EXHIBIT 4-A

Construction Bidding Document Template
for

NEW MEXICO
COMMUNITY DEVELOPMENT BLOCK GRANT
PUBLIC WORKS PROJECTS

CDBG No.: 19-C-NR-I-01-G-18

CITY OF ALAMOGORDO, NEW MEXICO
Public Works Bid No.: PW 2022-004

Alamogordo ADA Compliant Sidewalk Improvements

August 24, 2022

City Commission
Susan L. Payne, Mayor
Dusty Wright, Mayor Pro-Tem
Nick Paul
Stephen Burnett
Karl Melton
Josh Rardin
Sharon McDonald

City Manager – Brian Cesar

Note: These documents are issued by the Owner for use for Small Cities Community Development Block Grant construction projects and include pertinent federal and state procurement statutes and regulations. The document format promulgated by the Construction Specifications Institute, CSI Document MP-2-1 and was used as a guideline in formulating the organization of these documents. These documents have important legal consequences; consultation with an attorney is encouraged with respect to its modification or completion and approval by the Funding Agency with respect to its modification. Any approved modifications are to be included at the end of each section. This Document has been formatted and pages numbered so copies can be run on both sides (front and back).

Engineer of Record: Smith Engineering Company
Attn: Rusty Payne, P.E.
Email: rustyp@smithengineering.pro

Surveyor of Record: Precision Land Surveyors NM
Attn: R. Gerry Ibarra, P.S.
Phone: 575-640-0474
Email: rgibarra@plsnm.com

Alamogordo ADA Compliant Sidewalk Improvements

CDBG No.: 19-C-NR-I-01-G-18
Public Works Bid No.: PW 2022-004

The technical material and data contained in the specifications were prepared under the supervision and direction of the undersigned, whose seal as a Professional Engineer, licensed to practice in the State of New Mexico, is affixed below.

Rusty W. Payne — 07/14/2022

Rusty W. Payne, P.E. License No. 23566 — Date

Owner Approval for Construction — Date

All questions about the meaning or intent of these documents shall be submitted only to the Engineer of Record, stated above, in writing. Refer to paragraph 3.2 of the Instructions to Bidders as to interpretations.

SMITH ENGINEERING

Smith Engineering Company
201 N. Church St, Suite 200A
Las Cruces, New Mexico 88001
575-523-2395

BIDDING AND CONTRACT DOCUMENTS INDEX

DIVISION 0 - BIDDING REQUIREMENTS

TECHNICAL SPECIFICATIONS

The City of Alamogordo Technical Standards shall govern the construction of this project.

PRE-BID INFORMATION

PRE-BID INFORMATION
Section 00010

1.0 PREQUALIFICATION FORMS

Section 00011

Not Required

2.0 DEBARRED OR SUSPENDED CONTRACTORS

Section 00012

2.1 A business (contractor, subcontractor or supplier) that has either been debarred or suspended pursuant to the requirements of Sections 13-1-177 through 13-1-180, and Sections 13-4-11 through 13-4-17 NMSA 1978 as amended, shall not be permitted to do business with the Owner and shall not be considered for award of contract during the period for which it is debarred or suspended with the Owner.

3.0 FEDERAL AND STATE LAWS AND REGULATIONS

Section 00013

3.1 State administered Community Development Block Grant monies are Federal funds. Section13-1-30B NMSA 1978 of the Procurement Code stipulates: "When a procurement involves the expenditure of federal funds, the procurement shall be conducted in accordance with mandatory applicable federal law and regulations. When mandatory applicable federal law or regulations are inconsistent with the provisions of the Procurement Code, compliance with federal law or regulations shall be compliance with the Procurement Code." The applicable governing federal procurement standards are defined in OMB Circular A-102, Attachment O. When federal and state procurement policies are different, the more restrictive policies apply so long as they are consistent with Circular A-102 standards.

3.2 For purposes of these Bidding Documents, the term "Grantee" means the Owner. The term "Funding Agency" means the Local Government Division, Department of Finance and Administration, Bataan Memorial Building, Suite 202, Santa Fe, New Mexico 87501, 505-827-8051.

4.0 REGISTRATION OF CONTRACTORS AND SUBCONTRACTORS

Section 00014

4.1 A contractor or subcontractor that submits a bid valued at more than $60,000 for a public works project subject to the Public Works Minimum Wage Act shall be registered with the Labor and Industrial Division of the New Mexico Department of Workforce Solutions (NMDWS).

4.2 The contractor submitting a bid and all subcontractors must have a Dun and Bradstreet Number (DUNS) and registration with System of Awards Management (SAM).

4.3 A contractor or subcontractor that submits a bid regardless of the contract amount must be licensed and registered, and cannot be debarred. For any contracts $60,000 and over the contractor or subcontractor must be current with annual Labor Enforcement Fund payments.

4.4 The Owner shall not accept a bid on a public works project from a Contractor that does not provide proof of required registration for itself (§13-4-13.1 NMSA 1978). Contractors, prime contractors and subcontractors shall be registered with the NMDWS.

4.5 See Bid Form and Subcontractor Listing form for Registration Numbers to be provided.

NOTICE OF INVITATION FOR BID

Competitive sealed bids will be received by the Owner, for

Alamogordo ADA Compliant Sidewalk Improvements

for IFB Nº. **PW 2022-004** Project No.: **CDBG 19-C-NR-I-01-G-18**

Project: The work shall consist of construction of new concrete sidewalks, concrete curb and gutter, ADA compliant ramps, concrete driveways (residential and all entrances), and asphalt pavement patching. Limited demolition of concrete flat work, vegetation trimming, and asphalt pavement will be required to complete construction. Limited utility adjustments will be required to include valve box adjustments with new concrete collars, water meter can adjustments, and manhole adjustments with new concrete collars. Traffic control will also be required to maintain access to area residents and businesses as well as guidance for the traveling public (vehicular and pedestrian).

Sealed Bids will be received by the City of Alamogordo at 1376 E. Ninth Street, Alamogordo, New Mexico, 88310, Attn: Engineering Department for the construction of the project known as **Alamogordo ADA Compliant Sidewalk Improvements, Public Works Bid No. 2022-004,** until 2:00 p.m. on August 24, 2022 at which time bids will be opened and publicly read aloud.

Complete sets of the bidding documents may be obtained on the City's Website through Vendor Registration and Bid Notification System or at the office of the Engineer: Smith Engineering Company, 201 N. Church St, Suite 200A, Las Cruces, NM 88001. Prospective bidders must attend a Pre-Bid Conference which will be held at Commission Chambers, 1376 E. Ninth Street, Alamogordo on August 10, 2022 at 2:00 pm.

This Project is funded in whole or in part by a grant from the state of New Mexico Small Cities Community Development Block Grant Program and is subject to requirements of the United States Department of Housing and Urban Development and the funding agency.

Chief Procurement Officer:

Barbara Pyeatt Date: 7-14-22

Barbara Pyeatt
City of Alamogordo

(FOR OWNER USE ONLY)

Newspaper:	Alamogordo Daily News	Publish:	July 24 & 31, 2022
Newspaper:	Albuquerque Journal	Publish:	July 24 & 31, 2022
Newspaper:		Publish:	

(Note: This Notice is issued pursuant to the requirements of 13-1-104 NMSA 1978)

INVITATION FOR BID

PRE-BID INFORMATION
Section 00022

Project:

Alamogordo ADA Compliant Sidewalk Improvements

Project No. **CDBG 19-C-NR-I-01-G-18**

INVITATION FOR BID
CONSTRUCTION CONTRACT

Bid Number: PW Bid No. 2022-004

Architect/Engineer of Record:

Smith Engineering Company
201 N. Church St., Suite 200A
Las Cruces, New Mexico 88001

Owner:

City of Alamogordo
1376 E. Ninth Street
Alamogordo, New Mexico 88310

Sealed bids shall be submitted to:

Attn: Engineering Department
City of Alamogordo
1376 E. Ninth Street
Alamogordo, New Mexico 88310

Bids will be publicly opened after the Bid Deadline:

Date: August 24, 2022, Time: 2:00 PM MST

IMPORTANT: Bids must be submitted in a sealed envelope with the bid number and opening date clearly indicated on the bottom left-hand side of the front of the envelope.

Sealed Bids will be received until the above-specified date and local time, then publicly opened and read aloud. All hand-delivered bids must be received at the Office of the Purchasing Agent, address shown above.

This Bid is subject to the requirements of the Bidding Documents as defined in the "Instructions to Bidders," Section 00100. The Bid Form must be accompanied by a surety bond, subcontractor listing form, and documents specified in the "Instructions to Bidders."

Bidding Documents may be obtained at the office of the Architect/ Engineer of Record upon payment of $50.00 for each complete set. Checks should be made payable to Smith Engineering Company. Incomplete sets will not be issued. The successful Bidder will receive refund of his deposit, and any unsuccessful Bidder who returns the Bidding Documents in good and complete condition within 15 days of the Bid Opening will also receive refund of his deposit. of this deposit. No deposits will be returned after the 15 day period.

Proposed Bid Schedule:

Date Published: **07/24 & 7/31/2022**
Prebid meeting: **08/10/2022 2:00 PM**
Bid Opening: **08/24/2022 2:00 PM**

BIDDING DOCUMENTS MAY BE REVIEWED AT

City Website through Vendor Registration and Bid Notification System

or by emailed requests to either:
bpyeatt@ci.alamogordo.nm.us
or
cgebhardt@ci.alamogordo.nm.us

Bids shall be presented in the form of a total Base Bid proposal under a Lump Sum Contract plus any additive or deductive alternates that are selected by the Owner. A bid must be submitted on all bid items and alternates; segregated bids will not be accepted. [Base Bid price shall not include state

gross receipts or local options taxes. However, estimated tax shall be shown on the bid. In submitting this bid, each Bidder must satisfy all terms and conditions of the Bidding Documents]

All work covered by this Invitation for Bid shall be in accordance with applicable state laws and is subject to the minimum wage rate determination issued by the office of the Labor Commissioner for this project.

Bid security in the form of a surety bond executed by a surety company authorized to do business in the state of New Mexico in the amount of **5%** of the total bid, or the equivalent in cash by means of a cashier's check or in a form satisfactory to the Owner, must accompany each bid in accordance with the Instructions to Bidders.

A 100% performance bond and a 100% payment and materials bond executed by a surety company authorized to do business in this state and said surety to be approved in federal circular 570 as published by the United States treasury department shall be required from the successful Bidder.

A completed Subcontractor Listing Form must accompany each bid.

The Bidding Documents contain a time for completion of the work and further impose liquidated damages for failure to complete the work within that time period.

No Bidder may withdraw his bid for sixty (60) **days** after the actual date of the opening thereof. The Owner intends to award this Project to the lowest responsible Bidder. The Owner reserves the right to reject any and all bids, to waive technical irregularities, and to award the contract to the Bidder whose bid it deems to be in the best interest of the Owner.

The Bidder's attention is directed to the requirements of the Contract Documents for adherence to applicable federal, state and local statutes, regulations and ordinances; including but not limited to, requirements as to conditions of employment to be observed, minimum wage rates to be paid under the Contract, Section 3, Segregated Facilities, Section 109, Executive Order 11246, and bonding and insurance requirements.

This Project is funded in whole or in part by a grant from the state of New Mexico Small Cities Community Development Block Grant Program and is subject to requirements of the United States Department of Housing and Urban Development and the funding agency.

