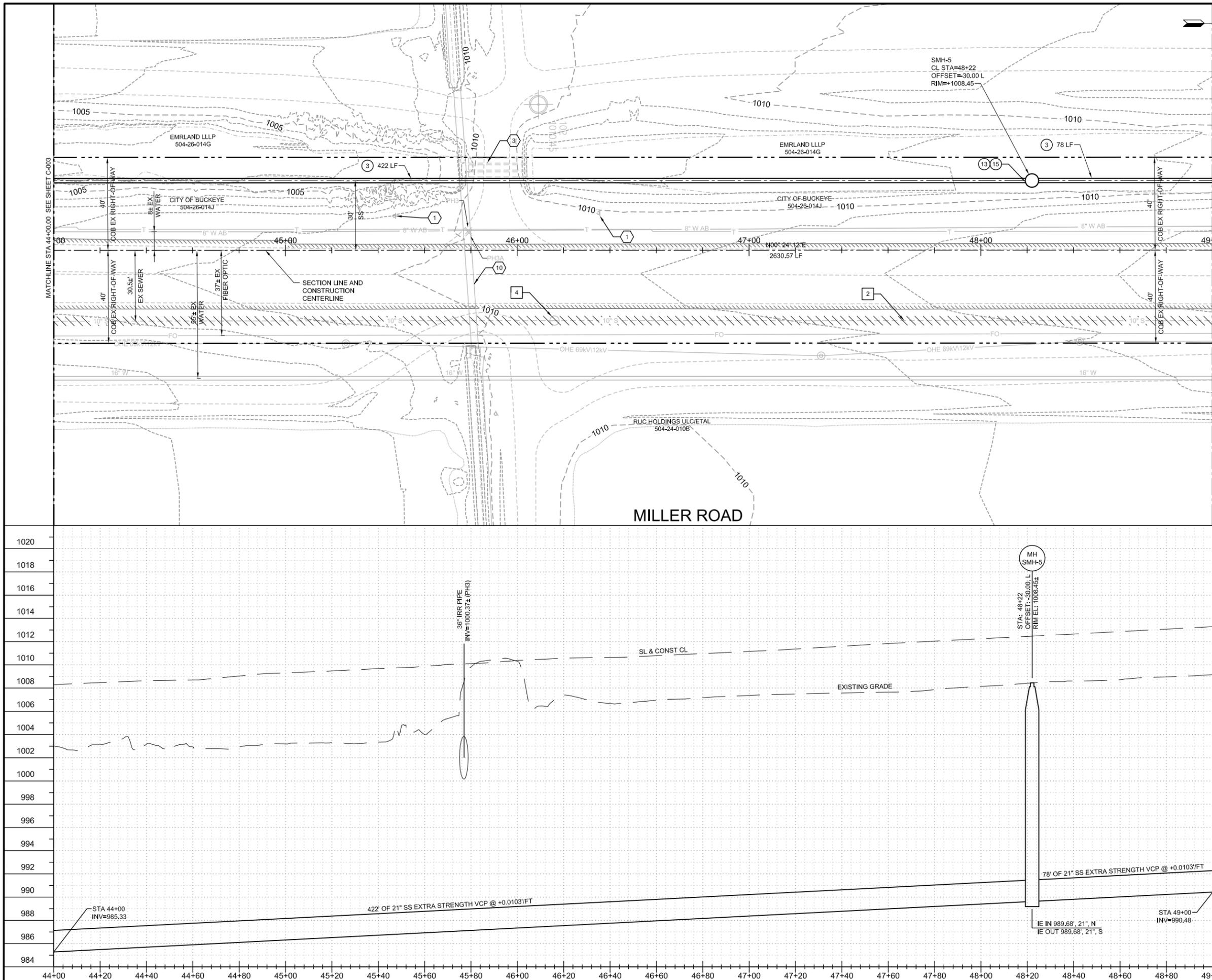
SHEET NUMBER

28688

9 OF 30

C-004

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



MATCHLINE STA 44+00.00 SEE SHEET C-003

MATCHLINE STA 49+00.00 SEE SHEET C-005

SECTION LINE AND CONSTRUCTION CENTERLINE

MILLER ROAD

SMH-5
CL STA=48+22
OFFSET=30.00 L
RIM=+1008.45

422' OF 21" SS EXTRA STRENGTH VCP @ +0.0103'/FT

78' OF 21" SS EXTRA STRENGTH VCP @ +0.0103'/FT

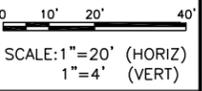
STA 44+00
INV=985.33

STA 49+00
INV=990.48

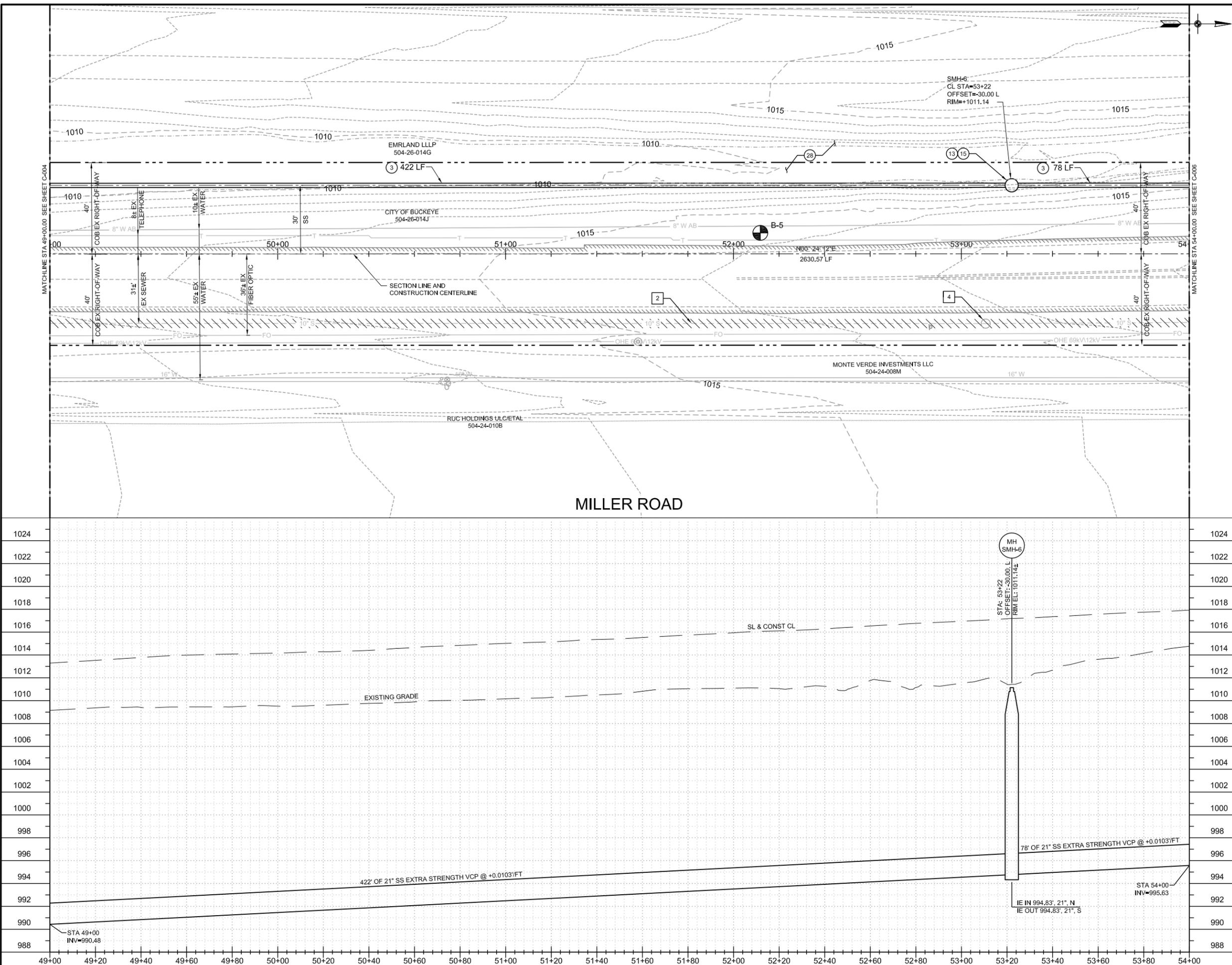
IE IN 989.68', 21", N
IE OUT 989.68', 21", S

NOTES

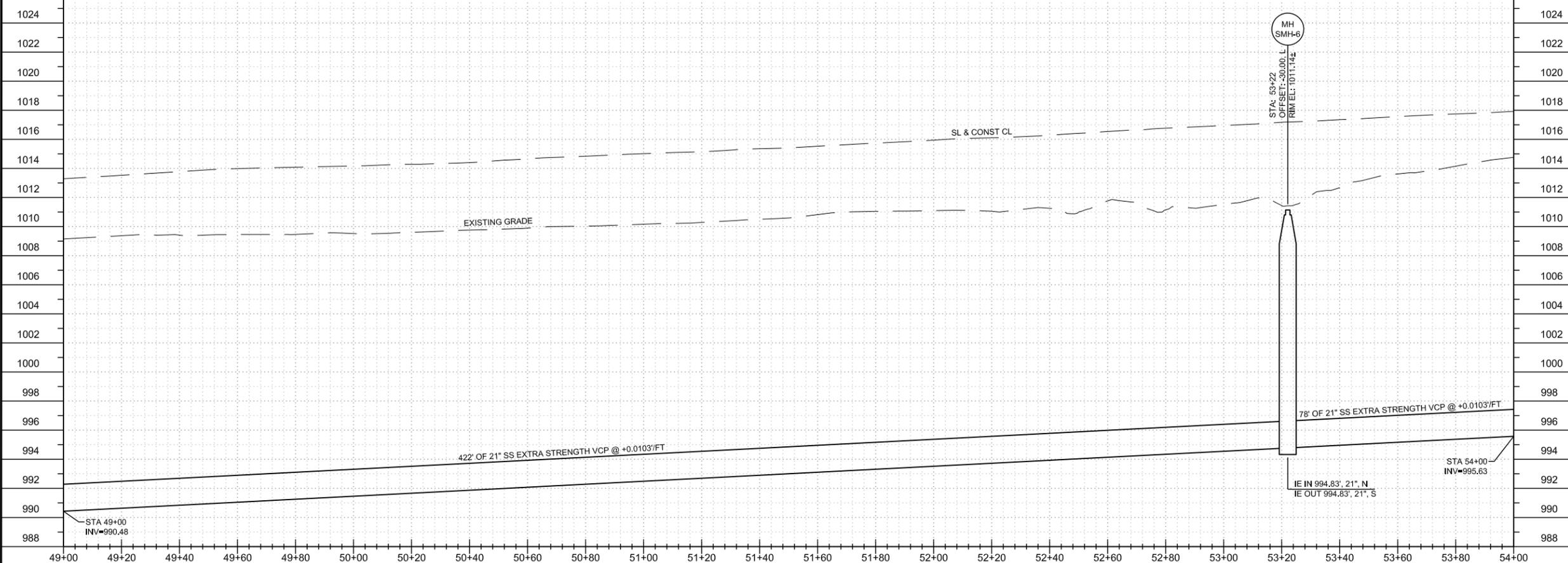
- ③ INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
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- ⑳ RESTORE EXISTING DRAINAGE CHANNEL TO ORIGINAL SLOPE AND INVERT ELEVATIONS.
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.



REVISIONS:	
1	
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3	
PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION	
 1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
C-005	



MILLER ROAD



NOTES

- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 16 TELCO, TO BE RELOCATED BY OTHERS.



0 10' 20' 40'
 SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

REVISIONS:

- 1
- 2
- 3

PLAN NAME
 CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 MILLER ROAD

ENGINEER INFORMATION

 191 East Camelback Road, Suite 400, Phoenix, Arizona 85016
 www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL
 COB ENGINEERING APPROVED SEAL

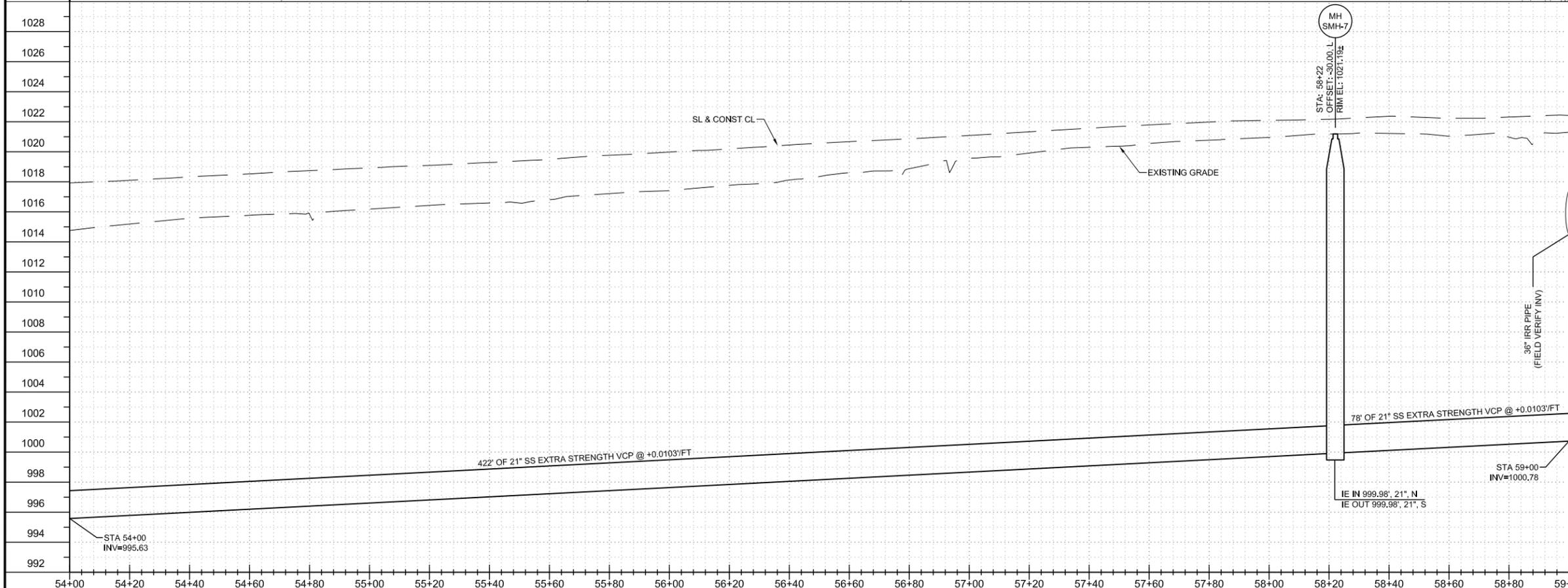
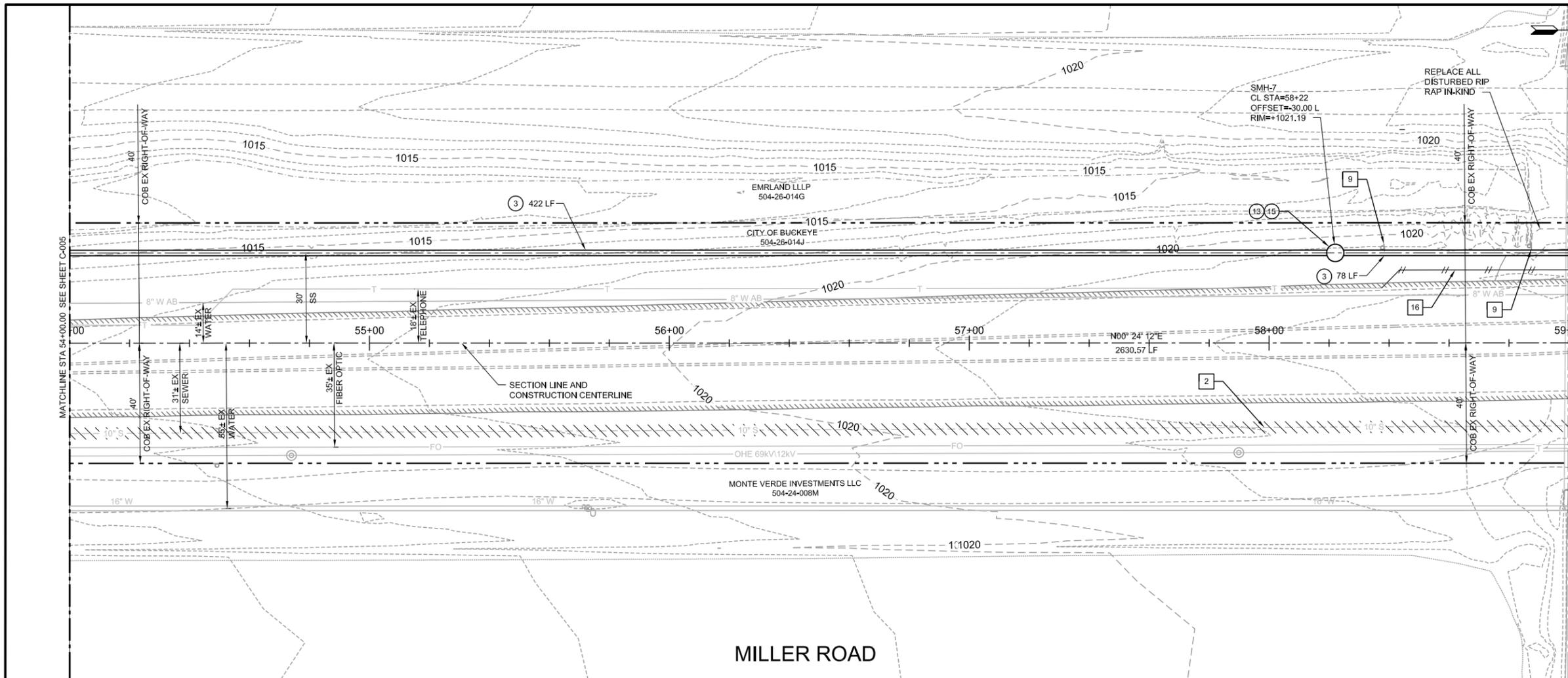
AS-BUILT SEAL
 DESIGN SEAL