All potential bidders must attend a Pre-bid Conference which will be held on:

Date: **August 10, 2022** Time: **2:00 PM**

Location: **Commission Chambers**
1376 E. Ninth Street
Alamogordo, New Mexico

End of Invitation for Bid

1.0 DEFINITIONS AND TERMS

1.1 Terms used in these Bidding Documents which are defined in the Instructions to Bidders and in the Conditions of the Contract for Construction (General, Supplementary, and Other Conditions) have the meanings assigned to them in those documents.

1.1.1 *Addendum* means a written or graphic instrument issued prior to the opening of Bids which clarifies, corrects, or changes the Bidding Documents or Contract Documents. Plural: Addenda.

1.1.2 *Alternate Bid* means the amount stated in the Bid as the sum to be added from the amount of the Base Bid if the corresponding change in the project scope, materials, and/or methods of construction is awarded by the Owner.

1.1.3 *Base Bid* means the amount stated in the Bid as the sum for which the Bidder offers to perform the work, excluding alternate Bids.

1.1.4 *Bid* means the offer of the bidder submitted on the prescribed form setting forth the prices for the work to be performed in conformance with the Bidding Documents. This amount does not include gross receipts or local options taxes.

1.1.5 *Bid Lot* means a major item of work for which a separate quotation or proposal is requested.

1.1.6 *Bidder* means the one who submits a Bid directly to the Owner, as distinct from a subcontractor who submits a bid to a contractor.

1.1.7 *Bidding Documents* means the Bidding Requirements and the Contract Documents.

1.1.8 *Bid Form*. A form which shall include space in which the bid price shall be inserted and which the bidder shall sign and submit along with all other necessary submissions. A Bidder may submit a reasonable facsimile of the Bid Form. Oral, telephonic, and telegraphic bids are invalid and will not be considered.

1.1.9 *Bidding Requirements* means the Notice of Invitation for Bid, Pre-bid Information, Instructions to Bidders, Information Available for Bidders, the Bid Form, Supplements to the Bid Form, and portions of Addenda relating to any of these.

1.1.10 *Invitation for Bid (IFB)* means all documents including those attached or incorporated by reference or utilized for soliciting sealed bids.

1.1.11 *Responsible Bidder* means a Bidder who submits a Responsive Bid and who has furnished, when required, information and data to prove that his financial resources, production or service facilities, personnel, service reputation, and experience are adequate to make satisfactory delivery of the services, construction, or items of tangible personal property described in the Invitation for Bid.

1.1.12 *Responsive Bid* means a bid that conforms in all material respects to the requirements set forth in the Invitation for Bid.

1.1.13 *Successful Bidder* means the lowest responsible Bidder to whom the Owner, on the basis of the Owner's evaluation, makes an award. A Successful Bidder does not become the contractor until an agreement with the Owner is signed.

2.0 EXAMINATION OF BIDDING DOCUMENTS AND SITE

2.1 Before submitting a Bid, each Bidder must:

2.1.1 Examine the bidding Documents thoroughly;

2.1.2 Visit the site to familiarize himself with local conditions that may in any manner affects cost, progress, or performance;

2.1.3 Familiarize himself with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the Work; and

2.1.4 Study and carefully correlate the Bidder's observations with the Bidding Documents.

2.2 On request, the Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

2.3 The land upon which the Work is to be performed, rights-of-way for access thereto, and other lands designated for use by the Contractor in performing the work are identified in the Bidding Documents.

2.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he

has complied with every requirement of this Part and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

3.0 BIDDING DOCUMENTS

3.1 Copies of Bidding Documents

3.1.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Invitation may be obtained from the Architect/ Engineer (unless another issuing office is designated in the Invitation for Bid). The deposit will be refunded to Bidders who submit a bona-fide bid and return the bidding Documents in good and complete condition within 15 calendar days after opening of Bids.

3.1.2 Complete sets of Bidding Documents shall be used in preparing bids; neither the Owner nor the Architect/Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 The Owner and the Architect/Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3.2 Interpretations

3.2.1 All questions about the meaning or intent of the Bidding Documents shall be submitted to the Architect/ Engineer in writing. Replies will be issued by addenda mailed or delivered to all parties recorded by the Architect/ Engineer as having received the Bidding Documents. Questions received less than 7 calendar days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

3.2.2 Bidders and Subcontractor shall promptly notify the Architect/Engineer of any ambiguity, inconsistency, or error that they may discover upon examination of the Bidding Documents or of the site and local conditions.

3.3 Substitute Material and Equipment

3.3.1 The contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by the contractor if acceptable to the Architect/Engineer, application for such acceptance will not be considered by the Architect/Engineer unless submitted to the Architect/Engineer at least ten days prior to the date for opening Bids. Any allowance of substitutions will be published to all prospective Bidders via addendum. The procedure for submittal of any such application by the Contractor and consideration by the Architect/ Engineer is set forth in the Contract Documents.

3.4 Addenda

3.4.1 Addenda will be mailed or delivered to all that are known by the Architect/ Engineer to have received a complete set of Bidding Documents.

3.4.2 Copies of addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an addendum withdrawing the request for bids or one which includes postponement of the date for receipt of bids.

4.0 BIDDING PROCEDURES

4.1 Form and Style of Bids

4.1.1 Bids shall be submitted on forms identical to the form included with the Bidding Documents.

4.1.2 All blanks on the Bid Form shall be filled in by typewriter or manually in ink.

4.1.3 Where so indicated by the makeup of the bid firm, sums shall be expressed in both words and figures, and, in case of discrepancy between the two, the amount written in words shall govern.

4. 1.4 The signer of the bid must initiate any interlineations, alteration, or erasure.

4.1.5 All requested additive or deductive alternate bids shall be bid. If no change in the Base Bid is required, enter "No Change."

4.1.6 Where there are two or more major items of work (identified as "Bid Lots") for which separate quotations are requested, the Bidder may, at his

discretion, submit quotations for any or all items, unless otherwise specified. Additionally, the Bidder may submit a lump sum price for all lots for which the Bidder has submitted separate quotations.

4.1.7 Each copy of the bid shall include the complete name of the bidder and a statement that the bidder is a sole proprietor, a partnership, a corporation, or some other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the applicable New Mexico Certificate of Incorporation number or Certificate of Authority number. The Bid shall include the current contractor's license number and type, and the current Contractor's preference number. A bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

4.1.8 The Bid shall contain an acknowledgment of receipt of all addenda (the numbers of which shall be filled in on the Bid Form).

4.1.9 The address to which communications regarding the Bid are to be directed must be shown.

4.1.10 The project name and number, as well as the Owner's invitation to bid number, shall be clearly shown on the outside of the envelope in which the Bid is submitted.

4.2 Bid Security

4.2.1 Bid security in an amount equal to at least five percent (5%) of the amount of the Bid shall be a bond provided by a surety company authorized to do business in this state, or the equivalent in cash, a cashier's check, or otherwise supplied in a form satisfactory to the Owner (§13-1-146 NMSA 1978) and approved in writing by the Owner in advance. All bonds shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," as published in circular 570, latest edition, by the Audit Staff Bureau of Accounts, United States Treasury Department.

4.2.2 The bid security shall be in the amount of 5% of the highest Bid amount submitted, unless otherwise stipulated, pledging that the Bidder will enter into a contract with the Owner on the terms stated herein and will furnish bonds covering the faithful performance of the contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such contract or fail to furnish bid security, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either:

A. The contract has been executed and performance and labor/material bonds have been furnished,

B. The specified time has elapsed so that Bids may be withdrawn, or

C. All Bids have been rejected.

4.2.4 When the Bidding Documents require bid security, noncompliance by the Bidder requires that the Bid be rejected (§13-1-147A NMSA 1978).

4.2.5 If a Bidder is permitted to withdraw his Bid before award, no action shall take place against the Bidder or the bid security (§13-1-147B NMSA 1978).

4.2.6 The Owner may reduce bid security requirements authorized by the Procurement Code, §§13-1-28 to 13-1-199 NMSA 1978, to encourage procurement from small businesses. Reduction, if any, and the manner thereof will be stipulated in §7.0 of this section, Other Instructions to Bidders. Reduction of the amount of bid security, if any, shall in no way reduce requirements for performance, payment, or other bonds referenced in the Bidding Documents.

4.3 Pre-bid Conference

4.3.1 The Architect/Engineer shall conduct a pre-bid conference approximately 15 calendar days prior to the bid opening date stated in the Invitation for Bid.

4.3.2 The Architect/Engineer and his consultants, as applicable, shall be represented. Prospective Bidders, prospective Subcontractors, and prospective Vendors are encouraged to attend and should be prepared to ask questions regarding substitutions and/or to request clarification of the Bidding Documents.

4.3.3 Questions and requests for clarification are to be presented in written form. Responses will be written and issued as addenda. No verbal response shall be binding.

4.4 Resident Contractor's Preference

- Not used for federally funded projects

4.5 Subcontractors

4.5.1 The bidder shall list the Subcontractors he proposes to use for all trades or items on the Subcontractor Listing Form attached to the Bidding Documents.

4.5.2 *Definitions*. As used in this subpart 4.5, subcontractor listing shall be in compliance with the Subcontractors Fair Practices Act, the pertinent provisions of which are summarized in this subpart 4.5.

A, *Contractor* means the prime contractor on a public works construction project who contracts directly with the Owner (using agency);

B. *Subcontractor* is a person or entity often skilled in a specific type of construction work that enters into a contractual agreement with the prime contractor to perform part or all of the construction work.

C. *Listing threshold* means the dollar amount, stipulated in the bidding documents, above which subcontractors must be listed;

D. *Notice* means information, advice or a written warning intended to apprise a contractor or subcontractor of some proceeding in which his interests are involved or to inform him of some fact which is his right to know. Notice may be sent to a contractor or subcontractor by certified or registered mail and shall be deemed to be completed upon date of mailing; and

E. *Using Agency* means the Owner requiring services or construction.

4.5.3 Listing of Subcontractors, Requirements. The Owner shall provide in the bidding documents prepared for that project a listing threshold which shall be $5,000 or one-half of one percent of the architect's or engineer's estimate of the total project cost, whichever is greater. Any person submitting a bid shall in his bid set forth:

A. The name location of the place of business of each subcontractor under subcontract to the contractor who will perform work or labor or render service to the contractor in or about the construction of the public works construction project in an amount in excess of the listing threshold; and

B. The nature of the work which will be done by each subcontractor under the Subcontractor Fair Practices Act. The contractor shall list only one subcontractor for each category as defined by the contractor in his bid.

4.5.4 Substitution of Subcontractor

A. No contractor whose bid is accepted shall substitute any person as subcontractor in place of the subcontractor listed in the original bid, except that the using agency shall consent to the substitution of another person as a subcontractor in the following circumstances: (1) when the subcontractor listed in the bid, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans and specifications for the project involved and the terms of such subcontractor's written bid, is presented to him by the contractor; (2) when the subcontractor listed in the original bid becomes bankrupt or insolvent prior to execution of a subcontract; (3) when the using agency refuses to approve the subcontractor listed in the original bid, provided such approval has been reserved in the bidding documents; (4) when the subcontractor listed in the original bid fails or refuses to perform his subcontract; (5) when the contractor demonstrates to the using agency or its duly authorized officer that the name of the subcontractor was listed as the result of an inadvertent clerical error; (6) when a bid alternate accepted by the using agency causes the listed subcontractor's bid not to be low; (7) when the contractor can substantiate to the using agency that a listed subcontractor's bid is incomplete; (8) when the listed subcontractor fails or refuses to meet the bond requirements of the contractor; (9) when it is determined that the listed subcontractor does not have a proper license to perform the work and the contractor has submitted the name of the subcontractor along with proof that the subcontractor bid work for which he was not licensed by the construction industries division
of the regulation and licensing department; or (10) when it is determined by the using agency, the prime contractor or the director of the labor and industrial division of the labor department that a listed subcontractor is not a registered subcontractor on the date bids are unconditionally accepted for consideration.

B. Prior to approval of the contractor's request for such substitution, the Owner shall give notice in

writing to the listed subcontractor of the contractor's request to substitute and of the reasons for such request. Such notice shall be served by certified or registered mail to the last known address of the subcontractor. The listed subcontractor who has been so notified has 5 working days within which to submit written objections to the substitution to the Owner. Failure to file such written objections shall constitute the listed subcontractor's consent to the substitution. If written objections are filed, the Owner shall give at least 5 working days' notice in writing to the listed subcontractor of a hearing by the Owner on the contractor's request for substitution.

C. No contractor whose bid is accepted shall permit any such subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original subcontractor listed in the original bid without the consent of the Owner.

D. No contractor whose bid is accepted, other than in the performance of change orders causing changes or deviations from the original contract, shall sublet or subcontract any portion of the work in excess of the listing threshold as to which his original bid did not designate a subcontractor unless the contractor fails to receive a bid for a category of work. Under such circumstances, the contractor may subcontract. The contract shall designate on the listing form that no bid was received.

4.5.5 Subcontractor Bond, Requirements. As to subcontractor required performance and payment bond if requested by the contractor, see §13-4-37 NMSA 1978.

4.5.6 Failure to Specify Subcontractor. If a contractor fails to specify a subcontractor in excess of the listing threshold, he represents that he is fully qualified to perform that portion himself and that he shall perform that portion himself. If after the award of the contract the contractor subcontracts any portion of the work, except as provided in the Subcontractors Fair Practices Act, the contractor shall be guilty of violation of the Subcontractors Fair Practices Act and subject to the penalties provided in subpart 4.5.9 of this section.

4.5.7 Inadvertent Clerical Error.

A. The contractor, as a condition to assert a claim of inadvertent clerical error in the listing of a subcontractor, shall within 2 working days after the time of the prime bid opening by the Owner give written notice to the Owner and to both the subcontractor he claims to have listed in error and the subcontractor who had bid to the contractor prior to bid opening.

B. Any listed subcontractor who has been notified by the contractor in accordance with the provisions of this section as to an inadvertent clerical error shall be allowed 6 working days from the time of the prime bid opening within which to submit to the Owner and to the contractor written objection to the contractor's claim of inadvertent clerical error. Failure of such listed subcontractor to file such written notice within 6 working days shall be primary evidence of his agreement that an inadvertent clerical error was made.

C. The Owner shall, after a public hearing and in the absence of compelling reasons to the contrary, consent to the substitution of the intended contractor: 1) If the contractor, the subcontractor listed in error, and the intended subcontractor each submit an affidavit to the Owner, along with such additional evidence as the parties may wish to submit, that an inadvertent clerical error was in fact made, provided that the affidavits from each of the three parties are filed within eight working days from the time of the prime bid opening; or 2) If such affidavits are filed by both the contractor and the intended subcontractor within such specified time but the subcontractor whom the contractor claims to have listed in error does not submit within six working days to the Owner and to the contractor written objection to the contractor's claim of inadvertent clerical error as provided in this section.

D. If such affidavits are filed by both the contractor and the intended subcontractor but the listed subcontractor has within six working days from the time of the prime bid opening submitted to the Owner and to the contractor written objection to the contractor's claim of inadvertent clerical error, the Owner shall investigate the claims of the parties and hold a public hearing to determine the validity of such claims. Any determination made shall be based on facts contained in the affidavits submitted by all three parties and supported by testimony under oath and subject to cross-examination. The Owner may on its motion or that of any other party admit testimony of other contractors, any bid registries or depositories, or any other party in possession of facts that may have a bearing on the decision of the Owner.

4.5.8 Emergency Subcontracting. Subcontracting any portion of the work in excess of the listing threshold as to which no subcontractor was designated in the original bid shall be permitted only in the case

of public emergency or necessity and then only upon a written finding by the Owner setting forth the facts constituting the emergency or necessity.

4.5.9 Penalties.

A. A contractor who violates the provisions of the Subcontractors Fair Practices Act violates his own contract, and the Owner may exercise the option of: 1) canceling the contract; or 2) assessing the contractor a penalty in an amount of not more than ten percent of the amount of the subcontract involved but in no case less than the difference of the amount between the listed subcontractor and the subcontractor used, which penalty shall be deposited into the fund out of which the contract is awarded. In any proceeding under this subpart, the contractor shall be entitled to a hearing after notice.

B. A violation of the provisions of the Subcontractors Fair Practices Act constitutes grounds for disciplinary action against a contractor pursuant to regulations of the Construction Industries Division of the Regulation and Licensing Department.

C. A contractor who attempts to circumvent the provisions of the Subcontractors Fair Practices Act shall be subject to the penalties established pursuant to this subpart.

4.5.10 Dispute Resolution. Once the Owner has determined the existence of a valid claim under the provisions of the Subcontractors Fair Practices Act, the Owner or agent of the Owner may:

A. Hold a public hearing for the purpose of providing an informal resolution of the dispute by preparing a "front of dispute" which shall be available to all parties. The form shall state concisely, in numbered paragraphs, the matter at issue or dispute that the complainant expects to be determined. The agent or the Owner shall evaluate the issues presented by both sides of the dispute and render a decision within 10 days after the hearing, and provide the parties with a written copy of the decision by certified mail, return receipt requested; or

B. Refer the matter in dispute to be resolved through arbitration.

4.5.11 The Bidder shall not list himself as the supplier or as the Subcontractor for any trade unless he has previously performed work of this type or can prove to the Architect's/Engineer's and the Owner's satisfaction that he actually has, or will obtain, fully adequate facilities and plans to perform the work with his own forces.

4.5.12 Failure to comply with subcontractor listing requirements or provisions of the Subcontractors Fair Practices Act shall be grounds for considering a Bid as nonresponsive.

4.5.13 Prior to the award of the Contract, the Architect/Engineer will notify the Bidder in writing if either the Owner or the Architect/Engineer, after due investigation and written findings of fact, has reasonable and substantial objection to any person or organization on such list. If the Owner or Architect/ Engineer has reasonable and substantial objection to any person or organization on such list and refuses in writing to accept such person or organization, the Bidder may, at his option:

A. Withdraw his Bid, or

B. Submit an acceptable substitute Subcontractor with no increase in his bid price.

C. In the event of withdrawal under this paragraph, bid security will not be forfeited.

4.5.14 The Successful Bidder shall, within 7 calendar days of notice of the award of a contract for the Work, submit the following information to the Architect/ Engineer:

A. A signed list of the proprietary names and the suppliers of principal items or systems of material and equipment proposed for the Work; and

B. A list signed by all Subcontractors proposed for the principal portions of the Work in accordance with the Subcontractors Listing Form submitted with the Bid. Refer to Section 00430 for form of Subcontractors Listing.

4.5.15 The Successful Bidder will be required to establish to the satisfaction of the Architect/Engineer and the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

4.5.16 Persons and organizations proposed by the Bidder and to whom the Owner and the Architect/ Engineer have made no reasonable objection under the provisions of subpart 4.5.15 above must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and the Architect/Engineer.

4.5.17 No Successful Bidder shall be required to employ any Subcontractor, other person, or organization against which he has reasonable objection.

4.6 Submission of Bids

4.6.1 Bids shall be submitted at the time and place indicated in the Invitation for Bid and shall be included in an opaque sealed envelope marked with the Project title and name and address of the Bidder and accompanied by the bid security, subcontractors listing, and other required documents listed in the Bidding Requirements.

4.6.2 The envelope shall be addressed to the Owner at the address shown on the cover page. The following information shall be provided on the front lower left corner of the bid envelope: invitation for bid number, date of opening, and time of opening. If the bid is sent by mail, the sealed envelope shall have the notation "**SEALED BID ENCLOSED**" on the face thereof.

4.6.3 Bids received after the date and time for receipt of Bids will be returned unopened.

4.6.4 The Bidder shall assume full responsibility for timely delivery of Bids at the office noted on the Invitation for Bid, including those Bids submitted by mail. Hand-delivered bids shall be submitted at the location stated in the Invitation for Bid, Section 00022, and will be clocked in at the time received, which must be prior to the time specified. Bids will then be held for public opening.

4.6.5 Oral, telephonic, or telegraphic bids are invalid and will not receive consideration.

4.7 Correction or Withdrawal of Bids

4.7.1 A Bid containing a mistake discovered before bid opening may be modified or withdrawn by a Bidder prior to the time set for bid opening by delivering written or telegraphic notice to the location designated in the invitation for bid as the place where bids are to be received.

4.7.2 Bid security, if required, shall be in an amount sufficient for the Bid as modified or resubmitted in conformance with subpart 4.2 of this section.

4.7.3 Withdrawn Bids may be resubmitted up to the time and date designated for the receipt of Bids, provided they are then fully in conformance with the Bidding Documents.

4.7.4 After bid opening, no modifications in Bid Prices or other provisions of Bids shall be permitted. A low Bidder alleging a material mistake of fact that makes his Bid nonresponsive may be permitted to withdraw his Bid if:

A. The mistake is clearly evident on the fact of the Bid Document; or

B. The Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made.

C. Any decision by the Owner to permit or deny the withdrawal of a Bid on the basis of a mistake contained therein shall be supported by a determination setting forth the grounds for the decision. If withdrawal is permitted, bid security will not be forfeited.

4.8 Notice of Contract Requirements Binding on Bidder

4.8.1 In submitting this bid, the Bidder represents that he has familiarized himself with the nature and extent of the following requirements of the Conditions of the Construction Contract (General, Supplementary, and Other Conditions):

A. Definitions - Sections 00700, Part 1.0 and 00810, §1.0;

B. Bribes, Gratuities, and Kickbacks - Section 00820;

C. Nonresident Contractor Requirements Regarding Gross Receipts Tax Surety Bond - Section 00820;

D. Contractor's Gross Receipts Tax Registration - Section 00820;

E. Contracts with Nonresident Persons or Partnerships or Unadmitted Foreign Corporations, Agent for Service of Process- Section 00820;

F. Assignment of Antitrust Claims - Section 00820;

G. Equal Employment Opportunity - Section 00820; and

H. Others listed within the Contract Documents.

4.9 Rejection or Cancellation of Bids

An invitation for bid may be canceled, or any or all Bids may be rejected in whole or in part, when it is in the best interest of the Owner. A determination containing the reasons therefor shall be made part of the project file (§13-1-131 NMSA 1978). Bid security for rejected Bids shall be returned to the Bidder.

4.10 Protests

4.10.1 Any Bidder, Offerer, or Contractor who is aggrieved in connection with this Bid may protest to the Owner. The protest should be made in writing within 24 hours after the facts or occurrences giving rise thereto, but in no case later than 15 calendar days after the facts or occurrences giving rise thereto (§13-1-172, NMSA 1978).