ORIGINAL PLAN DATE
 LATEST REVISION DATE
 PROJECT NUMBER
 SHEET NUMBER
 28688
 11 OF 30

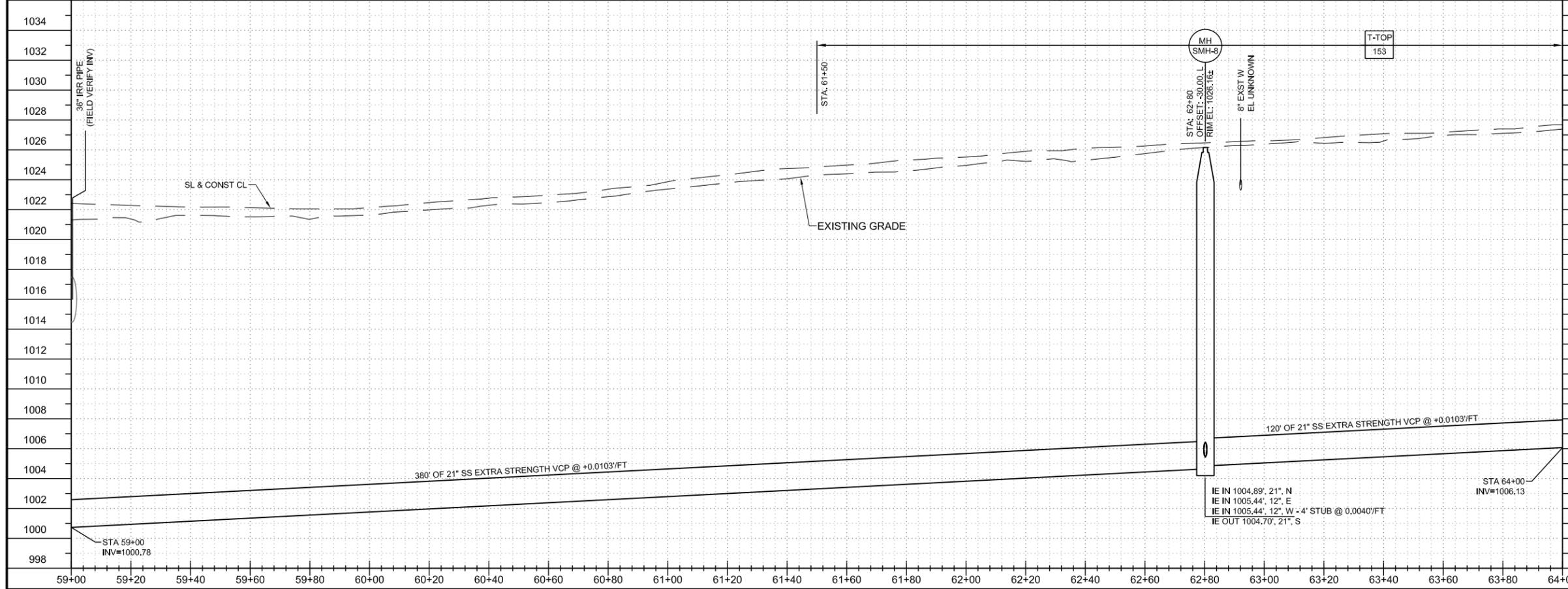
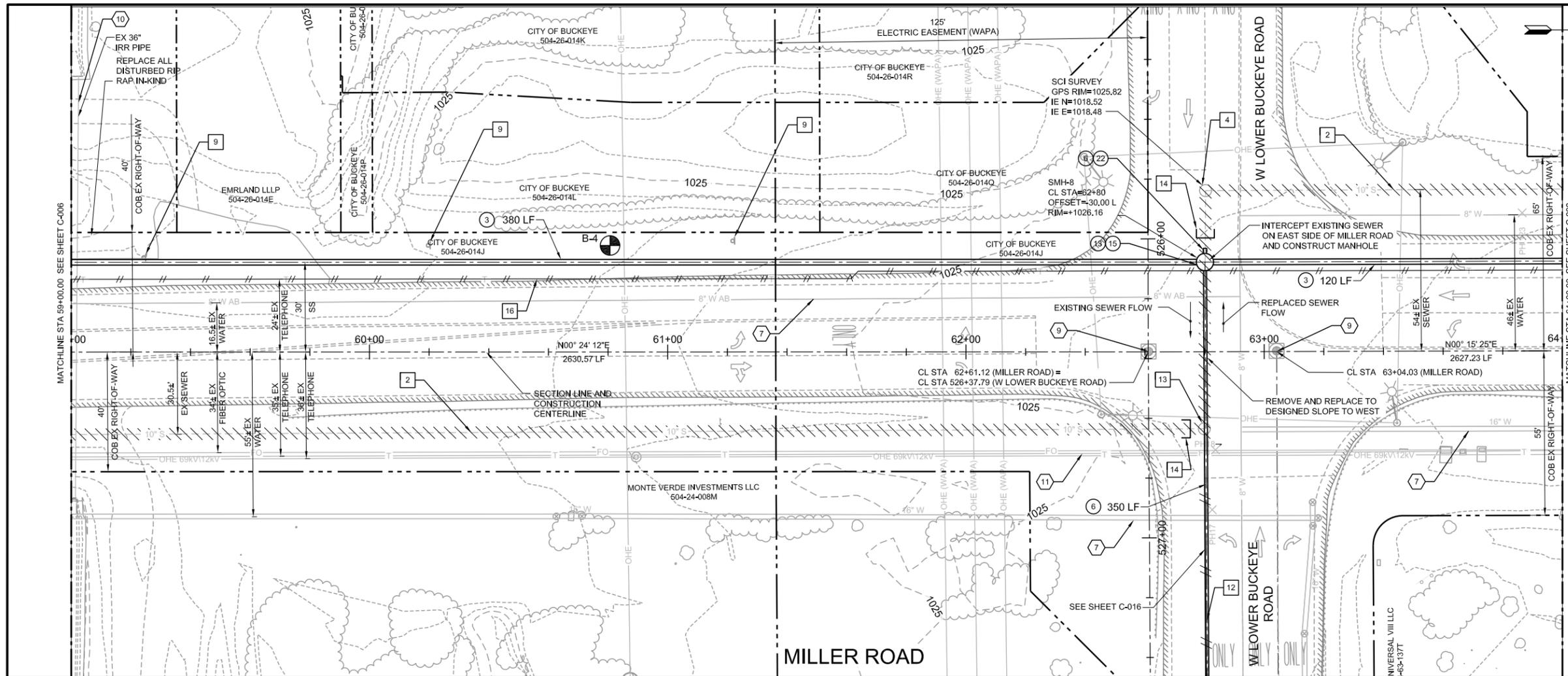
SUBMITTAL:

COB PLAN TRACKING #
 COB PERMIT #



1028	1028
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1022	1022
1020	1020
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1016	1016
1014	1014
1012	1012
1010	1010
1008	1008
1006	1006
1004	1004
1002	1002
1000	1000
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C-006



NOTES

- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 22 INSTALL TESTING CLEANOUT PER COB STD DTL 41270.
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 12 REMOVE EXISTING SANITARY SEWER PIPE.
- 13 REMOVE EXISTING SANITARY SEWER MANHOLE.
- 14 CUT & PLUG PER MAG STD DTL 427.
- 16 TELCO, TO BE RELOCATED BY OTHERS. REMOVE ABANDONED TELCO SYSTEM AS NECESSARY TO CONSTRUCT SEWER.
- 7 PROTECT EXISTING WATER LINE IN PLACE.
- 9 PROTECT EXISTING SURVEY MARKER IN PLACE.
- 10 PROTECT AND SUPPORT EXISTING IRRIGATION PIPE/PIPES IN PLACE PER MAG SPEC SECTION 601.
- 11 PROTECT EXISTING FIBER OPTIC IN PLACE.

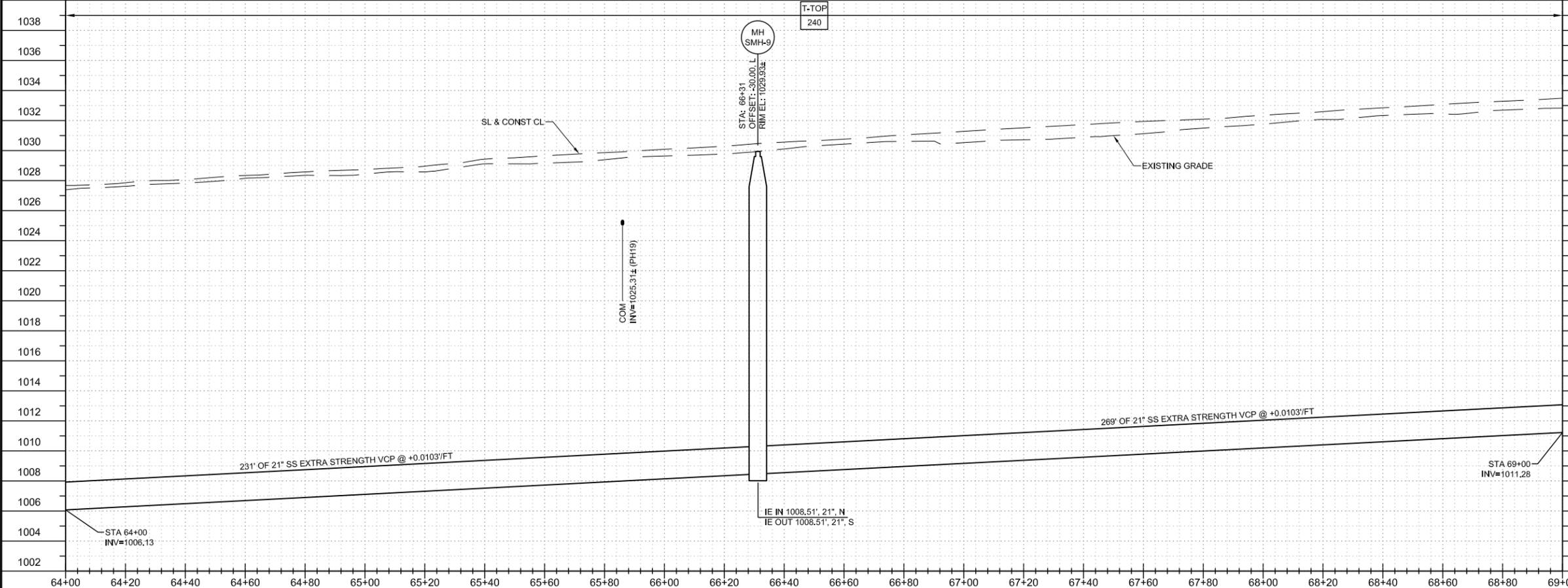
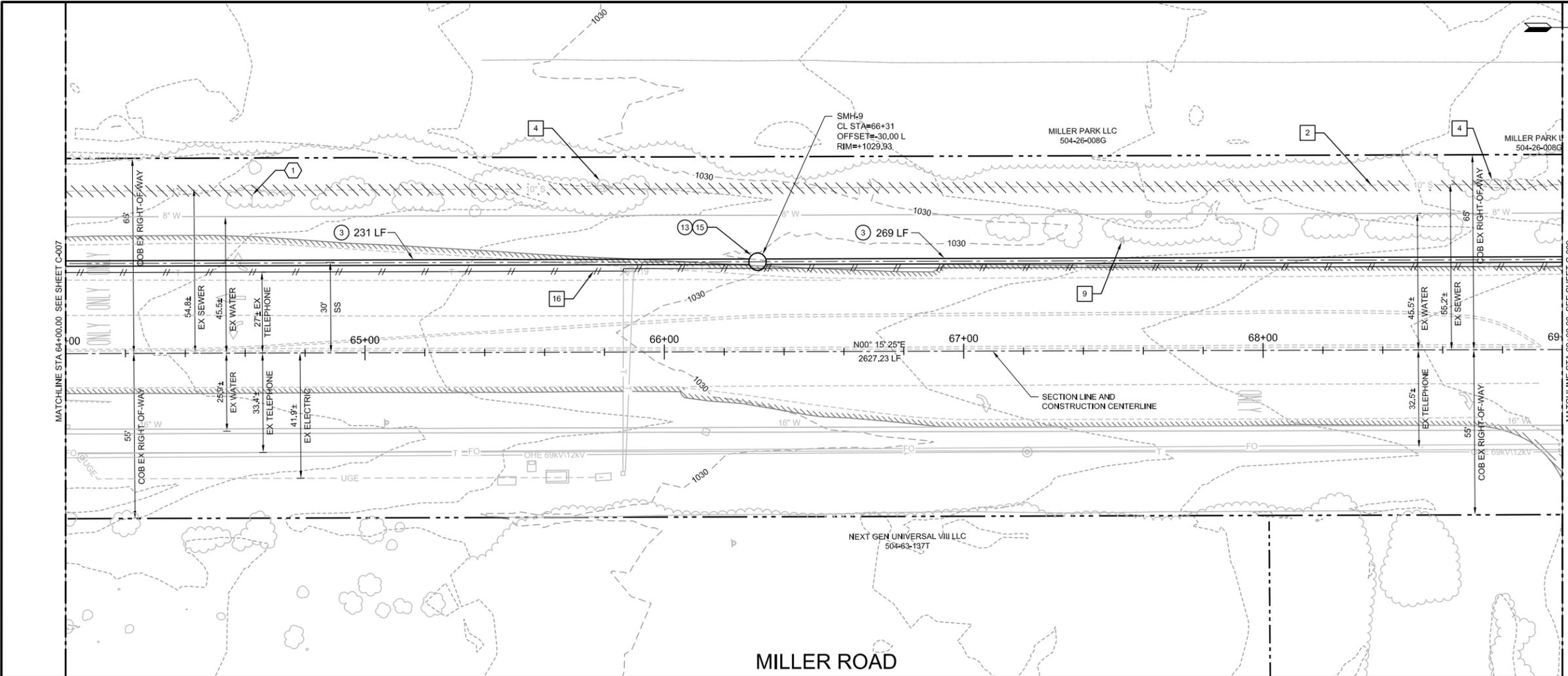
Arizona 811 at least two full working days before you begin excavation

 Call 811 or click Arizona811.com

0 10' 20' 40'

SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

REVISIONS:	
1	
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3	
PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION	
 Stanley Consultants inc. <small>1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com</small>	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
 LARRY J. LEISCHNER <small>Professional Engineer No. 24001 State of Arizona</small>	
ORIGINAL PLAN DATE	LATEST REVISION DATE
12/12/19	12/12/19
PROJECT NUMBER	SHEET NUMBER
28688	12 OF 30
C-007	



NOTES

- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 16 TELCO, TO BE RELOCATED BY OTHERS. REMOVE ABANDONED TELCO SYSTEM AS NECESSARY TO CONSTRUCT SEWER.
- 1 PROTECT EXISTING FEATURE IN PLACE.

Contact Arizona 911 at least two full working days before you begin construction.

ARIZONA 911
Call 911 or click Arizona911.com

Scale: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:

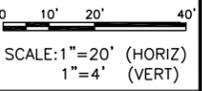
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PLAN NAME
**CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 MILLER ROAD**

ENGINEER INFORMATION		 1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	SUBMITTAL
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL		
AS-BUILT SEAL	DESIGN SEAL		COB PLAN TRACKING #
ORIGINAL PLAN DATE	LATEST REVISION DATE		
PROJECT NUMBER	SHEET NUMBER	C-008	COB PERMIT #
28688	13 OF 30		

NOTES

- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 23 INSTALL STUB-OUT & PLUG PER MAG STD DTL 427.
- 1 ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- 16 TELCO, TO BE RELOCATED BY OTHERS. REMOVE ABANDONED TELCO SYSTEM AS NECESSARY TO CONSTRUCT SEWER.



REVISIONS:

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PLAN NAME
**CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 MILLER ROAD**