4.10.2 In the event of a timely protest under subsection 4.10.1 above (§13-1-172 NMSA 1978), the procurement officer and the Owner shall not proceed further with the procurement unless the procurement officer or the Owner makes a determination that the award of contract is necessary to protect substantial interests of the Owner (§13-1-173 NMSA 1978).

4.10.3 The procurement officer or his designee shall have the authority to take any action reasonably necessary to resolve a protest of an aggrieved Bidder, Offerer, or contractor concerning procurement.

4.10.4 The procurement officer or his designee shall promptly issue a determination relating to the protest. The determination shall:

A. State the reasons for the action taken; and

B. Inform the protestant of the right to judicial review of the determination pursuant to §13-1-183 NMSA 1978 (§13-1-175 NMSA 1978).

C. A copy of the determination issued under §13-1-175 NMSA 1978 shall immediately be mailed to the protestant and other bidders or offerors involved in the procurement (§13-1-176 NMSA 1978).

5.0 CONSIDERATION OF BIDS

5.1 Receipt, Opening, and Recording

Bids received on time will be opened publicly and will be read aloud, and an abstract of the amounts of the Base Bids and alternates or Bid items, if any, will be made available to the Bidders. Each Bid shall be open to public inspection (§13-1-107 NMSA 1978).

5.2 Bid Evaluation and Award. If the lowest bid, including alternates, exceeds the amount budgeted for construction, the Grantee may negotiate with the low bidder to bring the contract within the available funds, if the bid amount does not exceed 10% of available funds. Owner may reject all bids and may start the process over if necessary.

5.2.1 The Owner shall have the right to waive technical irregularities in the form of the Bid of the low Bidder which do not alter the price, quality, or quantity of the services, construction, or items of tangible personal property bid (§13-1-132 NMSA 1978).

5.2.2 It is the intent of the Owner to award a contract to the lowest responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. The unreasonable failure of a Bidder to promptly supply information in connection with an inquiry with respect to responsibility is grounds for a determination that the Bidder is not a responsible Bidder (§13-1-133 NMSA 1978). See subpart 6.6 of this section as to Post-Bid Information that may be required of a contractor as to qualifications.

5.2.3 If the Base Bid is within the amount of funds available to finance the construction, contract award will be made to the responsible Bidder submitting the low Base Bid; except that, if sufficient funds are available to fund alternates, the Owner may award the contract to the responsible Bidder submitting the low combined Bid within the amount of funds available (Base Bid plus or minus alternates). If the award is based on alternates, the Owner shall accept them based on available funding.

5.2.4 Discrepancies in the Bid form between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

5.2.5 Conditional Bids or Bids with additional terms will not be accepted.

5.3 Notice of Award

The Owner shall issue a written Notice of Award after review and approval of the bid and related documents by the Owner with reasonable promptness §§13-1-100

and 13-1-108 NMSA 1978).

5.4 Identical Bids

When two or more of the bids submitted are identical in price and are the low Bid, the Owner may:

A. Award pursuant to the multiple source award provisions of §§13-1-153 and 13-1-154 NMSA 1978 of the procurement code;

B. Award to a resident business if the identical low Bids are submitted by a resident business and a nonresident business;

C. Award to a resident manufacturer if the identical low Bids is submitted by a resident manufacturer and a resident business;

D. Award by lottery to one of the identical low Bidders; or

E. Reject all Bids and resolicit Bids or proposals for the required services, construction, or items of tangible personal property (§13-1-110 NMSA 1978).

F. Subsections B and C are not applicable to federally funded projects.

5.5 Cancellation of Award

When in the best interest of the public, the Owner may cancel the award of any contract at any time before the execution of said contract by all parties without any liability against the Owner.

6.0 POST-BID INFORMATION

6.1 Submittals to Architect/ Engineer

Within 7 days after Notice of Award, the following shall be submitted to the Architect/Engineer:

A. The required bonds and certificate of insurance,

B. The requirements under subpart 4.5.5 of this section, and

C. A brief resume of the Successful Bidder's superintendent.

6.2 Return of Bid Security

6.2.1 All bid security in the form of checks, except those of the two lowest Bidders, will be returned immediately following the opening and checking of the Bids. The retained bid security of the unsuccessful of the two lowest Bidders, if in the form of a check, will be returned within 15 days following the award of contract.

6.2.2 The retained bid security of the Successful Bidder, if in the form of a check, will be returned after a satisfactory contract bond has been furnished and the Agreement has been executed. Bid securities in the form of bid bonds will be returned only upon the request of the unsuccessful Bidder, but will be released by the procurement officer after the Owner sends the Notice of Award.

6.3 Execution and Approval of Agreement

6.3.1 The agreement shall be prepared and sent to the Successful Bidder by the Owner and shall be signed by the Successful Bidder and returned, together with both the contract bonds and certificate of insurance, within 15 calendar days after the date of the Notice of Award.

6.3.2 If the Owner does not execute the agreement within 30 days following receipt from the Bidder of the signed Agreement with bonds and certificate, the Bidder shall have the right to withdraw his proposal without penalty. No contract shall be effective until it has been fully executed by all of the parties thereto.

6.4 Notice to Proceed

The Owner will issue a written Notice to Proceed to the contractor stipulating the date from which contract time will be charged and the date contract time is to expire, subject to valid modifications of the contract authorized by change order.

6.5 Failure to Execute Contract

Failure to return the signed Agreement with acceptable contract bonds and certificate of insurance within 15 calendar days after the date of the Notice of Award shall be just cause for the cancellation of the award and the forfeiture of the bid security, which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible Bidder, or the Work may be re-advertised and constructed under contract or otherwise, as the Owner may decide.

6.6 Contractor's Qualifications Statement

Bidders to whom award of a contract is under consideration shall submit, upon request, information and data to prove that their financial resources, production or service facilities, personnel, and service reputation and experience are adequate to make satisfactory delivery of the services, construction, or items of personal property described in the Bidding Documents (§13-1-82 NMSA 1978).

7.0 OTHER INSTRUCTIONS TO BIDDERS

The bid will be awarded on the lowest responsible base bid and the accepted alternates.

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GEOTECHNICAL INVESTIGATION REPORT

1.0 **INVESTIGATION**

A geotechnical investigation was not completed as part of this project.

2.0 **INTERPRETATION**

These data are for information only and not intended as representations or warranties of continuity of conditions between borings.

The Owner and the Architect/Engineer disclaim any responsibility for accuracy, true location and extent of soils investigation that had been prepared by others. They further disclaim responsibility for interpretation of these data by bidders; as in projecting soil bearing values, soil profiles and soil stability.

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BID FORM

Lump Sum or Unit Price

BID FORMS
Section 00310

Project: **Alamogordo ADA Compliant Sidewalk Improvements** IFB No. **PW 2022-004**

Bidder:

_____

_____

_____

_____

This Bid is submitted to:

City of Alamogordo
1376 E. Ninth Street
Alamogordo, New Mexico 88310
Attn: **Engineering Department**

1.0 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Owner in the form included in the Bidding Documents to perform and furnish all Work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2.0 The Bidder accepts all of the terms and conditions of the Invitation for Bid and Instructions to Bidders, including without limitation those dealing with the disposition of bid security and other Bidding Documents. This Bid will remain subject to acceptance for 60 days after the day of Bid opening. The Bidder shall sign and submit the Agreement between Owner and Contractor (hereinafter called Agreement) with the bonds and other documents required by the Bidding Requirements within 15 calendar days after the date of the Owner's Notice to Award.

3.0 In submitting this Bid, the Bidder represents, as more fully set forth in the Agreement, that:

A. The Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all of which is hereby acknowledged):

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

B. The Bidder has familiarized himself with the nature and extent of the Bidding Documents, Work, site, locality, and all local conditions, laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.

C. The Bidder has carefully studied all reports and drawings of subsurface conditions which are identified in the Information Available to Bidders and accepts the determination set forth in the Information Available to Bidders of the extent of the technical data contained in such reports and drawings upon which the Bidder is entitled to rely.

D. The Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Bidding Documents.

E. The Bidder has given the Architect/Engineer written notice of all conflicts, errors, and discrepancies that he has discovered in the Bidding Documents, and the written resolution thereof by the Architect/Engineer is acceptable to the Bidder.

F. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; the Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; the Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and the Bidder has not sought by collusion to obtain for himself any advantage over any other Bidder or over the Owner.

G. The Bidder acknowledges that he has attended any mandatory pre-bid conference scheduled by the Owner and/or the Architect/Engineer pertaining to this project.

H. The Bidder agrees to show clearly on the

envelope in which the Bid is submitted the Project Name and Number, as well as Invitation for Bid Number.

I. The Bidder will complete the Work for the following price(s) which do not include any gross receipts tax in the price(s):

4.0 Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.

The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes.

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

BID FORM

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Clearing & Grubbing; CIP	Lump Sum	1		
2	Mobilization; CIP	Lump Sum	1		
3	Furnish, Provide, & Maintain MUTCD Plan; CIP	Lump Sum	1		
4	Construction Staking & Surveying by the Contractor; CIP	Lump Sum	1		
5	12” Subgrade Preparation; CIP	Square Yard	2,030		
6	8” Base Course; CIP	Square Yard	2,030		
7	Prime Coat Material; CIP	Square Yard	2,030		
8	HMA SP-IV 3” Thick; CIP	Square Yard	2,030		
9	Tactile Warning Surface; CIP	Square Foot	1,120		
10	4” Thick Concrete; CIP	Square Yard	7,620		
11	6” Thick Concrete; CIP	Square Yard	3,020		
12	Curb & Gutter (All Types); CIP	Linear Foot	7,800		
13	Remove & Reset Existing Single Pole Sign; CIP	Each	27		
14	Adjust Existing Manhole to Grade; CIP	Each	6		
15	Adjust Existing Water Meter Box to Grade; CIP	Each	11		
16	Adjust Existing Valve Box to Grade; CIP	Each	8		
17	Remove & Reset Existing Mailbox; CIP	Each	4		
18	Vegetation Trimming & Limbing; CIP	Lump Sum	1		
19	Remove & Dispose Concrete Curb; CIP	Linear Foot	7,800		
20	Remove & Dispose of 4” to 6” Thick Concrete; CIP	Square Yard	2,140		
21	Remove & Dispose of Asphalt Pavement; CIP	Square Yard	1,780		

BID TOTAL: $_____

5.0 The Bidder agrees that:

A. The Work to be performed under this Contract shall be commenced not later than 10 consecutive calendar days after the date of written Notice to Proceed, and that Substantial Completion shall be achieved not later than **(270)** calendar days after the date of written Notice to Proceed, except as hereafter extended by valid written Change Order by the Owner.

B. Should the Contractor neglect, refuse, or otherwise fail to complete the Work within the time specified, the Contractor agrees to pay to the Owner in partial consideration for the award of this Contract the amount of **Five Hundred** Dollars (**$500**) per consecutive calendar day, not as a penalty, but as liquidated damages for such breach of the Contract.

C. The above prices shall include all labor, materials, removal, overhead, profit, insurance, taxes (not including gross receipts tax), etc., to cover the finished work of the several kinds called for. Changes shall be processed in accordance with the Contract Documents.

D. It is understood that the Owner reserves the right to reject any or all Bids and to waive any technical irregularities in the bidding.

6.0 The following documents are attached to and made a condition of this Bid:

A. Bid Bond

B. Bid Security with Agent's Affidavit

C. Subcontractors Listing & NMDWS Registration form.

D. Certification of Bidder Regarding Equal Employment Opportunity, Form 950.1

E. Certification of Bidder Regarding Section 3 and Segregated Facilities

F. Section 3 Plan

G. Table A Proposed Subcontracts Breakdown

H. Table B Estimated Project Workforce Breakdown

I. Active or “in progress” status in the System of Award Management (sam.gov) for contractor and subcontractor(s)

J. Other (list):

Statement of Bidder’s Qualifications
Campaign Contribution Disclosure Form

7.0 The terms used in this Bid and the Bidding and Contract Documents which are defined in the Conditions of the Construction Contract (General, Supplementary, and Other Conditions), included as part of the Bidding Documents, have the meanings assigned to them in those Conditions.

8.0 If the Bidder is

A. An **INDIVIDUAL**:

By _____
(Individual's Signature)

doing business as _____

Business address:_____

_____

Telephone: (____) _____ Fax: (____) _____

[Seal]

B. A **PARTNERSHIP**:

By _____
(Firm Name)

_____
(General Partner's Signature)

Business address: _____

_____

Telephone: (____) _____ Fax: (____) _____ [Seal]

C. A **CORPORATION**:

Corporation Name: _____

State of Incorporation: _____

By: _____ Title: _____
(Name of Person Authorized to Sign)

If a New Mexico Corporation: _____
NM Certificate of Incorporation Number

If a Foreign Corporation: _____
NM Certificate of Authority Number

Attest (Secretary): _____

Business address: _____

_____

Telephone: (____) _____ Fax: (____) _____

D. A **JOINT VENTURE**:

By _____
(Name)

Address: _____

_____

Telephone: (____) _____ Fax: (____) _____

By _____
(Name)

Address: _____

_____

Telephone: (____) _____ Fax: (____) _____

[Each Joint Venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated in the appropriate category]

BIDDER MUST FILL IN THE FOLLOWING (If none, write none)

NM License Nº.	_____	Classification(s)	_____
Resident Contractor's Preference Nº.	Not Applicable for this Project	Workforce Solutions Dept. Registration Nº.	_____

System of Award Management Registration No.
(CAGE Number or DUNS Number) _____

Federal Employer Tax ID No. _____

State of New Mexico Tax ID No. _____

BID BOND

SUPPLEMENTS TO BID FORMS
Section 00420

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto _____(5% of contractor's bid)_____ as Owner in the penal sum of _____ for which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executives, administrators, successors and assigns.

SIGNED, this _____ day of _____, 20___.

The condition of the above obligation is such that whereas the Principal has submitted to the Owner a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing,

for (Project) _____

NOW, THEREFORE,

A. If said Bid shall be rejected, or in the alternate,

B. If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract, attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond (Bid Security) for the faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to signed by their proper officers, the day and year first set forth above.

Principal: _____ (L.S.)

Surety: _____

[Seal] By: _____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____

, Secretary of the Corporation named as Principal in this bond, that _____ who signed the bond on behalf of the Principal was then_____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and on behalf of said corporation by authority of this governing body.

_____ [Corporate Seal]

Title: _____

BID SECURITY REVIEW FORM

SUPPLEMENTS TO BID FORMS
Section 00421

1. **Review and Approval**: This Bond has been executed by a Surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies," as published in Circular 570 (July 1st edition) by the Audit Staff Bureau of Accounts, United States Treasury Department.

   ☐ Yes ☐ No (If **No**, report to Funding Agency immediately

2. I, as Owner's Representative, have verified with (Name of Contact) _____ of the Office of the Superintendent of Insurance, 1-855-427-5674 that the Surety Company listed on the Bid Bond is licensed/authorized to do business in the state of New Mexico in accordance with ☐13-1-46 and ☐13-4-18 NMSA 1978. If source of verification is other that the State Corporation Commission, Insurance Division, identity the source document below and publication date.

   _____ Dated: _____
   (Name of Source Document)

   _____ Date _____
   (Signature of Owner's Representative)

AGENT'S AFFIDAVIT

SUPPLEMENTS TO BID FORMS
Section 00422

[To be filled in by Agent]

This Form Must Be Used By Surety

STATE OF _____)
) ss.
COUNTY OF _____)

_____, being first duly sworn, deposes and says that he/she is the duly appointed agent for _____ and is licensed in the State of New Mexico.

Deponent further states that a certain bond given to indemnify the Owner in connection with the construction of _____ dated the _____ day of _____, 20____, executed by _____ _____, Contractor, as principal, and _____ _____, as surety, signed by this Deponent; and Deponent further states that said bond was written, signed, and delivered by him/her; that the premium on the same has been or will be collected by him/her; and that the full commission thereon has been or will be retained by him/her.

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 20____.

NOTARY PUBLIC _____

MY COMMISSION EXPIRES: _____ [Seal]

Agent's Address:

_____

_____

_____

Telephone (____) _____ Fax (____) _____

[This form must be used for all bonds required in the Bidding Documents. Power of Attorney for person signing for Surety Company must be attached to bond]

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SUBCONTRACTORS LISTING, NMDWS REGISTRATION, & ASSIGNMENT OF ANTITRUST CLAIMS

Project: _____ Project No. _____

1.0 SUBCONTRACTORS LISTING, NMDWS REGISTRATION, & ASSIGNMENT OF ANTITRUST CLAIMS [by Contractor, Subcontractors, Sub-Subcontractors, and Suppliers]

1.1 To be fully executed and included with Bid as a condition of the Bid, including all Subcontractors providing services valued at $5,000 or more, pursuant to §13-4-34 NMSA 1978.

1.2 To be signed after award of Contract by individual empowered to obligate Supplier, Subcontractor, or Sub-subcontractor.

1.3 See Instructions to Bidders, subsection 4.5 of section 00100, Subcontractors, for rules regarding changes in this list after bidding.

1.4 The undersigned agrees that any and all claims which the firm may have or may inure to it for overcharges resulting from antitrust violations as to goods, services, and materials purchased in connection with the above-referenced project are hereby assigned to the Owner, but only to the extent that such overcharges are passed on to the Owner. It is agreed that the firm retains all rights to any such antitrust claims to the extent of any overcharges not passed on to the Owner, including the right to any treble damages attributable thereto.

1.5 A contractor or subcontractor that submits a bid valued at more than $60,000 for a public works project subject to the Public Works Minimum Wage Act shall be registered with the Labor and Industrial Division of the Workforce Solutions Department (NMDWS) (formerly the Department of Labor (DOL). The Owner shall not accept a bid on a public works project from a Contractor that does not provide proof of required registration for itself. Contractors, prime contractors and subcontractors must be registered with the NMDWS (§13-4-13.1 NMSA 1978

Company Name of Contractor or Subcontractor	Email and Phone Number	NMDWS Registration Number	DUNS Number	SAMs Registration Number	Federal Employer Identification Number

U. S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F. R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER *(Include ZIP Code)*

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. ☐ Yes ☐ No

2. Compliance reports were required to be filed in connection with such contract or subcontract ☐ Yes ☐ No

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. ☐ Yes ☐ No

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended? ☐ Yes ☐ No

*(*Name And Title Of Signer *Please type)*

Signature	Date

Replaces Form HUD-4238.CD-1, which is Obsolete

HUD-950.1 (11-78)

CERTIFICATION OF BIDDER REGARDING SECTION 3 AND SEGREGATED FACILITIES

[SAMPLE]

Name of Prime Contractor

Project Name

Project Number

The undersigned hereby certifies that:

(a) Section 3 provisions are included in the Contract.

(b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds $10,000).

(c) No segregated facilities will be maintained.

Name and Title of Signer (Print or Type)

Signature

Date

CONTRACTOR - SECTION 3 PLAN FORMAT

_____ (Name of contractor) agrees to implement the following specific affirmative action steps directed at increasing the utilization of lower income residents and businesses with the Municipality/County of Otero, New Mexico.

A. To ascertain from the locality's CDBG program official the exact boundaries of the Section 3 covered project area and where advantageous, seek the assistance of local officials in preparing and implementing the affirmative action plan.

B. To attempt to recruit from within the municipality or county (as applicable), the necessary number of lower income residents through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within or serving the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program, Hometown Plan, or the U. S. Employment Service.

C. To maintain a list of all lower income residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and if a vacancy exists.

D.* To insert this Section 3 Plan in all bid documents, and to require all bidders on subcontracts to submit a Section 3 affirmative action plan including utilization goals and the specific steps planned to accomplish these goals.

E.* To ensure that subcontracts which are typically let on a negotiated rather than a bid basis in areas other than Section 3 covered project areas are also let on a negotiated basis, however, feasible, when let in a Section 3 covered project area.

F. To formally contact unions, subcontractors, and trade associations to secure their cooperation for this program.

G. To ensure that all appropriate project area business concerns are notified of pending sub-contractual opportunities.

H. To maintain records, including copies of correspondence, memoranda, etc., which document that all of the above affirmative action steps have been taken.

I. To appoint or recruit an executive official of the company or agency as Equal Opportunity Officer to coordinate the implementation of this Section 3 plan.

J. To list on Table A, information related to subcontracts to be awarded.

K. To list on Table B, all projected workforce needs for all phases of this project by occupation, trade, skill level, and number of positions.

* Loans, grants, contracts, and subsidies for less than $10,000 will be exempt.

As officers and representatives of (name of contractor) _____, we the undersigned have read and fully agree to this Affirmative Action Plan, and become party to the full implementation of this program.

_____
Signature

_____ _____
Title Date

_____
Signature

_____ _____
Title Date

TABLE A
PROPOSED SUBCONTRACTS BREAKDOWN

For the Period Covering _____, 20___ through _____, 20___
[Duration of the CDBG-Assisted Project]

Column 1	Column 2	Column 3	Column 4	Column 5
Type of Contract	Total Number of Contracts	Total Approximate Dollar ($) Amount	Estimated Number of Contracts to Project Area Businesses*	Estimated Dollar ($) Amount to Project Area Businesses*

* The Project Area is coextensive with the Municipality/County of _____'s boundaries.

_____
Company

_____ _____
Project Name Project Number

_____ _____
EEO Officer (Signature) Date

TABLE B
ESTIMATED PROJECT WORKFORCE BREAKDOWN

Column 1	Column 2	Column 3	Column 4	Column 5
Job Category	Total Estimated Positions	Number Positions Currently Occupied by Permanent Employees	Number Positions Not Currently Occupied	Number Positions to be filled with LIPAR*
Officers/Supervisors				
Professionals				
Technicians				
Housing Sales/Rental Management				
Office Clerical				
Service Workers				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Maximum Number of Trainees				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Maximum Number of Trainees				
Others				

*Lower Income Project Area Residents. Individuals residing within the Municipality/County of _____ whose family income does not exceed 80% of the median income of the State.

_____

Company

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OTHER SUPPLEMENTS TO BID FORMS

City Campaign Contribution Disclosure Form

Statements of Bidder's Qualifications

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

Pursuant to Chapter 81, Laws of 2006, any prospective contractor seeking to enter into a Contract with any state agency or local public body for professional services, a design and build project delivery system, or the design and installation of measures the primary purpose of which is to conserve natural resources must file this form with that state agency or local public body. This form must be filed even if the contract qualifies as a small purchase or a sole source contract. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or local public body during the two (2) years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two (2) years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds two hundred and fifty dollars ($250) over the two (2) year period.