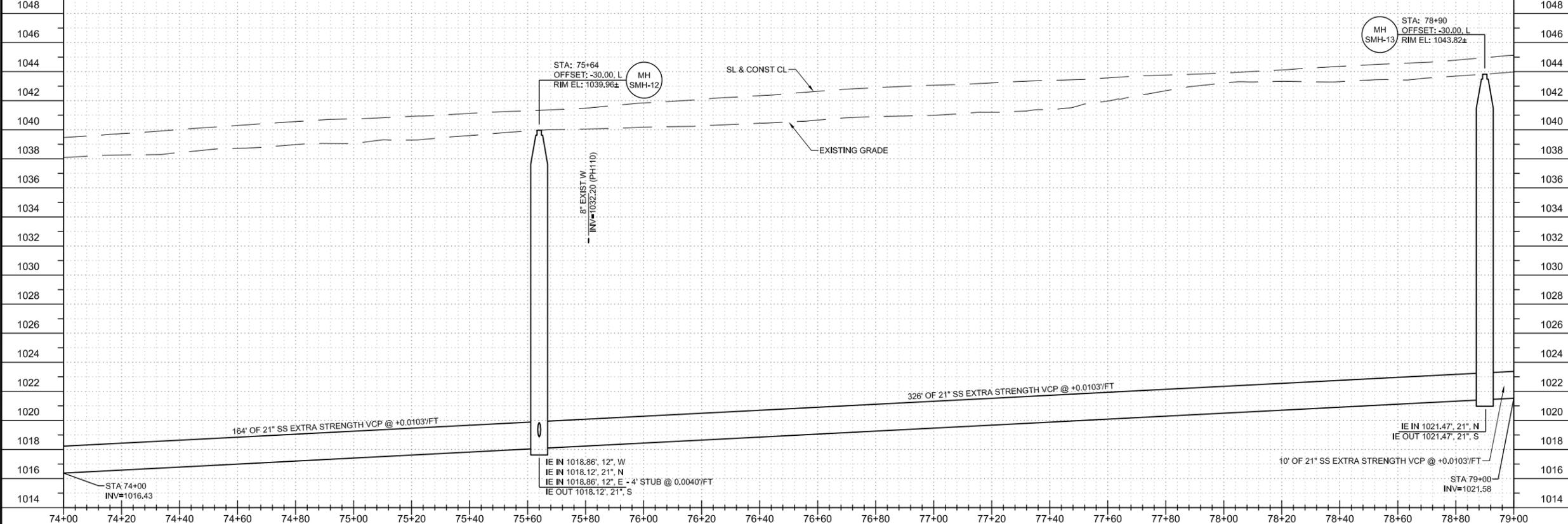
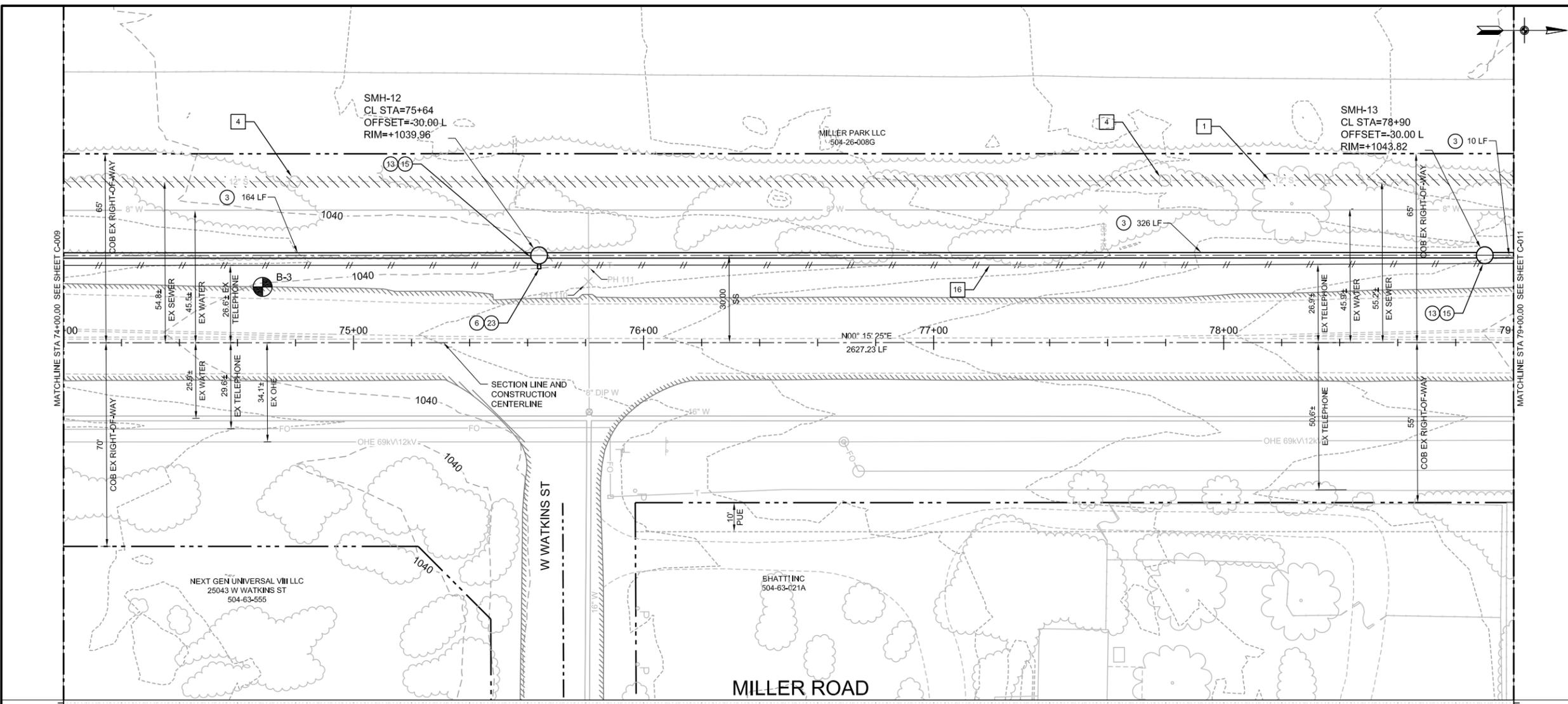
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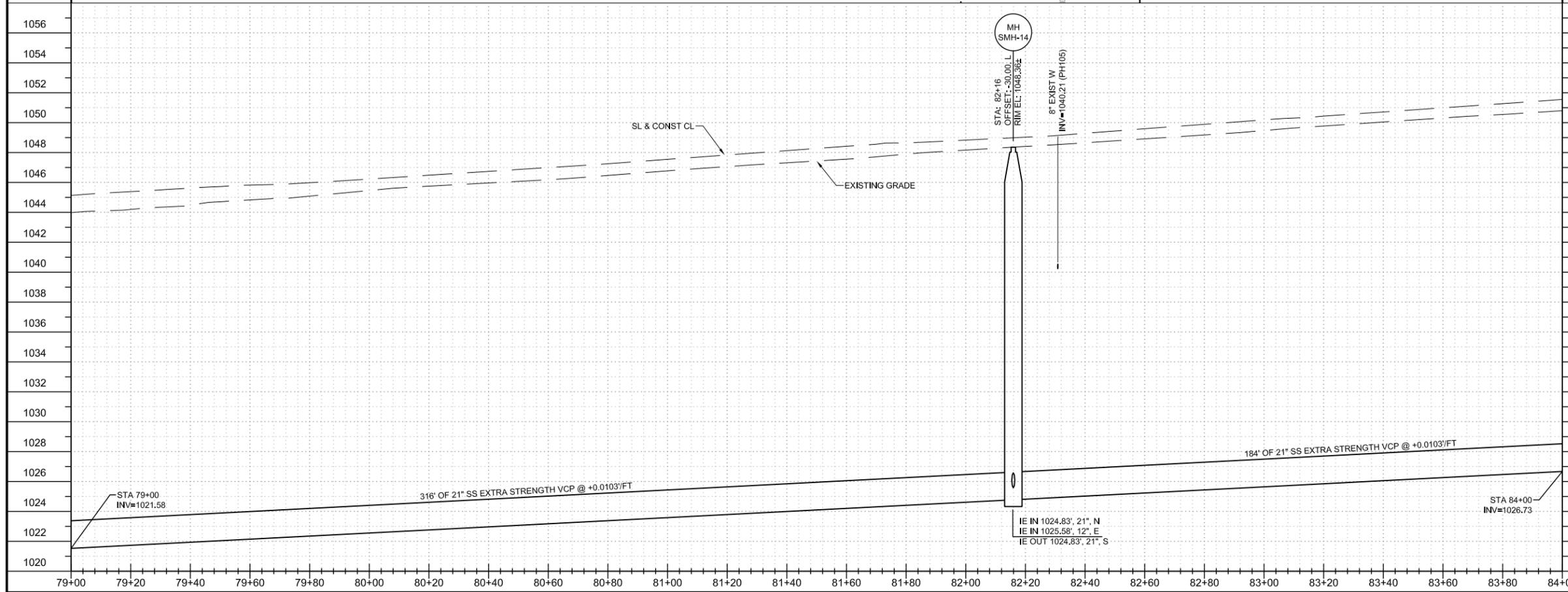
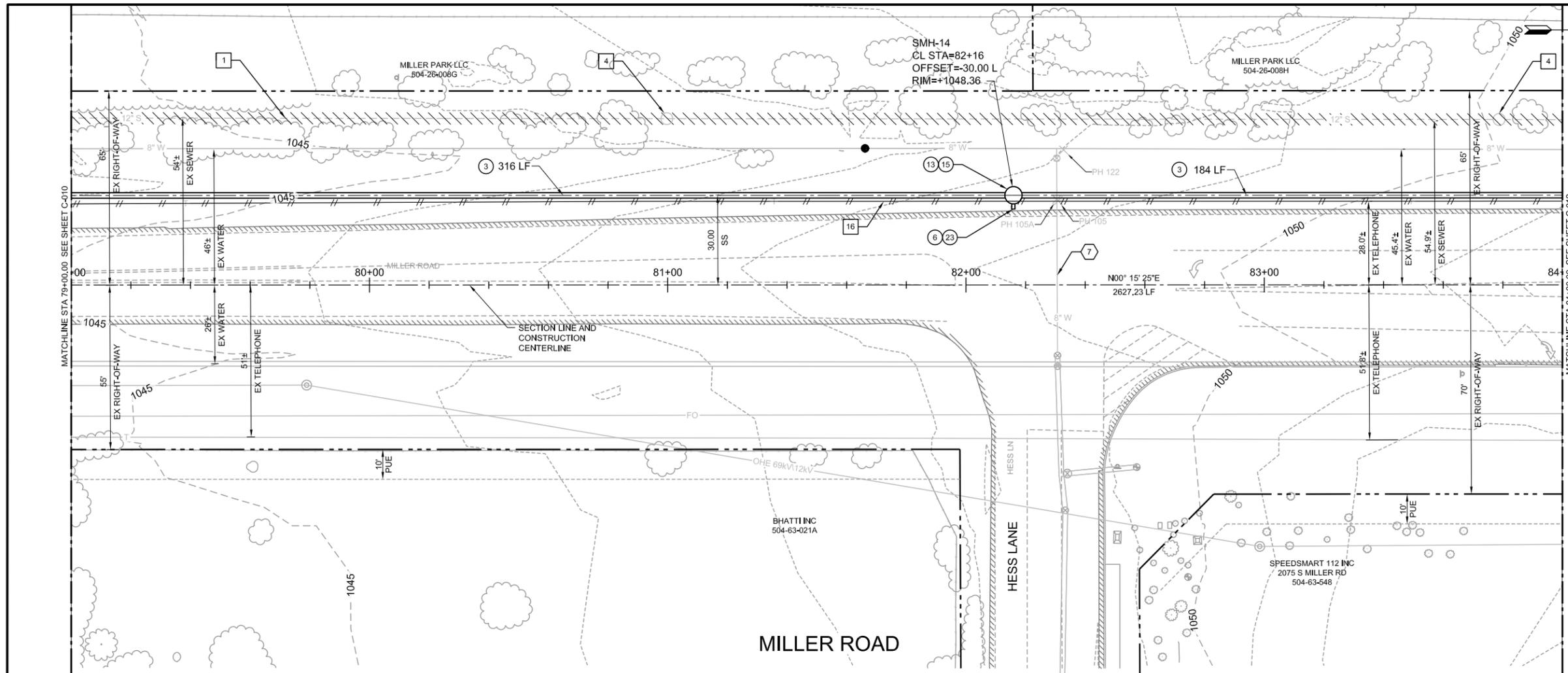
 1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016
 www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER



SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #





NOTES

- ③ INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑥ INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- ⑮ INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- ⑳ INSTALL STUB-OUT & PLUG PER MAG STD DTL 427.
- ① ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- ④ ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- ⑯ TELCO, TO BE RELOCATED BY OTHERS. REMOVE ABANDONED TELCO SYSTEM AS NECESSARY TO CONSTRUCT SEWER.
- ⑦ PROTECT EXISTING WATER LINE IN PLACE.

Central Arizona 911 at least two full working days before you begin construction

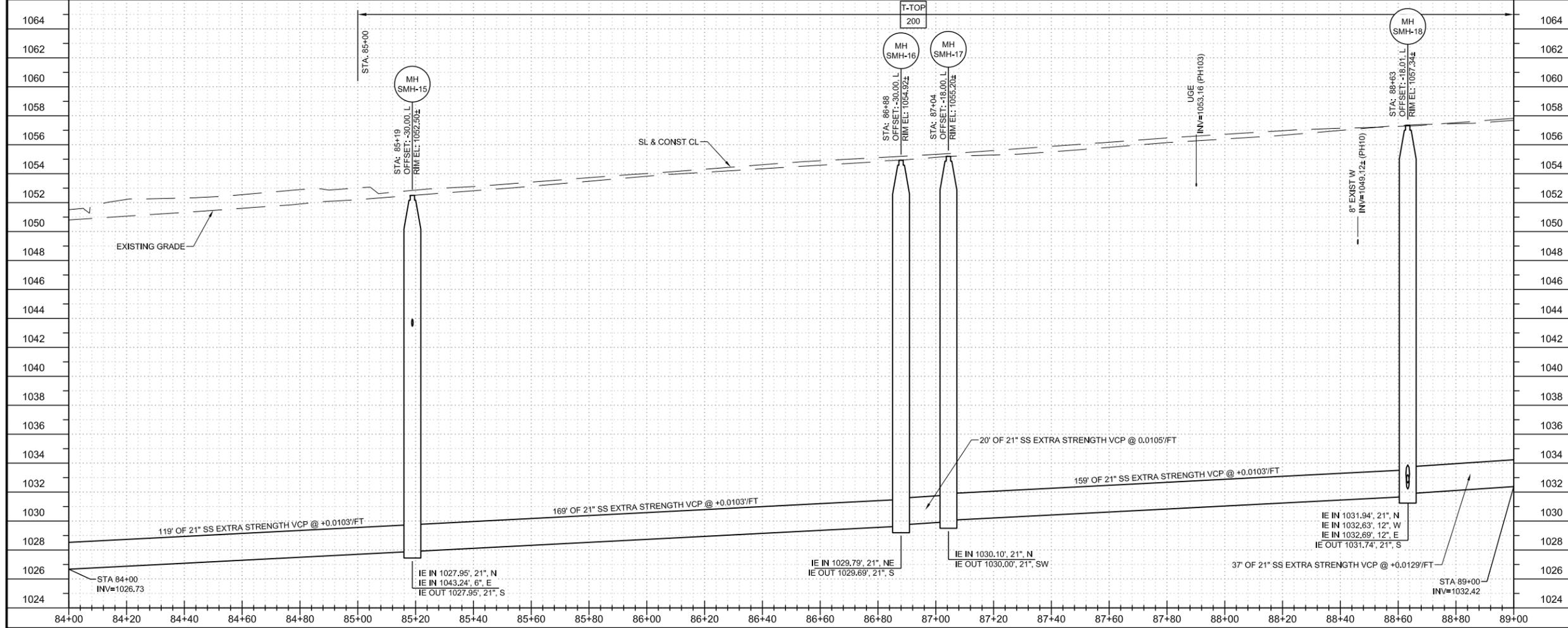
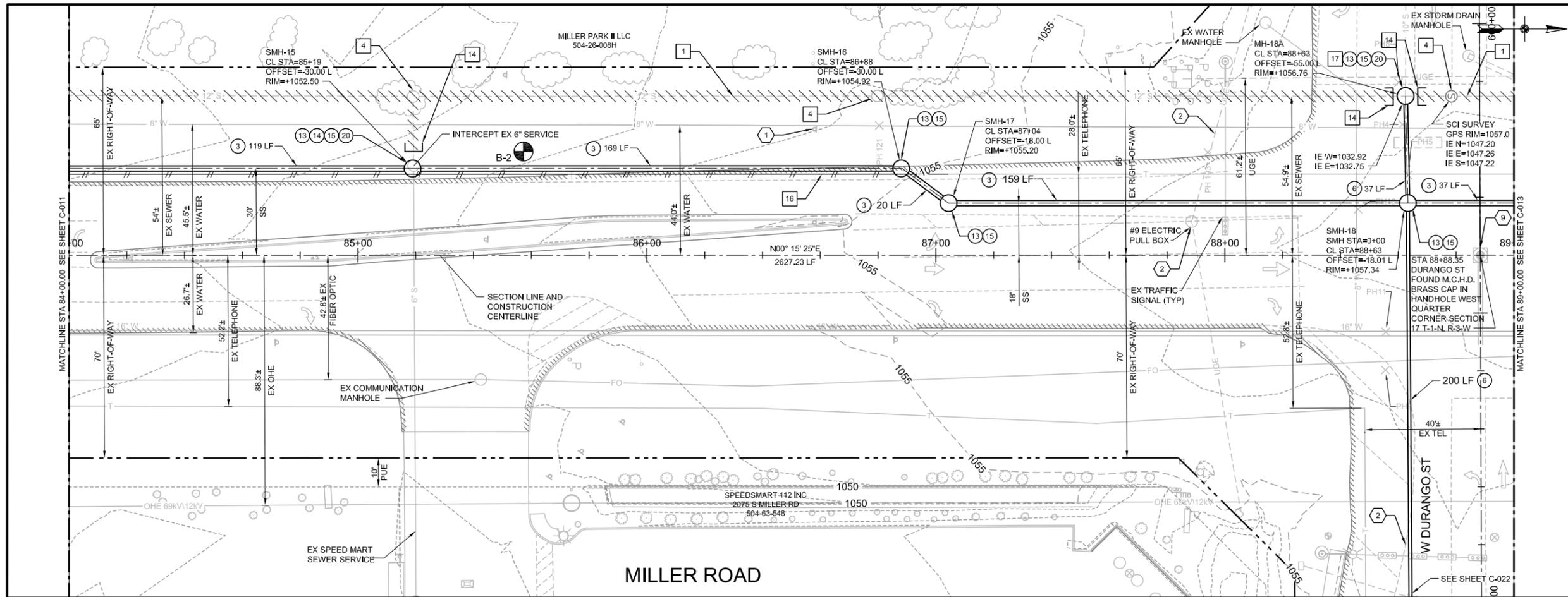
ARIZONA
Call 911 or click Arizona911.com

0 10' 20' 40'

SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:	
1	
2	
3	
PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION	
 <small>1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com</small>	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
28688	16 OF 30
C-011	

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



- ### NOTES
- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 13 INSTALL 5' DIA ARCH RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
 - 14 INSTALL INSIDE DROP CONNECTION PER COB STANDARD DETAIL 41255.
 - 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
 - 20 CONNECT EXISTING SEWER PIPE TO MANHOLE PER MAG SPEC SECTION 615.
 - 1 ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
 - 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
 - 14 CUT & PLUG PER MAG STD DTL 427.
 - 16 TELCO, TO BE RELOCATED BY OTHERS. REMOVE ABANDONED TELCO SYSTEM AS NECESSARY TO CONSTRUCT SEWER.
 - 17 PRIOR TO ALL CONSTRUCTION CONTRACTOR SHALL VERIFY EXISTING 10" SEWER INVERT ELEVATION.
 - 1 PROTECT EXISTING FEATURE IN PLACE.
 - 2 PROTECT EXISTING ELECTRIC IN PLACE.
 - 9 PROTECT EXISTING SURVEY MARKER IN PLACE.

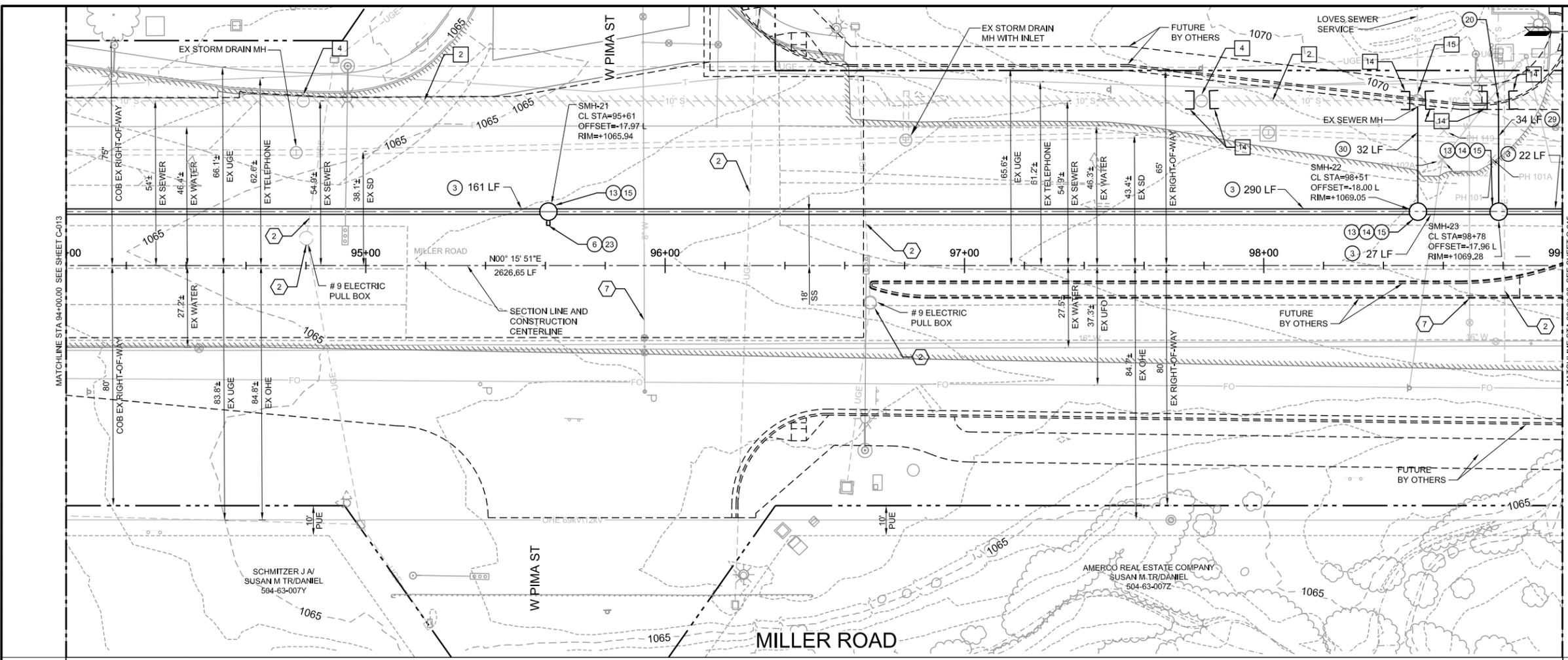
Arizona 811 at least two full working days before you begin excavation

ARIZONA 811

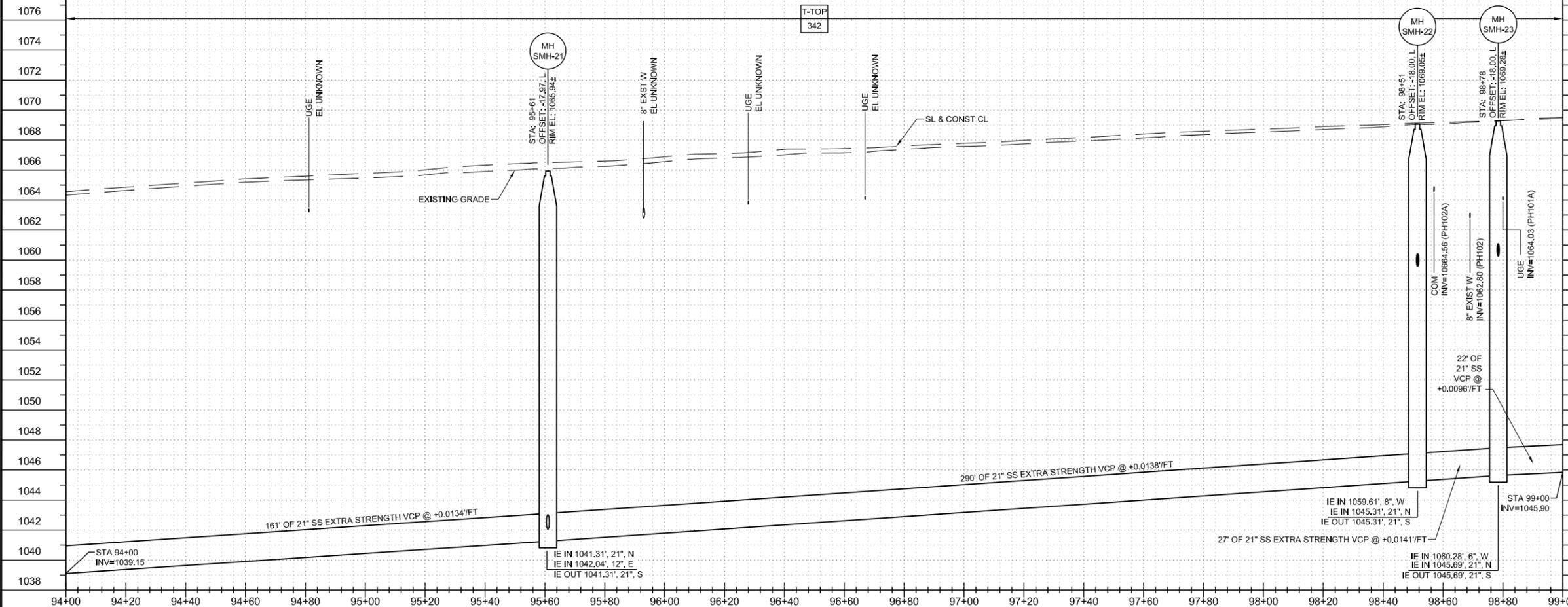
Call 811 or click Arizona811.com

SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:	
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PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION	
 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
	12/12/19
PROJECT NUMBER	SHEET NUMBER
28688	17 OF 30
SUBMITTAL:	
COB PLAN TRACKING #	COB PERMIT #



- ### NOTES
- 3 INSTALL 21" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
 - 14 INTERNAL DROP CONNECTION PER COB STD DTL 41255.
 - 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM 06-21-2016).
 - 20 CONNECT EXISTING SEWER PIPE TO MANHOLE PER MAG SPEC SECTION 615.
 - 23 INSTALL STUB-OUT & PLUG PER MAG STD DTL 427.
 - 29 INSTALL 6" PVC PIPE (SDR-26), PER ASTM D3034.
 - 30 INSTALL 8" PVC PIPE (SDR-26), PER ASTM D 3034.
 - 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
 - 4 ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
 - 14 CUT & PLUG PER MAG STD DTL 427.
 - 15 REMOVE EXISTING MANHOLE AND CONNECT TO EXISTING SERVICE.
 - 2 PROTECT EXISTING ELECTRIC IN PLACE.
 - 7 PROTECT EXISTING WATER LINE IN PLACE.



CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN CONSTRUCTION

SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:

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PLAN NAME
CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
PLAN AND PROFILE
MILLER ROAD

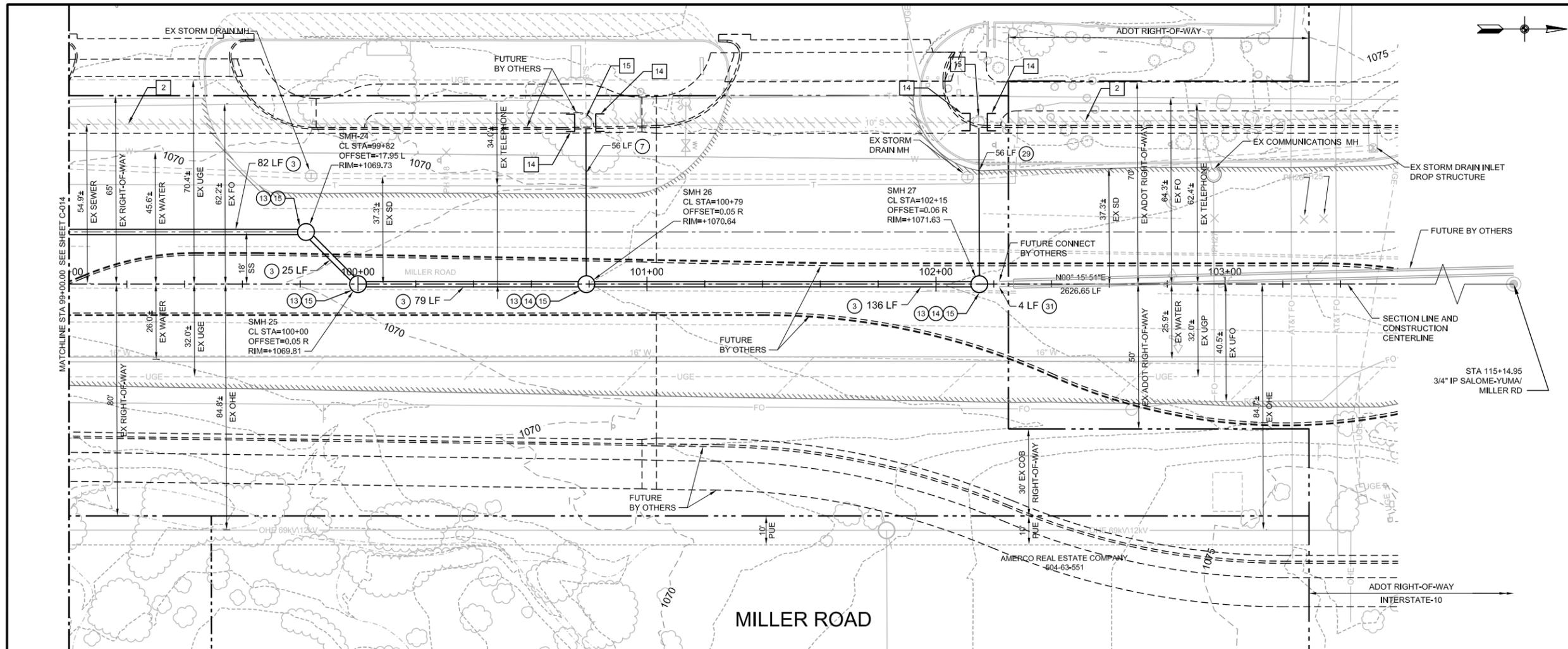
ENGINEER INFORMATION
Stanley Consultants inc.
1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016
www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL

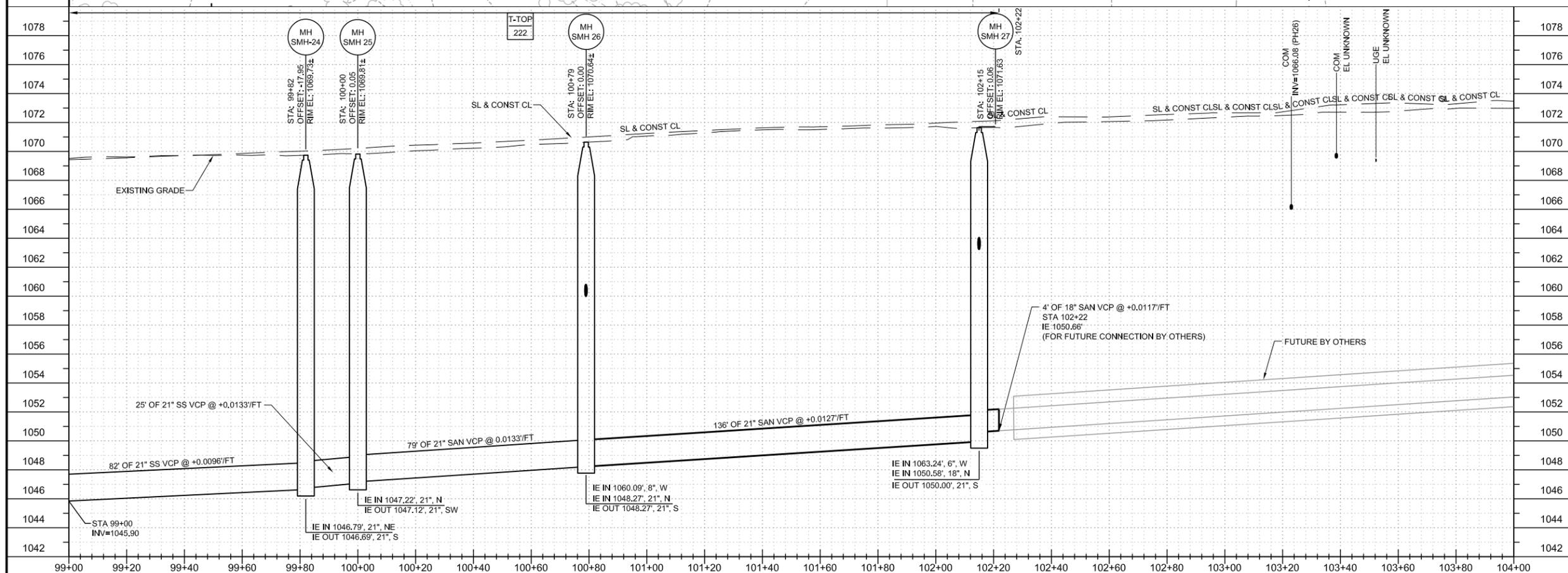
ORIGINAL PLAN DATE
PROJECT NUMBER
28688

LATEST REVISION DATE
SHEET NUMBER
12/12/19
19 OF 30

COB PLAN TRACKING #
SUBMITTAL
COB PERMIT #



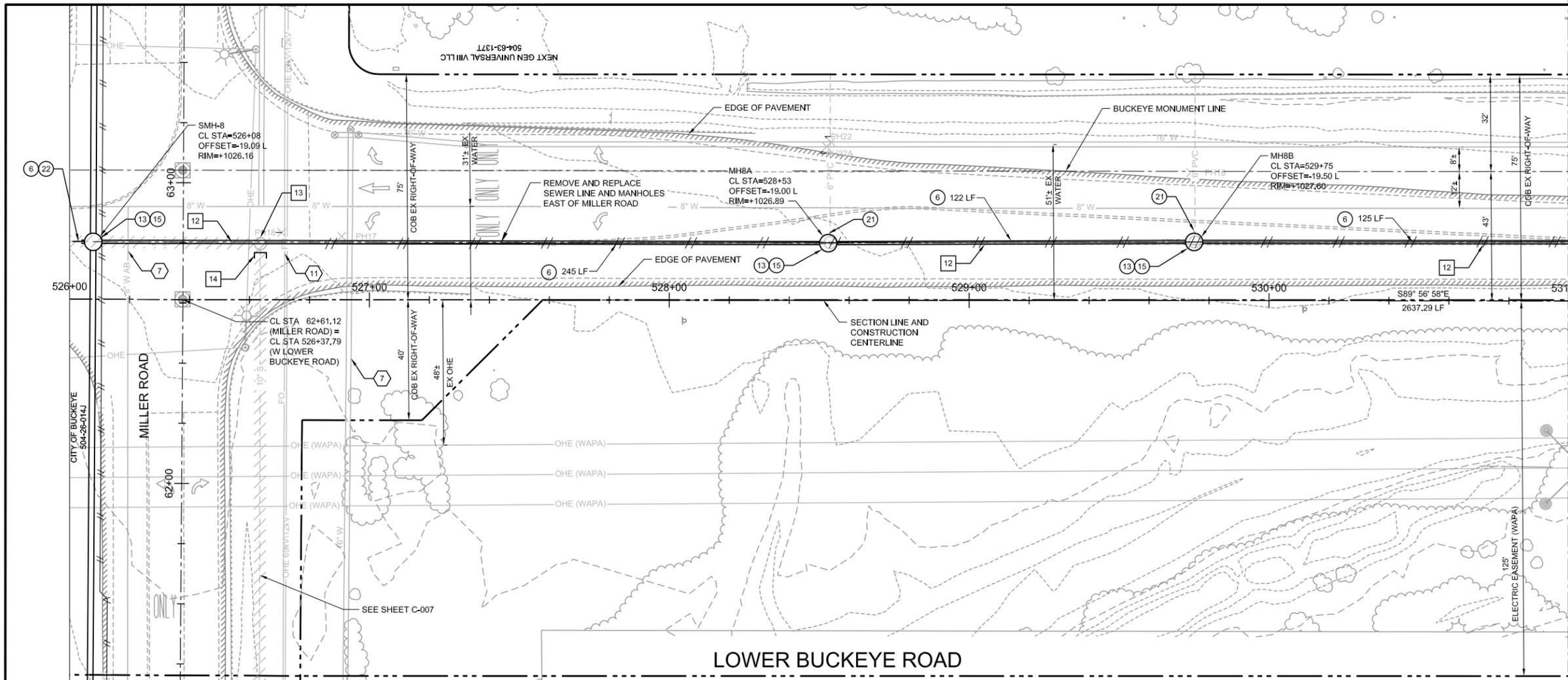
- ### NOTES
- 3 INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 7 INSTALL 8" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECTION 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
 - 14 INSTALL INSIDE DROP CONNECTION PER COB STANDARD DETAIL 41255.
 - 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
 - 29 INSTALL 6" PVC PIPE (SDR-26), PER ASTM D3034.
 - 31 INSTALL 18" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 2 ABANDON IN-PLACE 10" SEWER PIPE PER PROJECT SPECIFICATIONS.
 - 14 CUT & PLUG PER MAG STD DTL 427.
 - 15 REMOVE EXISTING MANHOLE AND CONNECT TO EXISTING SERVICE.



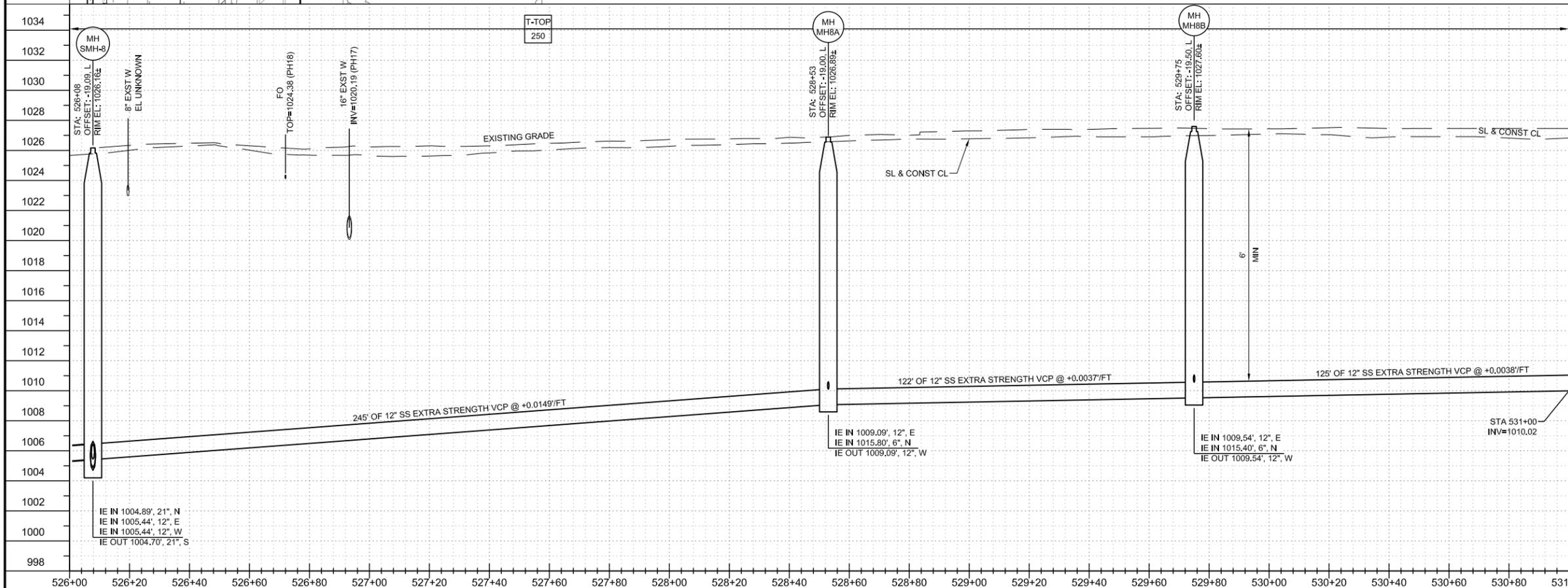
0 10' 20' 40'

SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:	
1	
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PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE MILLER ROAD	
ENGINEER INFORMATION	
 <small>1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com</small>	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
C-015	



- ### NOTES
- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
 - 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
 - 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
 - 21 CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
 - 22 INSTALL TESTING CLEAN OUT PER COB STD DTL 41270.
 - 12 REMOVE EXISTING 12" SEWER PIPE.
 - 13 REMOVE EXISTING SANITARY SEWER MANHOLE.
 - 14 CUT & PLUG PER MAG STD DTL 427.
 - 7 PROTECT EXISTING WATER LINE IN PLACE.
 - 11 PROTECT EXISTING FIBER OPTIC IN PLACE.



Arizona 911 at least two full working days before you begin construction.
ARIZONA
 Call 911 or visit Arizona911.com

0 10' 20' 40'

SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

REVISIONS:	
1	
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3	
PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE LOWER BUCKEYE ROAD	
ENGINEER INFORMATION <small>1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com</small>	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 21 OF 30
C-016	

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #

NOTES

- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 8 INSTALL 6" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECTION 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 21 CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
- 12 REMOVE EXISTING 12" SEWER PIPE.
- 13 REMOVE EXISTING SANITARY SEWER MANHOLE.