Furthermore, the state agency or local public body shall void an executed contract or cancel a solicitation or proposed award for a proposed contract if: 1) a prospective contractor, a family member of the prospective contractor, or a representative of the prospective contractor gives a campaign contribution or other thing of value to an applicable public official or the applicable public official's employees during the pendency of the procurement process or 2) a prospective contractor fails to submit a fully completed disclosure statement pursuant to the law.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

"**Applicable Public Official"** means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

"Campaign Contribution" means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official, or any person authorized to raise, collect, or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign but does not include the value of services provided without compensation or un-reimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

"Contract" means any agreement for the procurement of items of tangible personal property, services, professional services, or construction.

"Family Member" means spouse, father, mother, child, father-in-law, mother-in-law, daughter- in-law or son-in-law.

"Pendency of the Procurement Process" means the time period commencing with the public notice of the Request for Proposals and ending with the award of the Contract or the cancellation of the Request for Proposals.

"Person" means any corporation, partnership, individual, joint venture, association, or any other private legal entity.

"Prospective Contractor" means a person who is subject to the competitive sealed proposal process set forth in the Procurement Codes or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

"Representative of a Prospective Contractor" means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

DISCLOSURE OF CONTRIBUTIONS:

Contribution Made By: _____

Relation to Prospective Contractor: _____

Name of Applicable Public Official: _____

Date Contribution(s) Made: _____

Amount(s) of Contribution(s): _____

Nature of Contribution(s): _____

Purpose of Contributions(s): _____

_____ _____
Signature Date

_____
Title (Position)

---OR---

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS ($250) WERE MADE to an applicable public official by me, a family member or representative.

_____ _____
Signature Date

_____
Title (Position)

STATEMENT OF BIDDER'S QUALIFICATIONS
(TO BE SUBMITTED BY THE BIDDER AND INCLUDED WITH BID)

All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The BIDDER may submit additional information.

1. Name of Bidder and N.M. Contractor's License Number.

2. Permanent main office address.

3. When organized.

4. If a corporation, where incorporated.

5. How many years have you been engaged in the contracting business under your present firm or trade name?

6. Contracts on hand. (Schedule these, showing amount of each contract and the approximate anticipated dates of completion.)

7. General character of work performed by your company.

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.

11. List your major equipment available for this Contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including the officers.

14. Credit available: $_____.

15. Give bank reference:

_____

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the OWNER?

17. The undersigned hereby authorizes any person, firm, or corporation to furnish any information requested by the OWNER in verification of the recitals comprising this statement of BIDDER'S

Qualifications. This _____ day of _____, 20_____, dated at _____.

_____
Name of BIDDER

By:_____

Title:_____

State of_____)
)ss.
County of_____)

_____, the_____of
Name Position

_____ being duly sworn,
Company Name

deposes and says that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____ , 20_____.

_____
Notary Public

My Commission expires _____, 20_____.

AGREEMENT BETWEEN OWNER AND CONTRACTOR

AGREEMENT FORMS - LUMP SUM PRICE OR UNIT PRICE
Section 00510

Contract No. _____

This Agreement entered into this _____ day of _____, 20___, by and between the parties as follows:

THE OWNER:

City of Alamogordo
1376 E. Ninth Street
Alamogordo, New Mexico 88310

Telephone: 575-439-4235___

E-mail address: jcasebolt@ci.alamogordo.nm.us

THE CONTRACTOR:

Telephone: ____-____-_____

E-mail address:

For the following Project: **Alamogordo ADA Compliant Sidewalk Improvements**

Project Number: **2022-004**

ARCHITECT/ENGINEER OF RECORD:
Smith Engineering Company
201 N. Church St, Suite 200A
Las Cruces, New Mexico 88001
Telephone: **575-523-2395**

E-mail address:_rustyp@smithengineering.pro _

RECITALS

WHEREAS, _____
_____
(insert funding authority); and

WHEREAS, the Owner, through its Mayor/ Chairman, is authorized to enter into a construction contract for the Project pursuant to Sections 13-1-100 NMSA 1978; and

WHEREAS, the Owner has let this contract according to the established state and local purchasing procedures for contracts of the type and amount let; and

WHEREAS, award of the construction contract on this Project was approved by the Governing Body at its meeting of _____, 20___;

The OWNER and the CONTRACTOR agree as set forth below.

ARTICLE 1
THE CONTRACT DOCUMENTS

1.1 The Contract Documents consist of the following:

- Bid Form
- This Agreement
- Performance Bond
- Labor and Material Payment Bonds
- Agent's Affidavit
- Certificate of Insurance
- Assignment of Antitrust Claims
- Table A Subcontracts Breakdown
- Table B Estimated Project Workforce Breakdown
- Notice of Award
- Notice to Proceed
- Conditions of the Contract (General,
- Supplementary and Other Conditions)
- Drawings
- Specifications
- All Addenda Issued Prior to and
- All Modifications Issued after Execution of this Agreement
- Federal requirements, certifications and forms required by the CDBG program

These documents form the Contract, and all are as fully a part of the Contract as if attached to this Agreement or repeated herein. An enumeration of the Contract Documents appears in Article 7 of this Agreement.

ARTICLE 2
THE WORK

2.1 The Contractor shall perform all the Work required by the Contract for the following:

The City of Alamogordo, NM, located in Otero County, will plan, design and construct ADA-compliant sidewalks, ramps and aprons to City blocks that include New York Avenue to Texas Avenue blocks going east to west and 2nd Street and 8th Street blocks going north to south. This area of the City has a large number of missing curb ramps, non-compliant sidewalks and driveway aprons and gaps in sidewalks. The project location is at approximately 32.898869 latitude and 105.944954 longitude. Construction staking and surveying will be performed. MUTCD compliant project-wide traffic control will be furnished and provided along with mobilization. The construction activities will include, but are not limited to, removal of existing curb/gutter and concrete flatwork, 6/8-inch subgrade preparation, 6-inch base course and installation of new curb/gutter, 4-inch concrete and 6-inch reinforced concrete.

Approximately 8,252 square yards of 4-inch concrete and 1,662 square yards of 6-inch concrete will be poured. Additionally, approximately 4,095 linear feet of curb/gutter will be constructed and 1,060 square feet of tactile warning surface (truncated dome CIP plate) will be installed.

ARTICLE 3
TIME OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 The Work to be performed under the contract shall commence not later than ten (10) consecutive calendar days after the date of written Notice to Proceed. Substantial Completion shall be achieved not later than **Two Hundred Seventy (270)** calendar days after the date of written Notice to Proceed, except as hereafter extended by valid written Change Order by the Owner.

3.2 Should the Contractor neglect, refuse, or otherwise fail to complete the Work within the time specified in this article, the Contractor agrees, in partial consideration for the award of the Contract, to pay to the Owner the amount of **Five Hundred Dollars ($500)** per consecutive calendar day, not as a penalty, but as liquidated damages for such breach of the Contract.

ARTICLE 4
CONTRACT SUM

4.1 The Owner shall pay the Contractor in current funds for the performance of the Work, subject to additions and deductions by Change Order as provided in the Contract, the Contract Sum of

_____

Dollars ($ _____).

4.2 The Contract sum is determined as follows:

Base Bid	$	_____
Alternatives (if any)	$	_____
NM GRT @ 8.0000 %	$	_____
Contract Sum	$	_____

ARTICLE 5
PROGRESS PAYMENTS

5.1 Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/ Engineer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Contract for the period ending the 5th day of the month as follows:

5.2 Not later than thirty (30) working days following receipt by the Owner of an undisputed Application for Payment or as stated in Paragraph 25 of the Supplemental General Conditions, one hundred percent (100%) of the portion of the Contract Sum properly allocable to labor, materials, and equipment incorporated in the Work and one hundred percent (100%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or some other location agreed upon in writing for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner; less such amounts as the Architect/ Engineer shall determine for all incomplete Work and unsettled claims as provided in the Contract Documents (Section 57-28-5 NMSA 1978). (48 CFR 52.232-27) (Title 5 Part 1315.14).

5.2.1 When making payments, an owner, contractor or subcontractor shall not retain, withhold, hold back or in any other manner not pay amounts owed for work performed. For additional information regarding retainage and the Prompt Payment Act refer to Section 57-28-5 NMSA 1978.

ARTICLE 6
FINAL PAYMENT

6.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be paid by the Owner to the Contractor within thirty (30) calendar days after notification of the Owner by the Architect/Engineer that all incomplete and unacceptable work that was noted during the Substantial Completion Inspection and listed on the attachment to the Certificate of Substantial Completion has been corrected, and provided the Contract has been fully performed and a final Certificate for Payment has been issued by the Architect/Engineer and final monitoring and close-out by the Funding Agency. In addition, the Contractor shall provide to the Owner a certified statement of Release of Liens (*AIA Document G706A or approved form*) and Consent of Surety.

ARTICLE 7
GENERAL AND SPECIAL PROVISIONS

7.1 This Agreement shall be governed exclusively by the provisions hereof and by the laws of the State of New Mexico as the same from time to time exist.

7.2 Terms used in this Agreement that are defined in the Conditions of the Contract shall have the meanings designated in those Conditions.

7.3 As between the parties to this Agreement. As to all acts or failures to act by either party to this Agreement,

any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the relevant Date of Substantial Completion of the Work; and as to any acts or failures to act occurring after the relevant Date of Substantial Completion, not later than the date of the Owner's approval of the Final Certificate of Payment.

7.4 The Contractor shall hold harmless and indemnify the Owner against any and all injury, loss, or damage, including cost of defense - including but not limited to court costs and attorneys' fees - arising out of the negligent acts, errors, or omissions of the Contractor.

7.5 This Agreement shall not become effective until approved by the governing body; and signed by all parties required to sign this Agreement and reviewed by the Funding Agency.

7.6 The Contractor and his agents and employees are independent contractors and are not employees of the Owner. The Contractor and his agents and employees shall not accrue leave, retirement, insurance, bonding, use of Owner vehicles, or any other benefits afforded to employees of the Owner as a result of this Agreement.

7.7 The Contractor, upon final payment of the amounts due under this Agreement, releases the Owner, his officers and employees from his liabilities and obligations arising from or under this Agreement, including but not limited to all damages, losses, costs, liability, and expenses, including but not limited to attorneys' fees and costs of litigation that the Contractor may incur.

7.8 The Contractor agrees not to purport to bind Owner to any obligation not assumed herein by Owner unless the Contractor has express written authority to do so, and then only within the strict limits of that authority.

7.9 Notices. All notices herein provided to be given, or which may be given, by either party to the other shall be deemed to have been fully given when made in writing and deposited in the United States mail, postage prepaid - in the instance of notice of termination of work also by certified mail - and addressed as shown on the title page of this Agreement.

7.10 Nothing herein contained shall preclude the giving of any such written notice by personal service. The address to which notices shall be mailed to either party may be changed by written notice given by such party to the other as hereinabove provided.

7.11 Gender - Singular/Plural. Words of any gender used in this Agreement shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context requires otherwise.

7.12 Captions and Section Headings. The captions and section headings contained in this Agreement are for convenience of reference only, and in no way limit, define, or enlarge the terms, scope, and conditions of this Agreement.

7.13 This document shall be executed in no less than three (3) counterparts, each of which shall be deemed an original.

7.14 Certificates and Documents Incorporated. All certificates and documentation required by the provisions of this Agreement shall be attached to this Agreement at the time of execution and are hereby incorporated by reference as though set forth in full in this Agreement to the extent they are consistent with its conditions and terms.