0 10' 20' 40'
SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:

- 1
- 2
- 3

PLAN NAME
CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
PLAN AND PROFILE
LOWER BUCKEYE ROAD

ENGINEER INFORMATION
Stanley Consultants inc.
1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016
www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL
COB ENGINEERING APPROVED SEAL

AS-BUILT SEAL
DESIGN SEAL



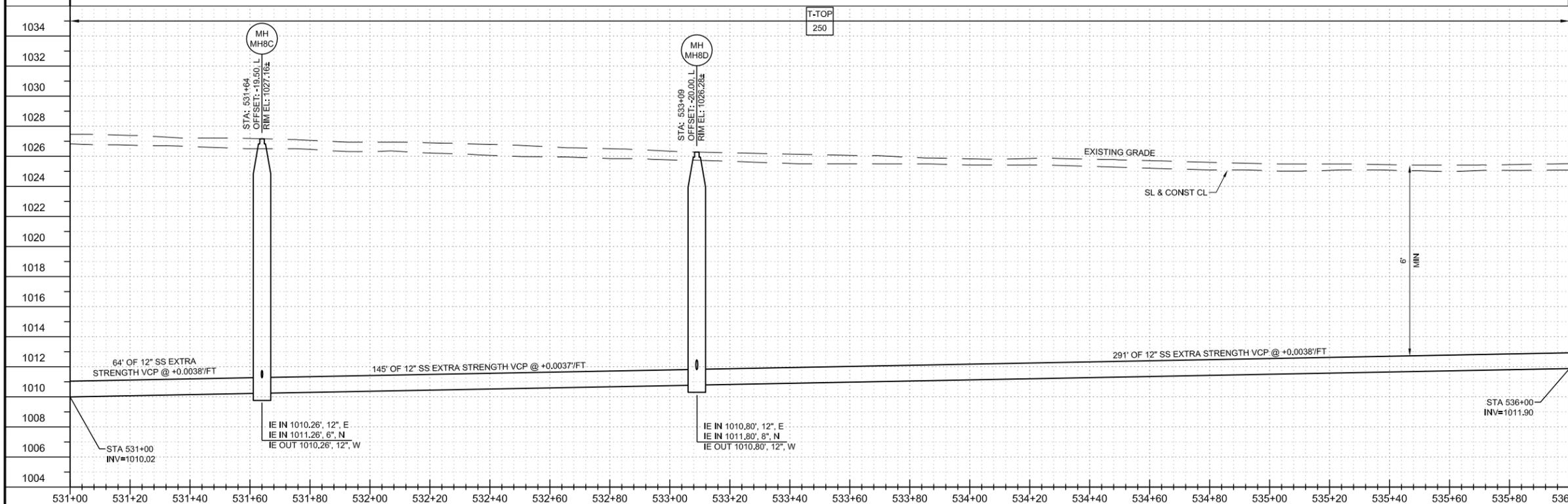
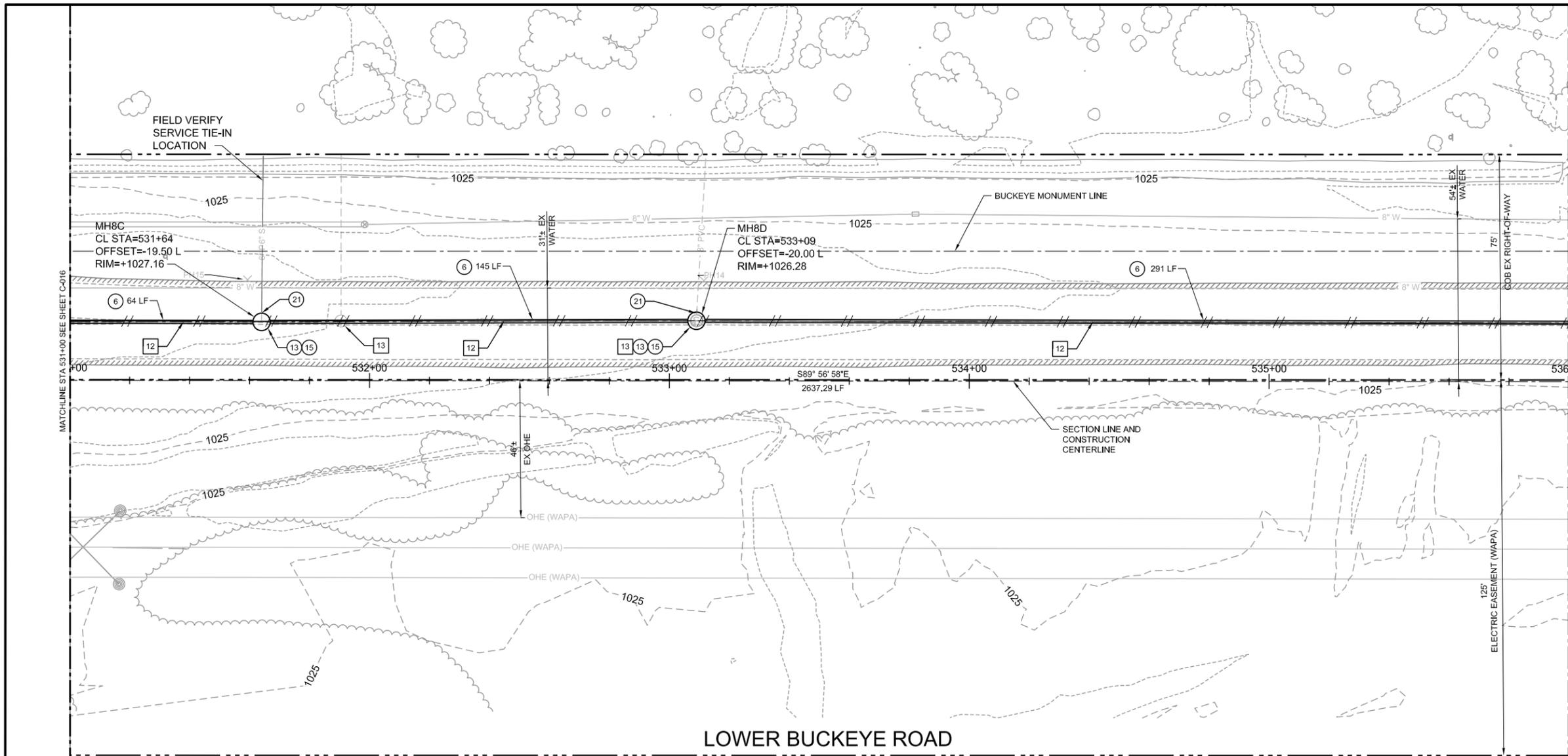
ORIGINAL PLAN DATE
LATEST REVISION DATE
12/12/19

PROJECT NUMBER
SHEET NUMBER
28688
22 OF 30

SUBMITTAL:

COB PLAN TRACKING #

COB PERMIT #

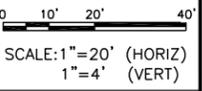


MATCHLINE STA 531+00 SEE SHEET C-016

MATCHLINE STA 536+00 SEE SHEET C-018

NOTES

- ⑥ INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- ⑮ INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- ⑳ CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
- ⑫ REMOVE EXISTING 12" SEWER PIPE.
- ⑬ REMOVE EXISTING SANITARY SEWER MANHOLE.
- ① PROTECT EXISTING FEATURE IN PLACE.



REVISIONS:

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- ③

PLAN NAME
 CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 LOWER BUCKEYE ROAD

ENGINEER INFORMATION

 1911 East Camelback Road, Suite 400, Phoenix, Arizona 85016
 www.stanleyconsultants.com

COB PERMITTING APPROVED SEAL
 APPROVED SEAL

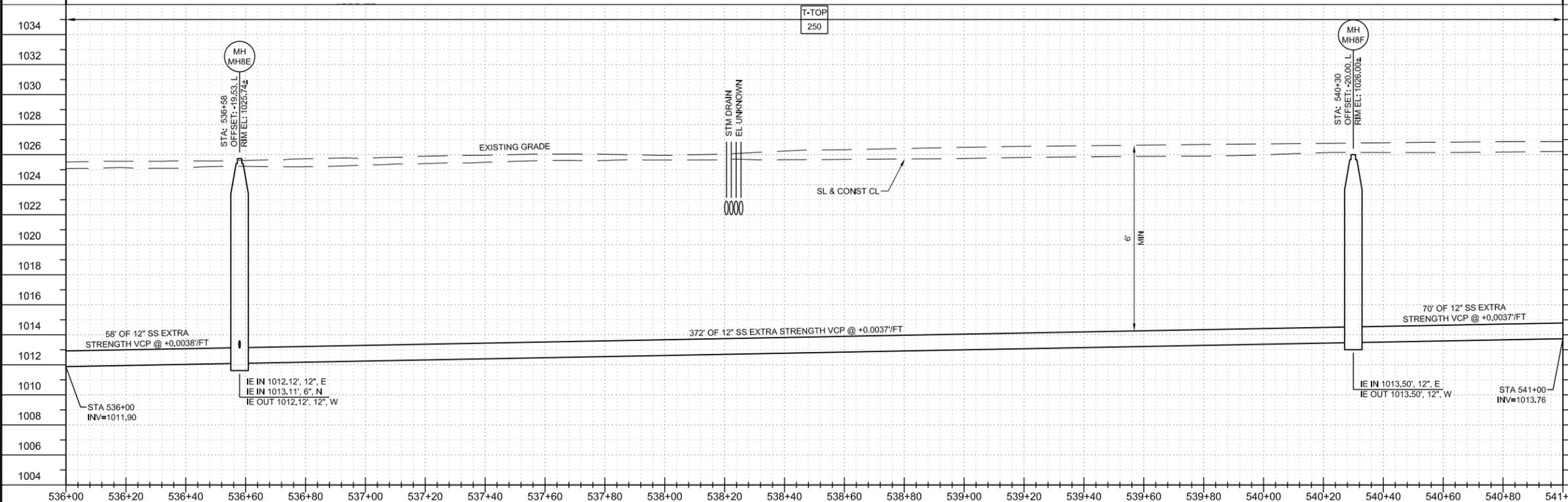
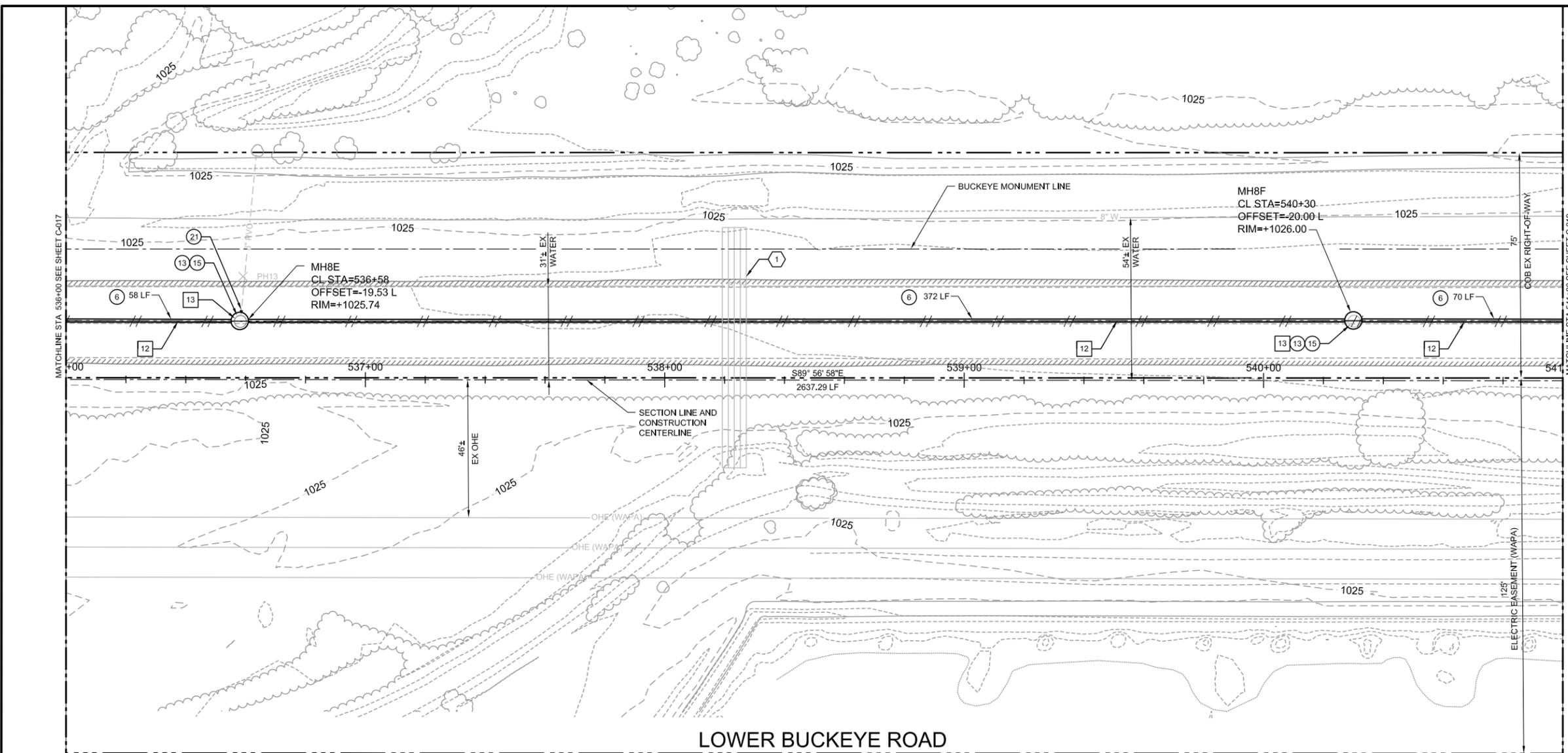
AS-BUILT SEAL
 DESIGN SEAL



ORIGINAL PLAN DATE
 LATEST REVISION DATE
 12/12/19

PROJECT NUMBER
 SHEET NUMBER
 28688
 23 OF 30

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



LOWER BUCKEYE ROAD

MATCHLINE STA. 536+00 SEE SHEET C-07

MATCHLINE STA. 541+00 SEE SHEET C-09

NOTES

- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- 13 INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- 15 INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- 21 CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
- 1 ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 9 REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- 12 REMOVE EXISTING 12" SEWER PIPE.
- 13 REMOVE EXISTING SANITARY SEWER MANHOLE.
- 14 CUT & PLUG PER MAG STD DTL 427.
- 1 PROTECT EXISTING FEATURE.



0 10' 20' 40'
SCALE: 1" = 20' (HORIZ)
1" = 4' (VERT)

REVISIONS:

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PLAN NAME
CITY OF BUCKEYE ARIZONA
NORTH MILLER ROAD
TRUNK SEWER EXTENSION
PLAN AND PROFILE
LOWER BUCKEYE ROAD

ENGINEER INFORMATION
Stanley Consultants inc.
1651 East Camelback Road, Suite 400, Phoenix, Arizona 85016
www.stanleyconsultants.com

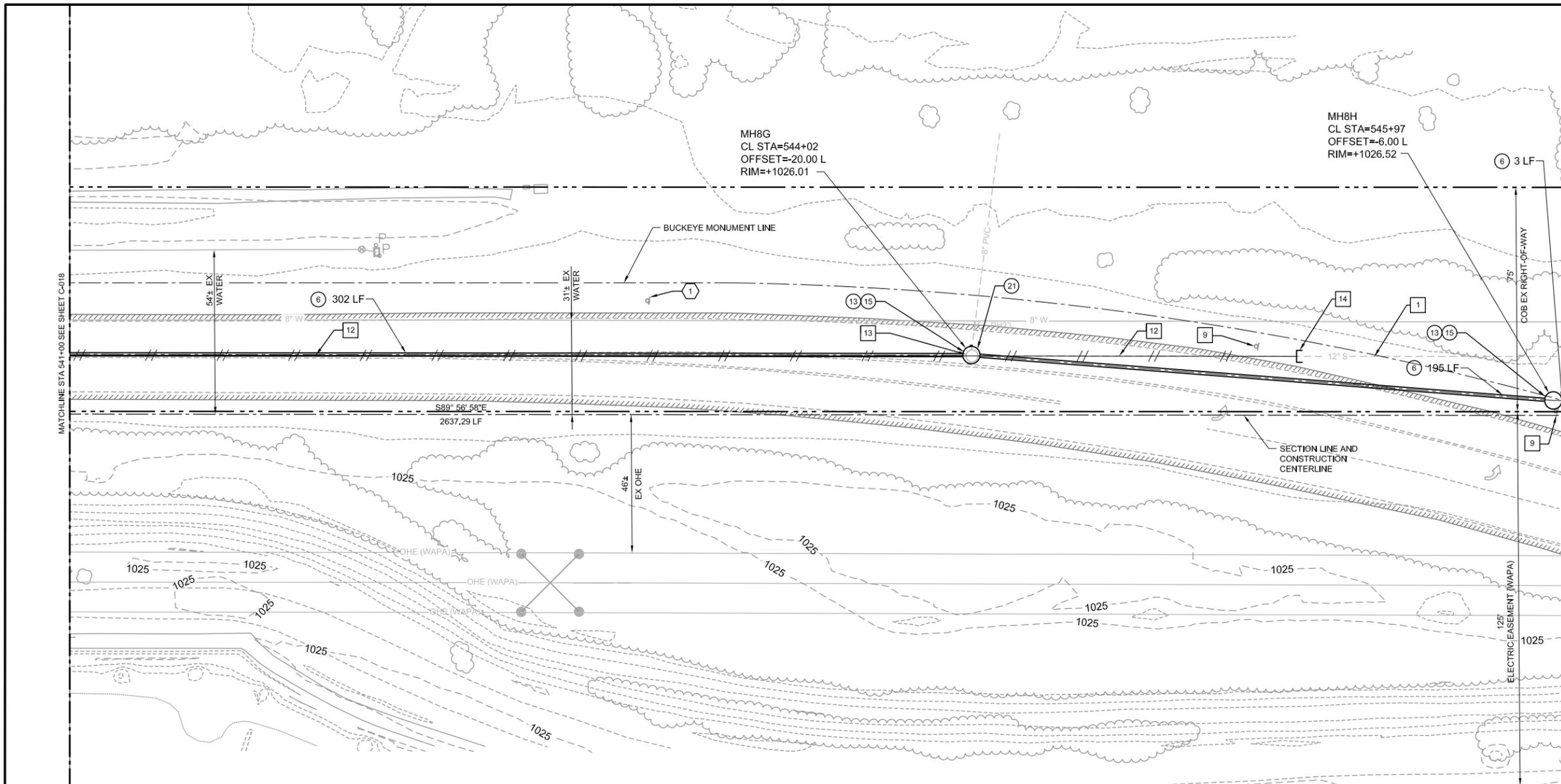
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COB ENGINEERING APPROVED SEAL

AS-BUILT SEAL
DESIGN SEAL

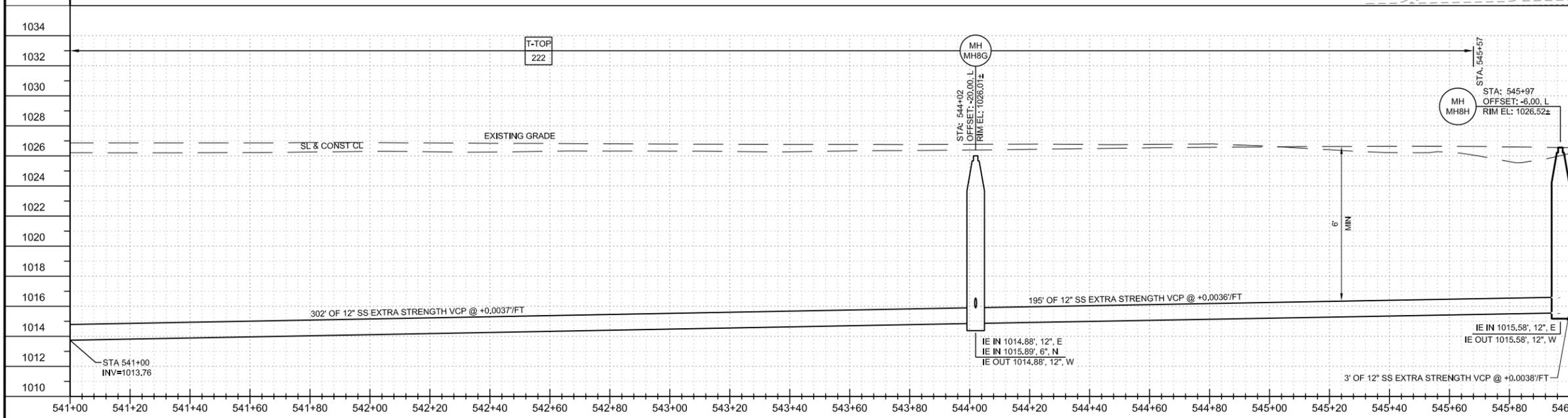
ORIGINAL PLAN DATE
LATEST REVISION DATE
12/12/19

PROJECT NUMBER
SHEET NUMBER
28688
24 OF 30

C-019



LOWER BUCKEYE ROAD

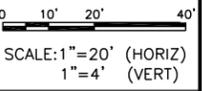


SUBMITTAL

COB PLAN TRACKING #
COB PERMIT #

NOTES

- ⑥ INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- ⑮ INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- ⑳ CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
- ㉑ INSTALL 6" PVC PIPE (SDR-26), PER ASTM D3034.
- ① ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- ⑨ REMOVE, SALVAGE, AND REINSTALL EXISTING TRAFFIC SIGN POST AND PANEL PER COB STD DTL 65120.
- ⑬ REMOVE EXISTING SANITARY SEWER MANHOLE.
- ⑭ CUT & PLUG PER MAG STD DTL 427.
- ⑤ PROTECT EXISTING FEATURE IN PLACE.

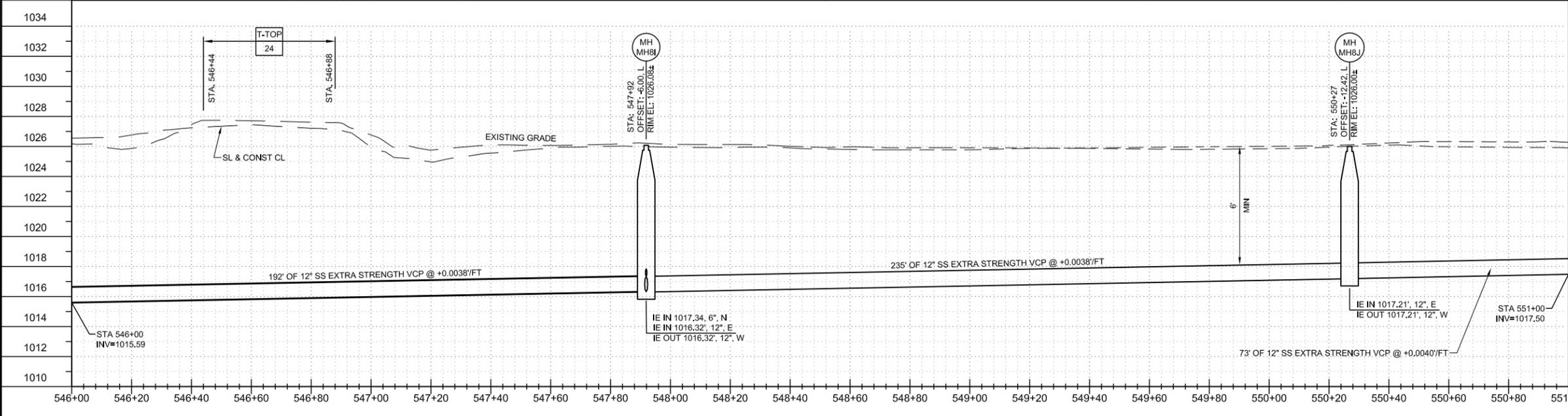
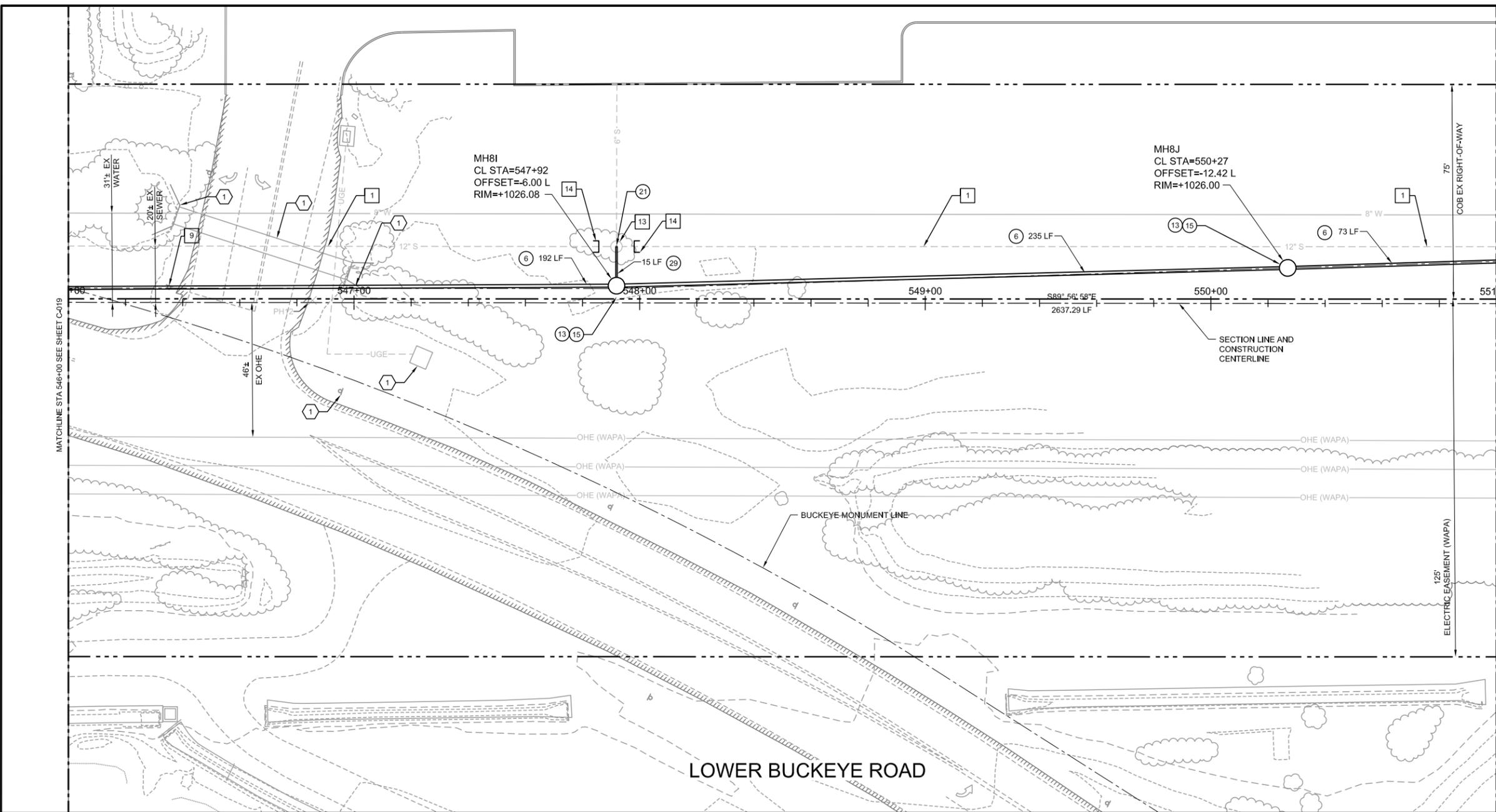


REVISIONS:

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PLAN NAME
**CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 LOWER BUCKEYE ROAD**

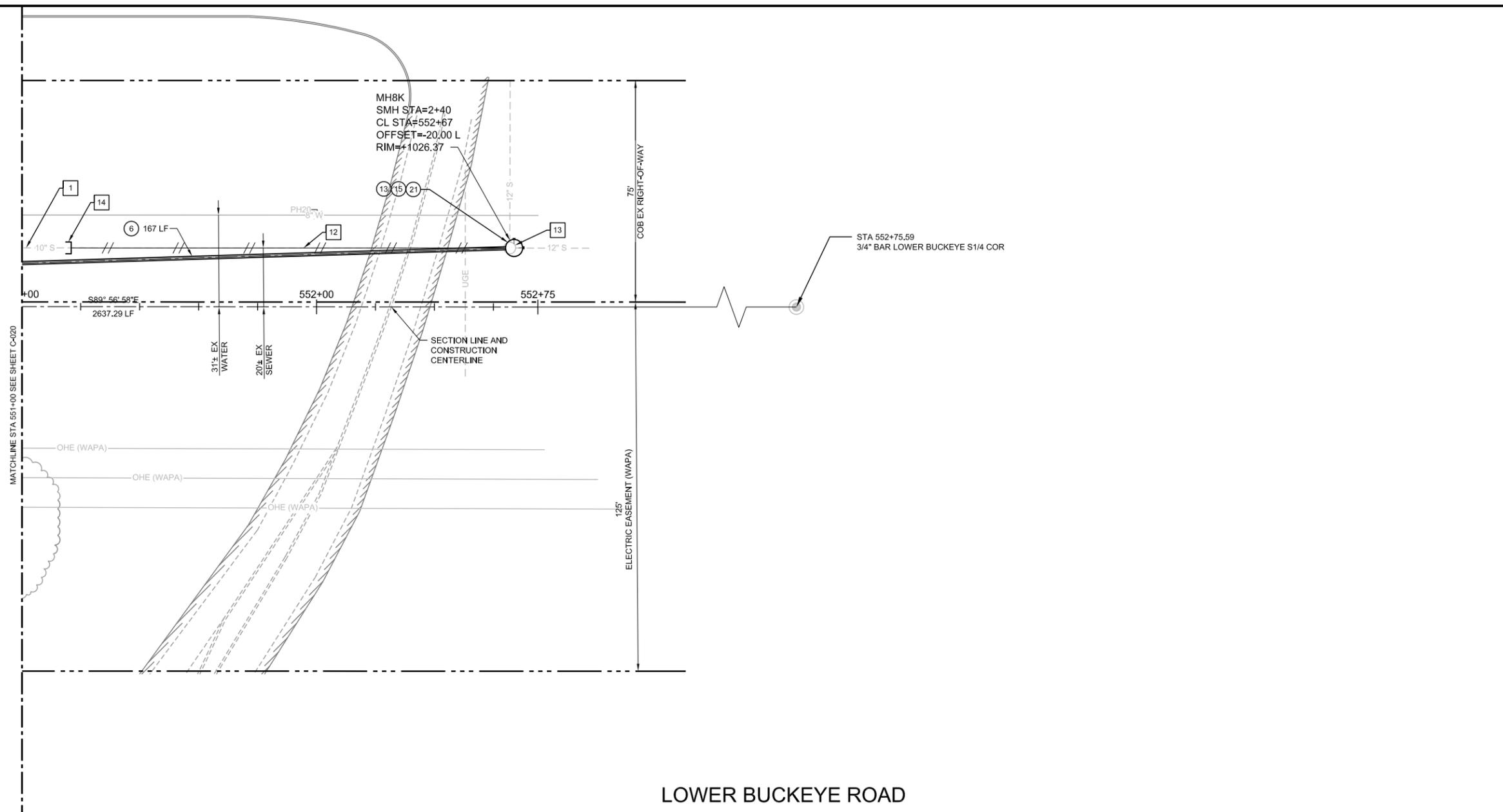
ENGINEER INFORMATION	
Stanley Consultants inc.	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
28688	25 OF 30



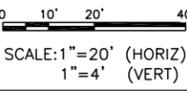
SUBMITTAL
COB PLAN TRACKING #
COB PERMIT #

NOTES

- 6 INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
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- 21 CONNECT EXISTING SEWER TO NEW MANHOLE PER MAG SPEC SECT 615 & COB STD DTL 41240.
- 1 ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- 12 REMOVE EXISTING 12" SEWER PIPE.
- 13 REMOVE EXISTING SANITARY SEWER MANHOLE.
- 14 CUT & PLUG PER MAG STD DTL 427.

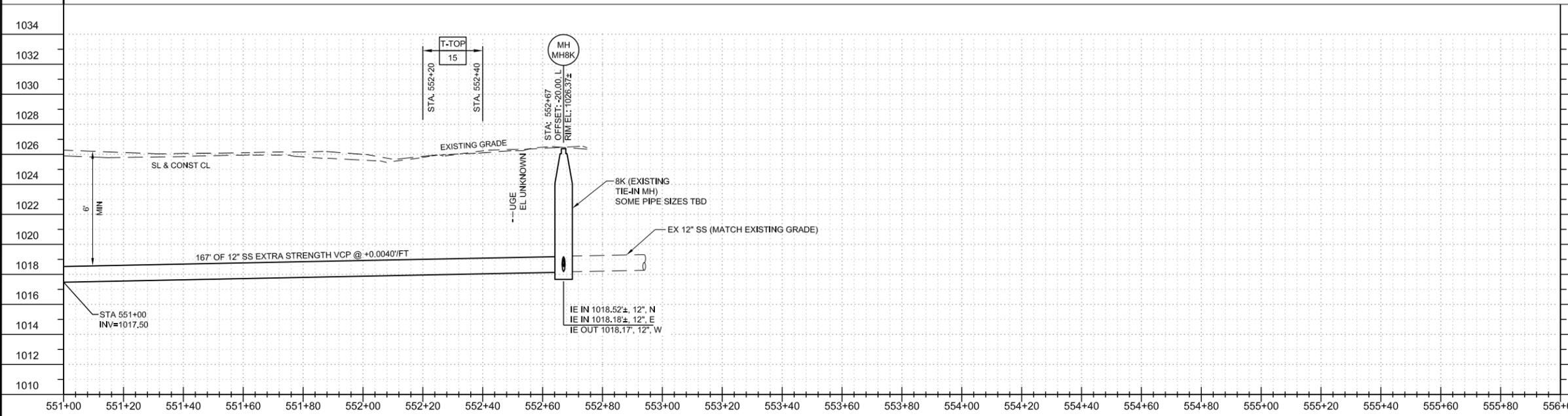


LOWER BUCKEYE ROAD



REVISIONS:

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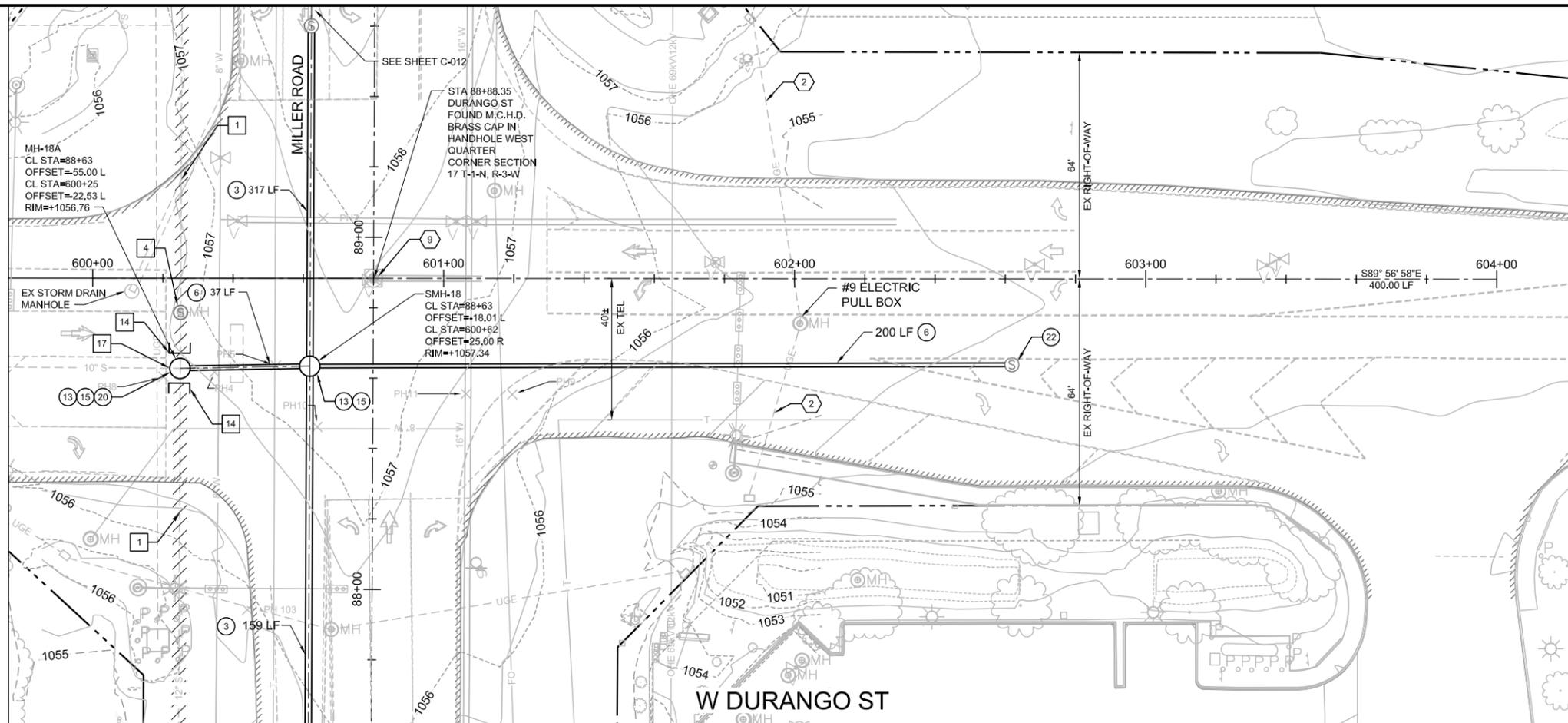
PLAN NAME
 CITY OF BUCKEYE ARIZONA
 NORTH MILLER ROAD
 TRUNK SEWER EXTENSION
 PLAN AND PROFILE
 LOWER BUCKEYE ROAD