7.15 Separability. If any clause or provision of this Agreement is illegal, invalid, or unenforceable under present or future laws effective during the term of this Agreement, then and in that event it is the intention of the parties hereto that the remainder of this Agreement shall not be affected thereby.

7.16 Waiver. No provision of this Agreement shall be deemed to have been waived by either party unless such waiver be in writing signed by the party making the waiver and addressed to the other party; nor shall any custom or practice which may evolve between the parties in the administration of the terms hereof be construed to waive or lessen the right of either party to insist upon performance by the other party in strict accordance with the terms hereof. Further, the waiver by any party of a breach by the other party of any term, covenant, or condition hereof shall not operate as a waiver of any subsequent breach of the same or any other term, covenant, or condition thereof.

7.17 Entire Agreement. This Agreement represents the entire contract between the parties and, except as otherwise provided herein, may not be amended, changed, modified, or altered without the written consent of the parties hereto. This Agreement

incorporates all of the conditions, agreements, and understandings between the parties concerning the subject matter of this Agreement, and all such conditions, understandings, and agreements have been merged into this written Agreement. No prior condition, agreement, or understanding, verbal or otherwise, of the parties or their agents shall be valid or enforceable unless embodied in this written Agreement.

7.18 Interchangeable Terms. For purposes of all provisions within this Agreement and all attachments hereto, the terms "Agreement" and "Contract" shall have the same meaning and shall be interchangeable.

7.19 Words and Phrases. Words, phrases, and abbreviations which have well-known technical or trade meanings used in the Contract Documents shall be used according to such recognized meanings. In the event of a conflict, the more stringent meaning shall govern.

7.20 Relationship of Contract Documents. The Contract Documents are complementary, and any requirement of one contract document shall be as binding as if required by all.

7.21 Pursuant to §13-1-191 NMSA 1978, reference is hereby made to the criminal laws of New Mexico, including §§30-14-1, 30-24-2, and 30-41-1 through 3 NMSA 1978, which prohibit bribes, kickbacks, and gratuities, violation of which constitutes a felony. Further, the Procurement Code, §§13-1-28 through 13-1-199 NMSA 1978, imposes civil and criminal penalties for its violation.

7.22 The Contract Documents, which constitute the entire Contract between the Owner and the Contractor, are listed in Article 1 and, except for Modifications issued after execution of this Agreement, are enumerated as follows:

7.23 The following documents bound in the Project Manual:

Documents	Pages
Bid Form	4A-23
Agreement between Owner and Contractor	4A-45
Performance Bond	4A-51
Labor and Material Payment Bond	4A-53
Agent's Affidavit	4A-31/56
Certificate of Insurance	4A-57
Assignment of Antitrust Claims	4A-61
Table A Subcontracts Breakdown	4A-63
Table B Estimated Project Workforce Breakdown	4A-64
General Conditions	4A-66
Supplementary Conditions	4A-80

Technical Specifications - End of Document

OWNER: _____

_____ Date: _____

Mayor/Chairperson

Reviewed:

As to Legal Form and Sufficiency

By: _____

Title: _____ Date: _____

As to Budget Sufficiency

By: _____

Title: _____ Date: _____

APPROVED: This Agreement is entered into as of the day and year first written above.

CONTRACTOR: _____

By: _____

Title: _____ Date: _____

Federal Tax ID Nº: _____ State Tax ID Nº: _____

AGENCY CONCURRENCE:

By: _____

Title: _____

Date: _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, [*Insert the name or legal title of the CONTRACTOR]* _____as Principal, herein after called the CONTRACTOR, and *[Insert the legal title of the surety and address*]

_____

_____ a corporation organized and existing under and by virtue of the laws of the State of_____and authorized to do business in the State of New Mexico, hereinafter called the Surety, are held and firmly bound unto *[Insert the name or legal title and address of the OWNER*)

_____

_____ as Obligee, hereinafter called the OWNER, in the amount of_____Dollars ($_____), for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, CONTRACTOR has by written agreement dated _____,_____, entered into a contract described as follows:

_____

_____

_____

which contract is by reference made a part hereof and is hereinafter referred to as the Contract.

NOW, THEREFORE, the condition of this obligation is such that, if CONTRACTOR shall faithfully perform and complete said Contract according to its terms and comply with all requirements of law, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever the CONTRACTOR shall be, and shall be declared by the OWNER to be, in default under the said Contract, the OWNER having performed its obligations hereunder, the Surety may promptly remedy the default or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or

2. At OWNER's option, obtain a bid or bids for submission to the OWNER for completing said Contract in accordance with its terms and conditions and, upon determination by the OWNER and Surety of the lowest responsible BIDDER, arrange for a contract between such BIDDER and the OWNER and make available as Work progresses (even though there should be a default or a succession of defaults under the Contract or contracts of completion arranged under this paragraph) sufficient funds to pay the

cost of completion less the balance of the Contract Price but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price", as used in this paragraph shall mean the total amount payable by the OWNER to the CONTRACTOR under the Contract and any amendments thereto less the amount previously paid by the OWNER to the CONTRACTOR.

The Surety acknowledges that said Contract may contain express guarantees and agrees that said guarantees, if any, are covered by the Surety's obligation hereunder.

Right of action with respect to any express guarantees in the Contract shall accrue from the date of completion and formal acceptance of the Work under the Contract.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or its successors or assigns.

SIGNED AND SEALED_____,_____.

_____
Contractor-Principal]

In presence of:

_____

By: _____

Title:_____[Surety]

Approved as to form:

_____

By:_____
Attorney for the OWNER

Title:_____

\ Countersigned:

_____
Surety's Authorized New Mexico Agent for Service

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT, [*Insert the name or legal title and address of the CONTRACTOR]*

_____

_____, as PRINCIPAL, hereinafter called the CONTRACTOR, and [*Insert the legal title of the surety andaddress*]

_____

_____, a corporation organized and existing under and by virtue of the laws of the State of_____and authorized to do business in the State of New Mexico, hereinafter called the Surety, as held and firmly bound unto [*Insert the name or legal title and address of the OWNER]*

_____

_____As Obligee, hereinafter called the OWNER and supplier of labor, material or supplies as joint obligees, in the amount of

_____dollars ($_____), for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally firmly by these presents.

WHEREAS, CONTRACTOR has by written agreement dated_____, 20_____entered into a contract described as follows:

_____

_____

_____

_____

which contract is by reference made a part hereof and is hereinafter referred to as the Contract.

NOW, THEREFORE, the condition of this obligation is such that, if the CONTRACTOR shall pay as they become due all just claims for labor performed and materials and supplies furnished upon or for the Work under the Contract, whether said labor be performed and materials and supplies be furnished under the original Contract or any contract there-under, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The right to sue on this bond accrues only to the OWNER and the parties to whom the right is granted pursuant to Section 13-4-1 et. seq., NMSA 1978 (1988 repl. pamp.) and New Mexico Law; and any such right shall be exercised only in accordance with the provisions and limitations of said statutes.

SIGNED AND SEALED ON_____, _____

_____

[CONTRACTOR - PRINCIPAL]

In presence of:

_____

By _____

Title:_____

Approved as to form: _____

[Surety]

_____ By:_____

Attorney for the OWNER

Title:_____

Countersigned:

_____

Surety's Authorized New Mexico Agent for Service

This bond is issued simultaneously with performance bond in favor of OWNER and suppliers of labor, materials or supplies for the faithful performance of the Contract.

RIDER TO BONDS

This Form Must Be Used By Surety

Performance Bond Nº. _____ Labor & Material Payment Bond Nº. _____

Obligee (Owner):_____

Surety _____

Surety's New Mexico Agent:

Name: _____

Address:_____

Telephone Nº. (_____) _____

The Surety and Principal stipulate as follows:

Whenever, in the judgment of the Owner, the Surety on this bond shall be insolvent, or for any cause is not a proper or sufficient Surety, the Owner may require the Contractor to furnish a new or additional bond or security within ten (10) days; and thereupon, if the Owner shall so order, security shall be furnished. If such new or additional bond or security is not furnished within said time, the Owner may, at its option, take over and Surety, either doing the Work on force account, or letting the same by contract, and shall be entitled to use any equipment, materials and supplies of the delinquent Contractor in completing said Work.

The Surety hereby stipulates and agrees that no properly authorized Change Order altering Contract Time, Contract Sum, Conditions of the Contract, or the scope of nature of the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive any notice of such change.

Signed and sealed this _____ day of _____, 20___.

_____
(Principal) (Seal)

_____
(Witness)

_____
(Title)

_____
(Witness)

_____
(Surety) (Seal)

_____
(Title)

AGENT'S AFFIDAVIT

SUPPLEMENTS TO BID FORMS
Section 00422

[To be filled in by Agent]

This Form Must Be Used By Surety

STATE OF _____)
) ss.
COUNTY OF _____)

_____, being first duly sworn, deposes and says that he/she is the duly appointed agent for _____
and is licensed in the State of New Mexico.

Deponent further states that a certain bond given to indemnify the Owner in connection with the construction of _____ dated the _____ day of _____, 20____, executed by _____, Contractor, as principal, and _____, as surety, signed by this Deponent; and Deponent further states that said bond was written, signed, and delivered by him/her; that the premium on the same has been or will be collected by him/her; and that the full commission thereon has been or will be retained by him/her.

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, 20____.

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____ [SEAL]

Agent's Address:

_____

_____

_____

Telephone (____) _____ Fax (____) _____

[This form must be used for all bonds required in the Bidding Documents. Power of Attorney for person signing for Surety Company must be attached to bond. Power of Attorney for person signing for Surety Company must be attached to bond]

BONDS AND INSURANCE

Performance, Payment, and Other Bonds

CONTRACTOR and CONTRACTOR's SUBCONTRACTORS [if Subcontractors' contract for work to be performed on the Project is one hundred twenty-five thousand dollars ($125,000) or more] shall furnish performance and payment Bonds as security for the faithful performance of this Contract and for payment of all the CONTRACTOR's and CONTRACTOR's SUBCONTRACTORS' obligations under the Contract Documents. These Bonds shall be in amounts at least equal to the Contract Price and shall be in a form acceptable to OWNER and issued by sureties which are licensed to conduct business in the State of New Mexico, and which are named in the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U. S. Treasury Department. The Performance Bond shall include coverage for the Guarantee Period. Notwithstanding the obligation of any other party, person or entity to notify CONTRACTOR's and CONTRACTOR's Subcontractors' sureties, CONTRACTOR and CONTRACTOR's Subcontractors shall give immediate written notice to its sureties of any change in the Contract Sum, Contract Time, Scope of Work or any other event for which failure to give said sureties notice would operate to discharge a surety's liability. The Surety on the performance bond shall furnish a waiver by which it consents to progress or partial payments to the CONTRACTOR in accordance with this Contract. Surety shall further agree that such payment shall not preclude or stop the OWNER from showing the true character and quantity of the materials furnished or from recovering from the CONTRACTOR or Subcontractor or CONTRACTOR'S or Subcontractors' sureties such damages as the OWNER may sustain by reason of any deficiency in quantity of the materials with respect to which a progress payment was made.

If the surety on any Bond furnished by CONTRACTOR or SUNCONTRACTOR is declared bankrupt or becomes insolvent, or if its right to do business is terminated in any state where any part of the Project is located, CONTRACTOR or SUBCONTRACTOR shall within five days thereafter substitute another Bond and surety, both of which shall be acceptable to OWNER.