ENGINEER INFORMATION

 1651 East Camelback Road, Suite 400, Phoenix, Arizona 85016
 www.stanleyconsultants.com

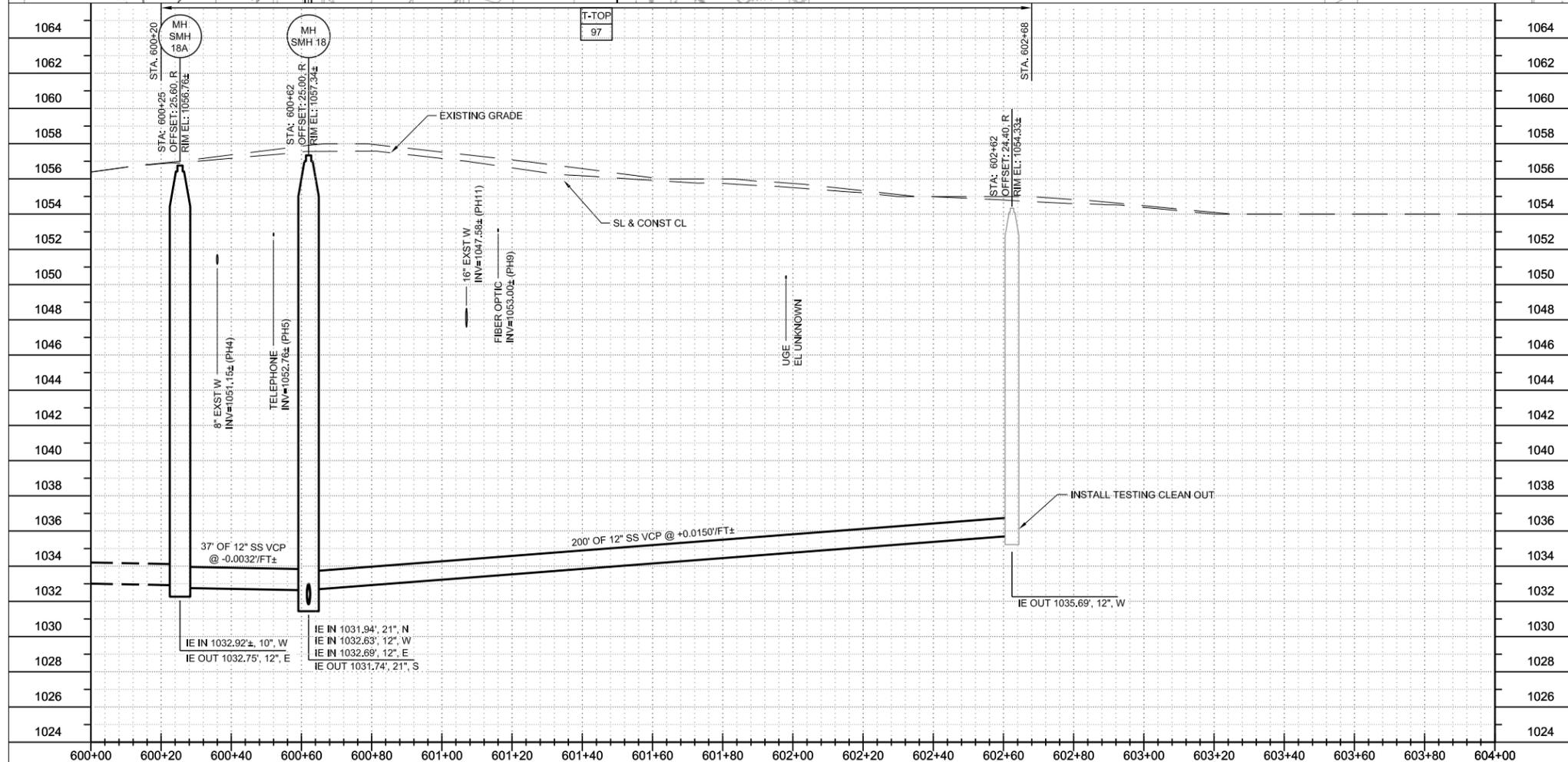
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1030	1030		
1028	1028		
1026	1026		
1024	1024		
1022	1022		
1020	1020		
1018	1018	AS-BUILT SEAL	DESIGN SEAL
1016	1016		
1014	1014		
1012	1012	ORIGINAL PLAN DATE	LATEST REVISION DATE
1010	1010	PROJECT NUMBER	SHEET NUMBER
		28688	26 OF 30

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #



NOTES

- ③ INSTALL 21" EXTRA STRENGTH VCP SEWER PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑥ INSTALL 12" SEWER PIPE, VCP PIPE (ASTM C700) PER MAG SECT 615 & 743, AND COB STD DTL'S 41300-1 & 41300-2.
- ⑬ INSTALL 5' DIA ACID RESISTANT POLYMER MANHOLE BASE WITH PRECAST POLYMER MANHOLE SHAFTS & CONE SECTION PER PROJECT SPECIFICATIONS.
- ⑮ INSTALL 30" MANHOLE FRAME/COVER (NEW MANHOLES) PER MAG SECT 345 & MAG STD DTL'S 422 & 424-2 (LETTERING PER COB STD DTL 41260 - ADDENDUM DATED 06-21-2016).
- ⑳ CONNECT EXISTING SEWER PIPE TO MANHOLE PER MAG SPEC SECTION 615.
- ㉒ INSTALL TESTING CLEAN OUT PER COB STD DTL 41270.
- ① ABANDON IN-PLACE 12" SEWER PIPE PER PROJECT SPECIFICATIONS.
- ④ ABANDON EXISTING MANHOLE PER PROJECT SPECIFICATIONS.
- ⑭ CUT & PLUG PER MAG STD DTL 427.
- ⑰ PRIOR TO ALL CONSTRUCTION CONTRACTOR SHALL VERIFY EXISTING 10" SEWER INVERT ELEVATION.
- ② PROTECT EXISTING ELECTRIC IN PLACE.
- ⑨ PROTECT EXISTING SURVEY MARKER IN PLACE.

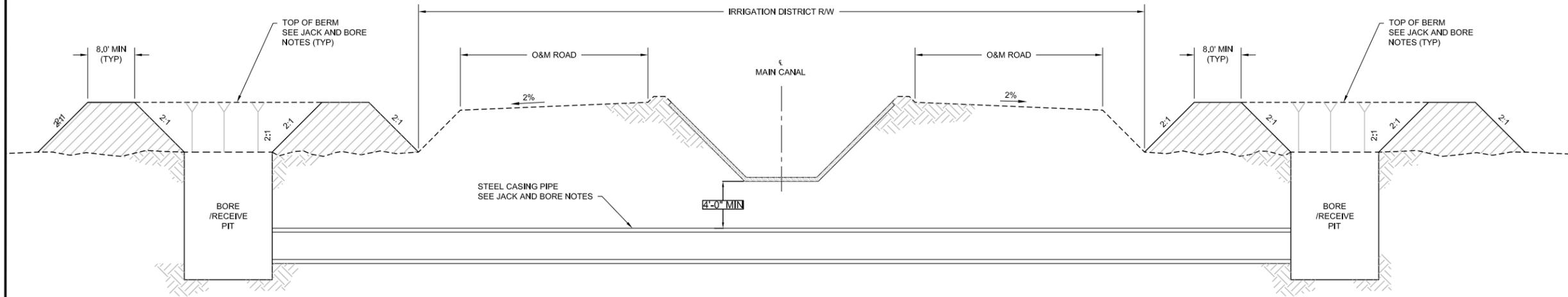


Contact Arizona 811 at least two full working days before you begin excavation.
 Call 811 or click Arizona811.com

SCALE: 1" = 20' (HORIZ)
 1" = 4' (VERT)

REVISIONS:	
①	
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③	
PLAN NAME	
CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION PLAN AND PROFILE DURANGO STREET	

ENGINEER INFORMATION		 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	SUBMITTAL
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL		
AS-BUILT SEAL	DESIGN SEAL		COB PERMIT #
ORIGINAL PLAN DATE	LATEST REVISION DATE		
PROJECT NUMBER	SHEET NUMBER		
28688	27 OF 30		



SECTION - JACK/BORE CROSSING OF RID MAIN CANAL

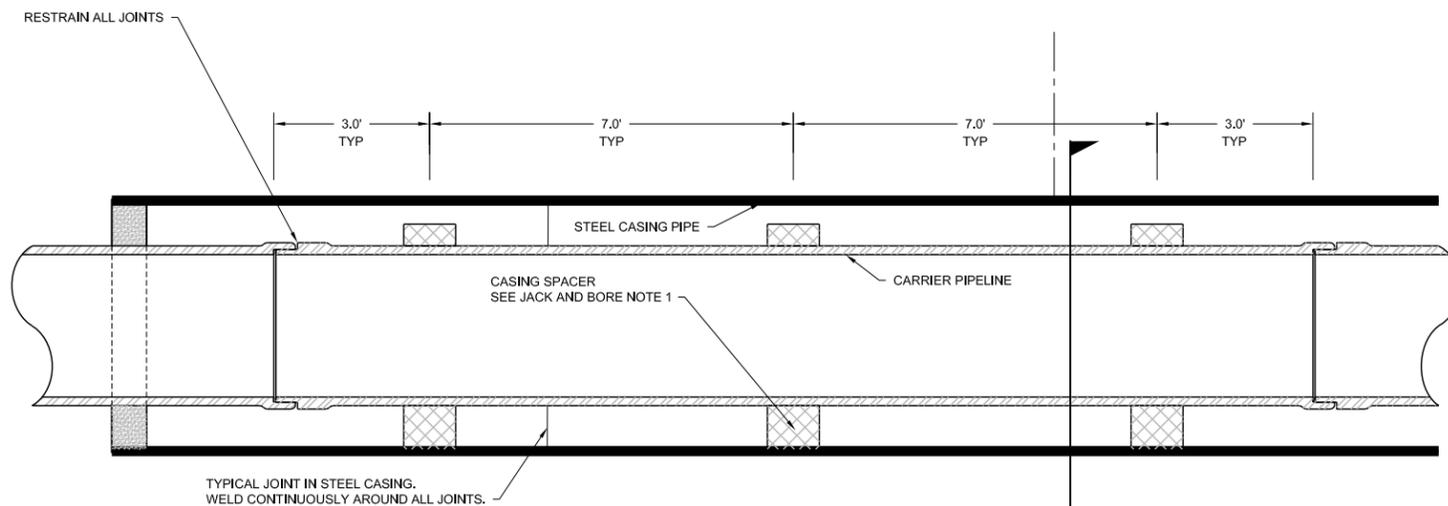
NTS

JACK AND BORE NOTES

1. JACK AND BORE PER MODIFIED MAG STD SPECIFICATION 602 AS NOTED BELOW:
 - A. ADVANCE CASING SPACER OR APPROVED EQUIVALENT.
 - B. TWO BLOCK ANGLES VARY TO MAINTAIN REQUIRED CLEARANCES AND PROPER INSTALLATION.
 - C. RESTRAIN ALL CARRIER PIPE JOINTS WITH FLEXIBLE JOINT RESTRAINT OPTIONS (AMERICAN FLEX-RING JOINT OR AN EQUIVALENT) OR MECHANICAL JOINT RESTRAINT (MEGA LUGS OR AN EQUIVALENT).
 - D. END SLEEVE PLUG SEE DETAIL THIS SHEET.
2. JACK AND BORE PIPES MUST EXTEND FROM EDGE OF IRRIGATION DISTRICT'S R/W TO R/W.
3. MINIMUM CLEARANCE FROM BOTTOM OF LINING OF DISTRICT'S CANAL TO TOP OF CASING PIPE OR ROAD GRADE:
 - A. EXIST LINED 4 FT
 - B. EXIST UNLINED 6 FT FROM BOTTOM OF NEW SHOTCRETE LINING
4. UNLESS OTHERWISE APPROVED BY THE DISTRICT, NO EXCAVATION IS PERMITTED WITHIN DISTRICT R/W.
5. ALL BORE AND RECEIVING PITS MUST BE CONSTRUCTED COMPLETELY OUTSIDE OF DISTRICT'S R/W (INCLUDING ALL SLOPING).
6. BORE AND RECEIVING PITS MUST BE BERMED TO THE TOP OF CANAL ELEVATION. THE SIDESLOPES SPECIFIED WILL NOT BE STEEPER THAN 2:1.
7. NO MANHOLES, RISERS, VALVES OR OTHER SIMILAR FACILITIES ARE TO BE PLACED IN ANY PORTION OF THE DISTRICT'S R/W.
8. ALL AFFECTED PORTIONS OF THE DISTRICT'S R/W, INCLUDING ROAD SURFACES, SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER.
9. COMPLETELY REMOVE ALL DIRT AND DEBRIS AFTER COMPLETION OF JACK AND BORE CONSTRUCTION.
10. SAND SHALL BE USED TO FILL PIPE.

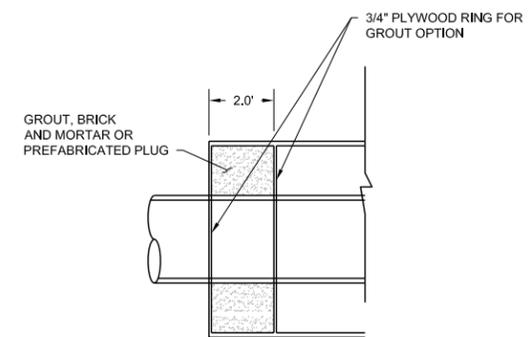
GENERAL NOTES

1. ALL CONSTRUCTION PLANS MUST BE REVIEWED AND APPROVED BY THE IRRIGATION DISTRICT.
2. A DISTRICT "RIGHT-OF-WAY CROSSING PERMIT" MUST BE OBTAINED BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS.
3. ALL CONSTRUCTION WORK MUST BE SCHEDULED AND COORDINATED WITH THE DISTRICT'S CONSTRUCTION OBSERVER AT (602) 284-7017.
4. ALL CONSTRUCTION SCHEDULING WILL BE APPROVED BY THE IRRIGATION DISTRICT. THE DISTRICT MAY REQUIRE JACK AND BORE OPERATIONS TO BE COMPLETED DURING THE ANNUAL DRY-UP.
5. EXISTING DISTRICT FACILITIES MUST REMAIN OPERATIONAL, AND SHALL NOT BE DISTURBED OR RENDERED INACCESSIBLE TO DISTRICT OPERATIONS AND MAINTENANCE STAFF UNTIL CONSTRUCTION HAS BEEN COMPLETED AND ACCEPTED AS ADEQUATE BY THE DISTRICT.
6. ALL CONSTRUCTION INCLUDING, BUT NOT LIMITED TO: EQUIPMENT, FENCING, SPOILS, ETC. MUST REMAIN OUTSIDE OF DISTRICT R/W UNLESS OTHERWISE APPROVED BY THE DISTRICT.



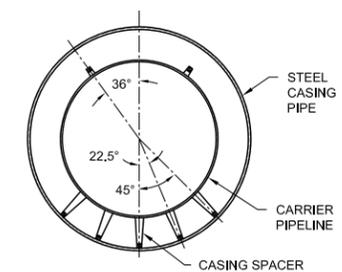
SITE PLAN

NTS



END SLEEVE PLUG DETAIL

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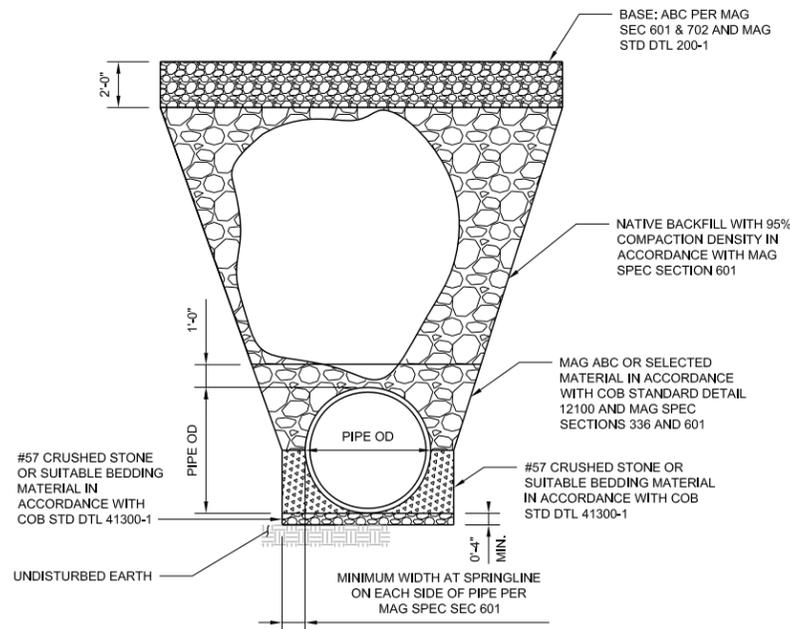
SECTION

NTS



REVISIONS:	
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PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION JACK AND BORE CROSSING DETAIL MILLER ROAD	
ENGINEER INFORMATION Stanley Consultants inc. 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE
PROJECT NUMBER	SHEET NUMBER
28688	28 OF 30
D-001	

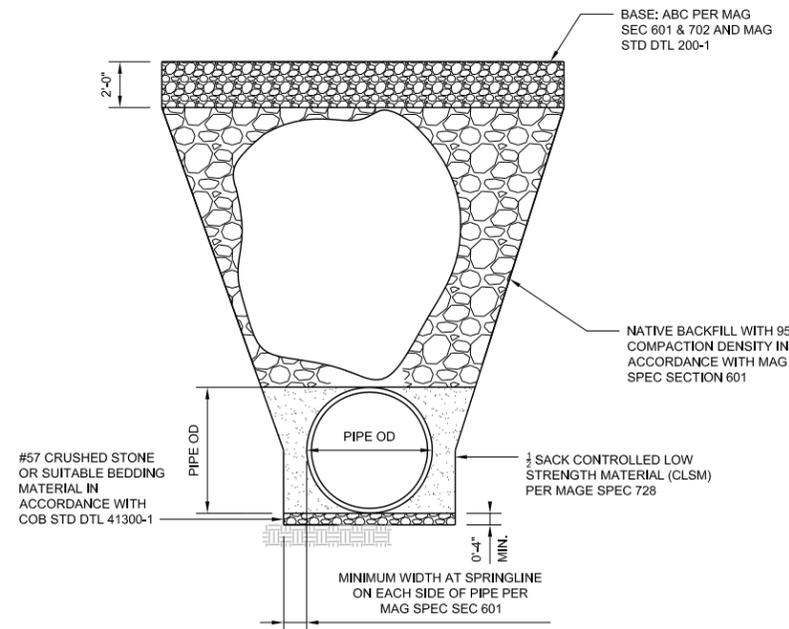
SUBMITTAL:
COB PERMIT #



TYPE I TRENCH DETAIL FOR UNPAVED AREAS

NTS
NOTES:

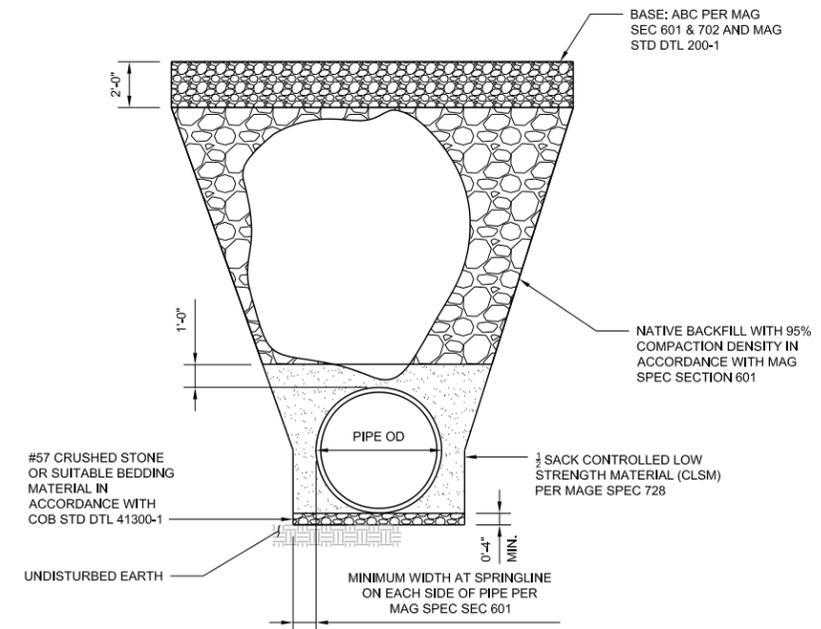
1. TRENCH BACKFILL AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG STANDARD DETAIL 200-1.
2. TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH MAG SPEC SEC 601.
3. TRENCH TYPES SHALL FOLLOW DESIGNATIONS PER COB STANDARD DETAIL 41300-1 AND 41300-2.



TYPE III TRENCH DETAIL FOR UNPAVED AREAS

NTS
NOTES:

1. TRENCH BACKFILL AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG STANDARD DETAIL 200-1.
2. TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH MAG SPEC SEC 601.
3. TRENCH TYPES SHALL FOLLOW DESIGNATIONS PER COB STANDARD DETAIL 41300-1 AND 41300-2.



TYPE IV TRENCH DETAIL FOR UNPAVED AREAS

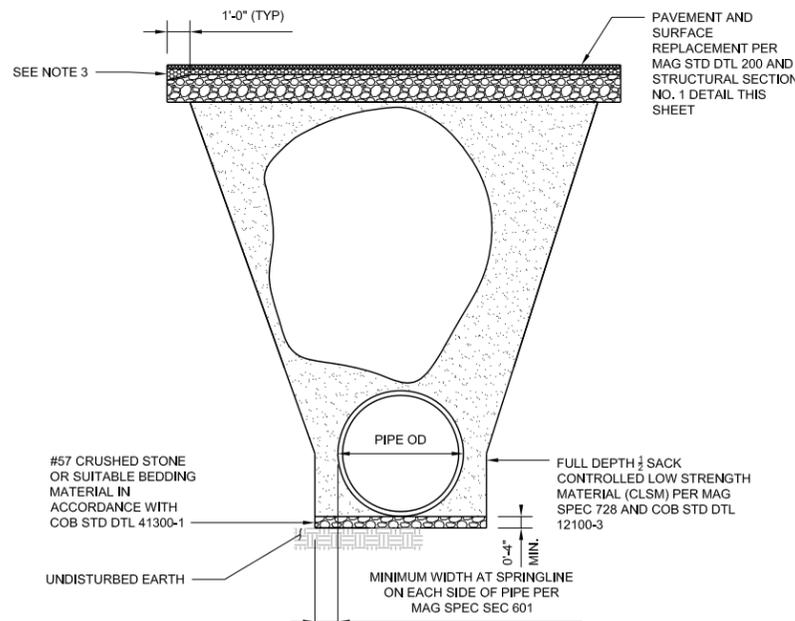
NTS
NOTES:

1. TRENCH BACKFILL AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG STANDARD DETAIL 200-1.
2. TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH MAG SPEC SEC 601.
3. TRENCH TYPES SHALL FOLLOW DESIGNATIONS PER COB STANDARD DETAIL 41300-1 AND 41300-2.

TRENCH TYPE TABLE		
FROM STATION	TO STATION	TRENCH TYPE
31+11 (EXCAVATION LIMITS)	31+61 (EDGE OF BORE PIT LIMITS)	IV
35+84 (EDGE OF BORE PIT LIMITS)	40+00	IV
40+00	45+72	III
45+72	46+08	FULL DEPTH CLSM SEE NOTE 1
46+08	60+62	III
60+62	71+88	FULL DEPTH CLSM
71+88	78+90	III
78+90	81+70	IV
81+70	102+15	FULL DEPTH CLSM
526+08	547+20	FULL DEPTH CLSM
547+20	552+67	I
552+00	552+70 (EXCAVATION LIMITS)	FULL DEPTH CLSM
600+25	602+62 (EXCAVATION LIMITS)	FULL DEPTH CLSM

NOTE:

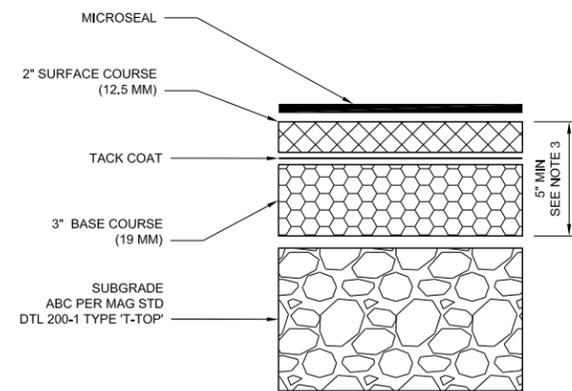
1. SURFACE REPLACEMENT FOR STA 45+72 TO 46+08 SHALL MATCH EXISTING CONDITIONS.



TRENCH DETAIL FOR PAVED AREAS

NTS
NOTE:

1. ALL TRENCH REPAIR FOR PAVED AREAS SHALL BE "T TOP" PER MAG STANDARD DETAIL 200-1 AND ACCORDING TO THE CITY OF BUCKEYE GENERAL CONSTRUCTION NOTES STANDARD DETAIL 121000.
2. TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH MAG SPEC SEC 601 TABLE 601-1.
3. ALL EDGE OF PAVEMENT REPLACEMENT SHALL BE THICKENED EDGE MAG STD DTL 201 "TYPE B".



STRUCTURAL SECTION NO. 1

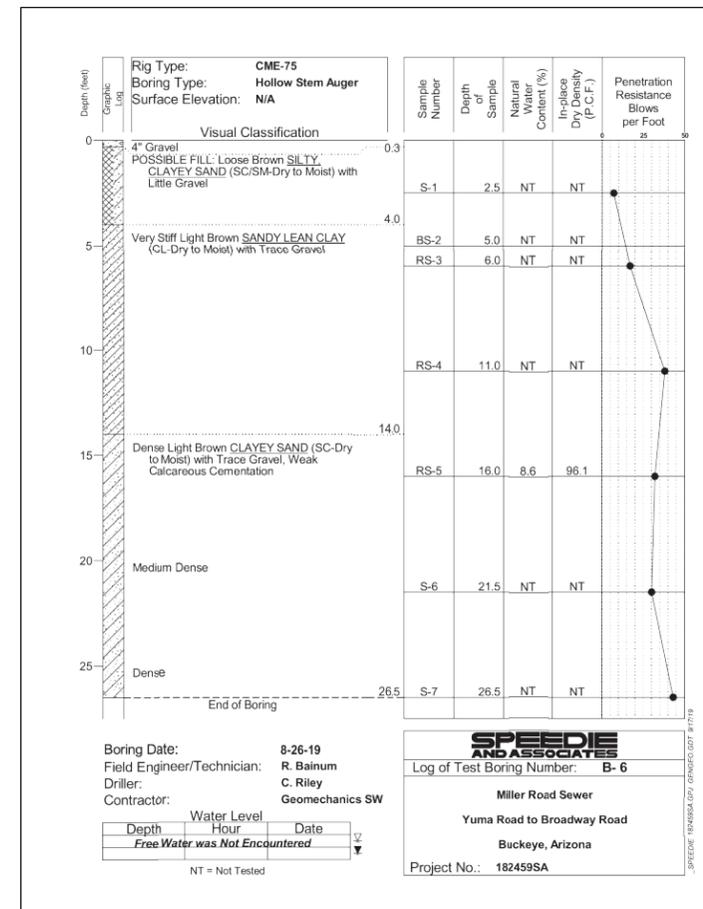
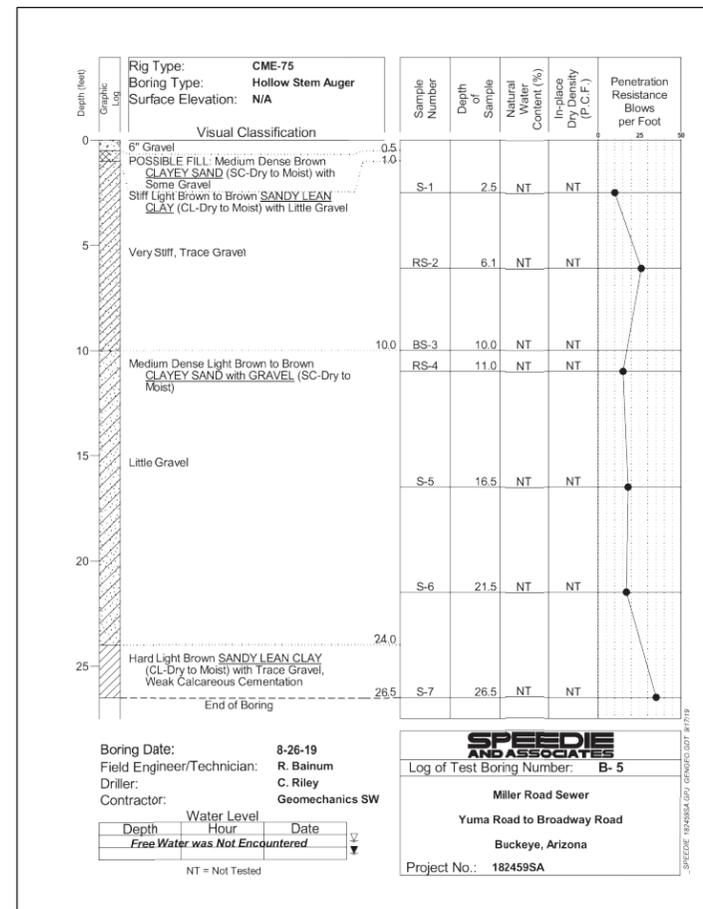
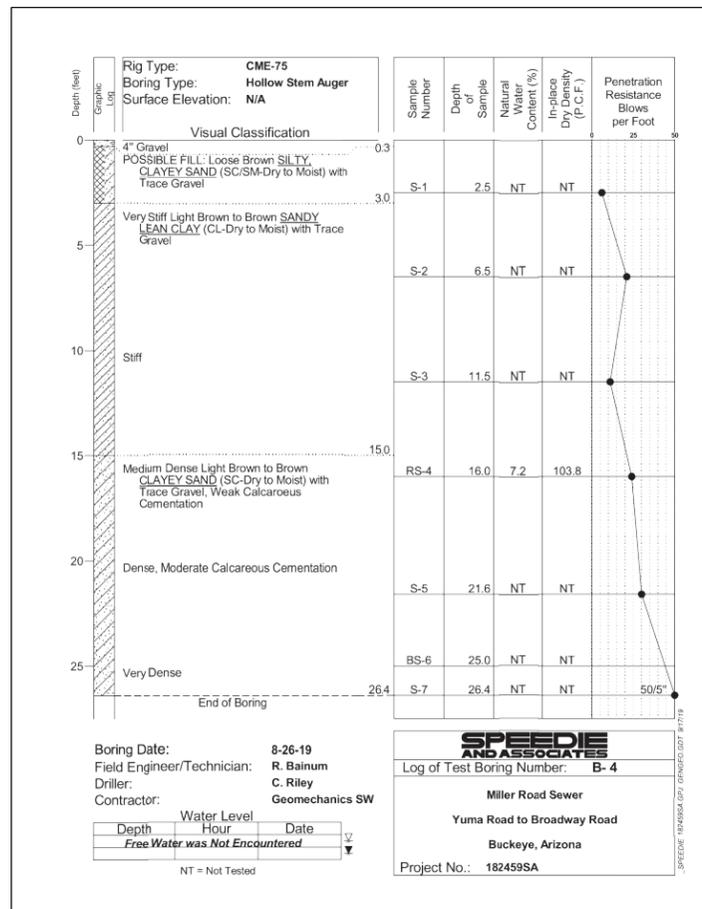
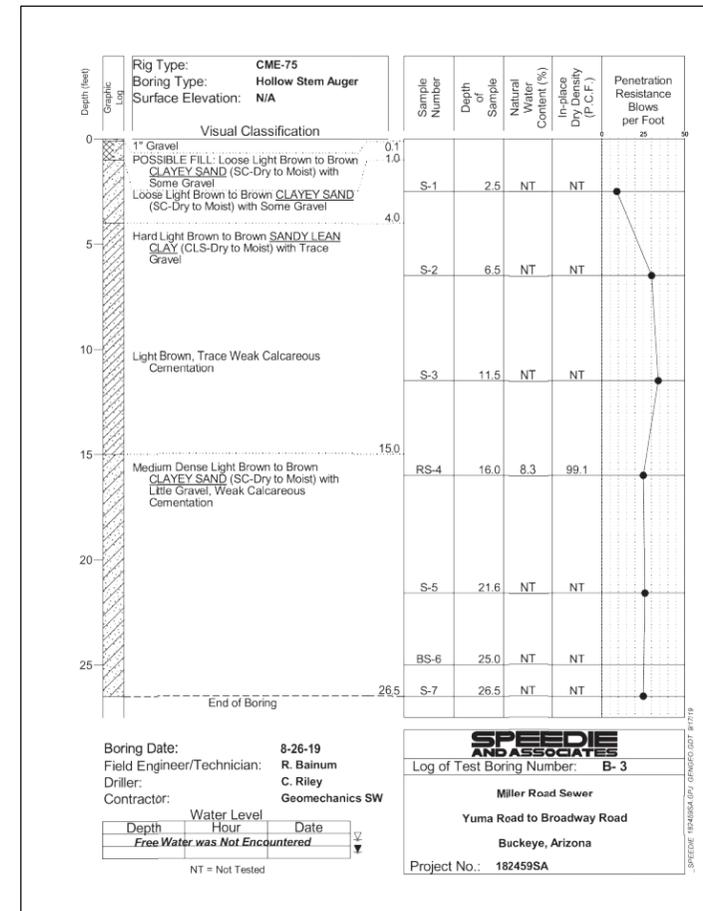
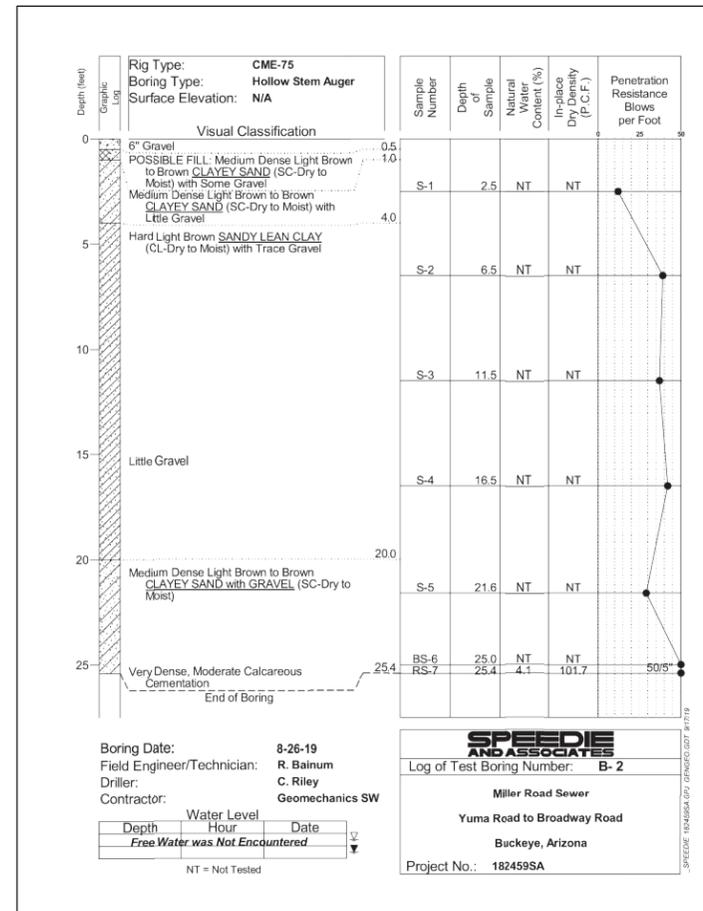
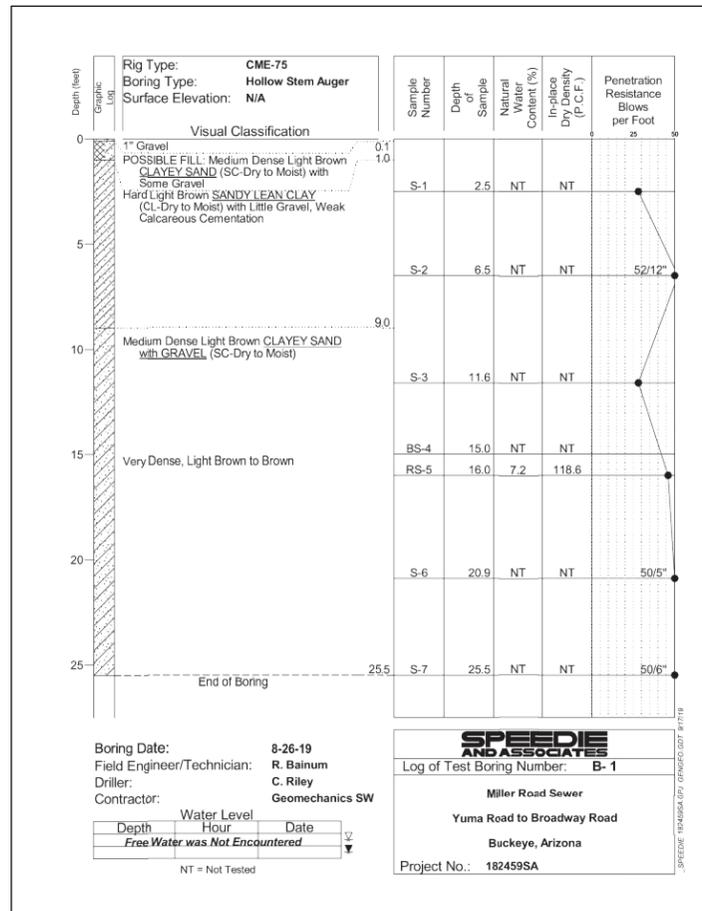
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NOTES:

1. LIFTS SHALL NOT EXCEED 3 INCHES.
2. 5" MIN OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER, SEE NOTE 1.

REVISIONS:	
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PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION MISCELLANEOUS DETAILS MILLER ROAD	
ENGINEER INFORMATION Stanley Consultants inc. 1951 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 29 OF 30
D-002	



SUBMITTAL: COB PERMIT #



REVISIONS:	
1	
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PLAN NAME CITY OF BUCKEYE ARIZONA NORTH MILLER ROAD TRUNK SEWER EXTENSION BORING LOGS MILLER ROAD	
ENGINEER INFORMATION Stanley Consultants inc. 1001 East Camelback Road, Suite 400, Phoenix, Arizona 85016 www.stanleyconsultants.com	
COB PERMITTING APPROVED SEAL	COB ENGINEERING APPROVED SEAL
AS-BUILT SEAL	DESIGN SEAL
ORIGINAL PLAN DATE	LATEST REVISION DATE 12/12/19
PROJECT NUMBER 28688	SHEET NUMBER 30 OF 30
D-003	

SUBMITTAL:
COB PLAN TRACKING #
COB PERMIT #