Insurance Requirements

Until final acceptance by the OWNER of the Work, the CONTRACTOR shall procure and maintain at CONTRACTOR's own expense insurance of the kinds and in the amounts herein provided. This insurance shall be provided by insurance companies authorized to do business in New Mexico and shall cover all operations under the Contract, whether performed by the CONTRACTOR, CONTRACTOR's agents or employees or by Subcontractors. All insurance provided shall remain in full force and effect for the entire period of the Work, up to and including final acceptance, and the removal of all equipment and employees, agents and SUBCONTRACTORS there from.

1. Public Liability and Automobile Liability Insurance

A. **General Liability**: Bodily Injury Liability and Property Damage Liability insurance applicable in full to the subject project shall be provided in the following minimum amounts.

a. **Bodily Injury Liability**:
$500,000 each occurrence
$1,000,000 aggregate

b. Property Damage Liability:
$500,000 each occurrence
$1,000,000 aggregate

B. The policy to provide this insurance is to be written on a Comprehensive General Liability form which must include the following:

a. Coverage for liability arising out of the operation of independent Contractors.

b. Completed Operations Coverage.

c. Attachment of the Broad Form Comprehensive General Liability Endorsement.

C. In the event that any use of explosives is a required part of the Contract, the CONTRACTOR's insurance must include coverage for injury to or destruction of property arising out of blasting or explosion.

D. In the event that any form of work next to an existing building or structure is a required part of the Contract, the CONTRACTOR's insurance must include coverage for injury to or destruction of property arising out of.

The collapse of or structural injury to any building or structure due to excavation, including borrowing, filling or backfilling in connection therewith, or to tunneling, cofferdam work or caisson work or to moving, shoring, underpinning, raising or demolition of any building or structure or removal or rebuilding of any structural support thereof.

E. Coverage must be included for injury to or destruction of any property arising out of injury to or destruction of wires, conduits, pipes, mains, sewers or other similar property or any apparatus in connection therewith below the surface of the ground, if such injury or destruction is caused by or occurs during the use of mechanical equipment for the purposes of excavating, digging or drilling, or to injury to or destruction of property at any time resulting there from.

F. Automobile Liability Insurance coverage for the CONTRACTOR (whether included in the policy providing General Liability insurance or in a separate policy) must provide liability for the ownership, operation and maintenance of owned, non-owned and hired cars. The limits of liability for Automobile Liability insurance shall be provided in the following amounts:

a. **Bodily Injury Liability**:
$500,000 each person
$1,000,000 each occurrence

b. Property Damage Liability:
$1,000,000 each occurrence

2. Workers' Compensation Insurance

The CONTRACTOR shall also carry Worker's Compensation Insurance or otherwise fully comply with the provisions of the New Mexico Workmen's Compensation Act and Occupational Disease Disablement Law.

3. Owner's Protective Liability Insurance

The CONTRACTOR shall purchase Standard Form Owners' Protective Liability insurance naming the OWNER as the name insured, with limits of liability applicable in full to the subject project as follows:

A. **Bodily Injury Liability**:
$500,000 each occurrence

B. **Property Damage Liability**:
$100,000 each occurrence

C. **Property Damage and Bodily Injury Combined**:
$1,000,000 aggregate

4. Certificate of Insurance

The CONTRACTOR being Awarded the Contract shall furnish evidence of CONTRACTOR's insurance coverage by a Certificate of Insurance executed on a form acceptable to the OWNER, to be made a part of the Contract and included with the Contract Documents prior to signing the Contract. Such certificate shall indicate compliance with these specifications and shall certify that the coverage shall not be changed, canceled or allowed to lapse without giving the OWNER thirty (30) days written notice. Also, a Certificate of Insurance shall be furnished to the OWNER on renewal of a policy or policies as necessary during the terms of the Contract. The OWNER shall not issue a Notice to Proceed until such time as the above requirements have been met.

5. Umbrella Coverage

The insurance limits cited in the above paragraphs are minimum limits. This specification is in no way intended to define what constitutes adequate insurance coverage for the individual CONTRACTOR. The OWNER will recognize excess coverage (Umbrella) as meeting the requirements of Subsection 1 of this Section should such insurance otherwise meet all the requirements of such Subsection.

6. Optimal Insurance

The CONTRACTOR shall procure and maintain, when required by the OWNER, forms and types of Bailee insurance such as, but not limited to, Builder's Risk Insurance, which

should include, but is not limited to, theft, vandalism, weather conditions and acts of God, CONTRACTOR's Equipment Insurance, Rigger's Liability Policy Insurance, etc. in amounts necessary to protect the OWNER against claims, losses and expenses arising from the damage, disappearance or destruction of property of others in the care, custody or control of the CONTRACTOR, including property of others being installed, erected or worked upon by the CONTRACTOR, CONTRACTOR's agents or Subcontractors.

7. Railroad Insurance

In the event that railroad property is affected by the subject Contract, the CONTRACTOR is advised that, in addition to the above requirements, CONTRACTOR shall be required to furnish a Railroad Protective Liability policy in the name of the railroad company involved. In addition, on those rails that are used by the National Railroad Passenger Corporation (NRPC), the CONTRACTOR will also obtain a Railroad Protective Liability policy in the name of NRPC.

The limits of liability for the Railroad Protective Liability policy (or policies) must be negotiated with the railroad company on a hazard and risk basis. In no event will the limits exceed the following:

A. **Bodily Injury Liability, Property Damage Liability**:
$2,000,000 each occurrence

B. **Liability and Physical Damage to Property**:
$6,000,000 aggregate

The limits of liability stated above apply to the coverage as set forth in the Railroad Protective Liability Endorsement Form, subject to the terms, conditions and exclusions found in the form.

The policy must afford coverage as provided for in the standard Railroad Protective Liability Endorsement (AASHTO Form).

8. Additional Bonds and Insurance

Prior to the delivery of the executed Agreement by OWNER to CONTRACTOR, OWNER may require CONTRACTOR to furnish such other Bonds and such additional insurance, in such form and with such sureties or insurers, as OWNER may require. If such other Bonds or such other insurance are specified by written instructions given prior to opening of Bids, the premiums shall be paid by CONTRACTOR.

ASSIGNMENT OF ANTITRUST CLAIMS

(To be executed by Suppliers, Subcontractors, and Sub-Subcontractors of Contractors)

BONDS, CERTIFICATES, AND NOTICES
Section 00661

This Form Must Be Submitted Within 10 Days of Bid Award

Project: _____ Project Number: _____

_____ agrees that any and all claims which it may have or may have endured for overcharges resulting from antitrust violations as to goods, services, and materials purchased in connection with the above-referenced project are hereby assigned to the Owner, but only to the extent that such overcharges are passed on to the Owner.

It is agreed that the undersigned retains all rights to any such antitrust claims to the extent of any overcharges not passed on to the Owner, including the right to any treble damages attributable thereto.

Firm: _____

By: _____

Signed by Individual Empowered to Obligate Supplier, Subcontractor, or Sub-Subcontractor

Title: _____

Date: _____

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting

legal representative of the (municipality/county) of _____

do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligation upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Name: _____
Address: _____
_____
Date: _____ Telephone N^{o}. ____-____-_____

TABLE A
SUBCONTRACTS BREAKDOWN

For the Period Covering _____, 20___ through _____, 20___
[Duration of the CDBG-Assisted Project]

Column 1	Column 2	Column 3	Column 4	Column 5
Type of Contract	Total Number of Contracts	Total Approximate Dollar ($) Amount	Estimated Number of Contracts to Project Area Businesses*	Estimated Dollar ($) Amount to Project Area Businesses*

* The Project Area is coextensive with the Municipality/County of _____'s boundaries.

_____
Company

_____ _____
Project Name Project Number

_____ _____
EEO Officer (Signature) Date

TABLE B
ESTIMATED PROJECT WORKFORCE BREAKDOWN

Column 1	Column 2	Column 3	Column 4	Column 5
Job Category	Total Estimated Positions	Number Positions Currently Occupied by Permanent Employees	Number Positions Not Currently Occupied	Number Positions to be filled with LIPAR*
Officers/Supervisors				
Professionals				
Technicians				
Housing Sales/Rental Management				
Office Clerical				
Service Workers				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Maximum Number of Trainees				
Others				
TRADE:				
Journeymen				
Helpers				
Apprentices				
Maximum Number of Trainees				
Others				

*Lower Income Project Area Residents. Individuals residing within the Municipality/County of _____ whose family income does not exceed 80% of the median income of the State.

_____
Company

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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION
COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

TABLE OF CONTENTS

1. Contract and Contract Documents

1.1 The project to be constructed pursuant to this contract will be financed with the assistance of the New Mexico Small Cities Community Development Block Grant Program and is subject to all applicable federal and state laws and regulations. State administered Community Development Block Grant monies are federal funds. Section 13-1-30B NMSA 1978 of the Procurement Code stipulates: "When a procurement involves the expenditure of federal funds, the procurement shall be conducted in accordance with mandatory applicable federal law and regulations. When mandatory applicable federal law or regulations are inconsistent with the provisions of the Procurement Code, compliance with federal law or regulations shall be compliance with the Procurement Code."

1.2 The applicable governing federal procurement standards are defined in OMB Circular A-102, Attachment O. When federal and state procurement policies are different, the more restrictive policies apply so long as they are consistent with Circular A-102 standards.

1.3 The plans, specifications and addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions shall form part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.

2. Definitions

The following terms as used in this contract are

respectively defined as follows:

2.1 *Contractor* is a person, firm or corporation with whom the contract is made by the Owner.

2.2 *Subcontractor* is a person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with, the Contractor.

2.3 *Work on (at) the project* is work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.

3. Additional Instructions and Detail Drawings

3.1 The Contractor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions. The Contractor and the Architect/Engineer will prepare jointly (a) a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished by the Architect/ Engineer in accordance with said schedule, and (b) a schedule fixing the respective dates for the submission of shop drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with progress of the work.

4. Shop or Setting Drawings

4.1 The Contractor shall submit promptly to the Architect/Engineer two copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Architect/Engineer and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Architect/ Engineer with two corrected copies. If requested by the Architect/Engineer the Contractor must furnish additional copies, Regardless of corrections made in or approval given to such drawings by the Architect/Engineer, the Contractor will never the less be responsible for the accuracy of such drawings and for their conformity to the Plans and Specifications, unless he notifies the Architect/Engineer in writing of any deviations at the time he furnishes such drawings.

5. Materials, Services, and Facilities

5.1 It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

5.2 Any work necessary to be performed after regular working hours, on Sundays or legal holidays, shall be performed without additional expense to the Owner.

6. Contractor's Title to Materials

6.1 No materials or supplies for the work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims or encumbrances.

7. Inspection and Testing of Materials

7.1 All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. The Owner will pay for all laboratory inspection service direct, and not as a part of the contract.

7.2 Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

8. "Or Equal" Clause

8.1 Whenever a material, article or piece of

equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard; and, any material, article, or equipment or other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed, is, in the opinion of the Architect/Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without the Architect/Engineer's written approval.

9. Patents

9.1 The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents.

9.2 License or Royalty Fees. License and/or Royalty Fees for the use of a process which is authorized by the Owner of the project must be reasonable, and paid to the holder of the patent, or his authorized licensee, direct by the Owner and not be or through the Contractor.

9.3 If the Contractor uses any design, device or materials covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, that, without exception, the contract prices shall include all royalties or costs arising from the use of such design, device or materials, in any way involved in the work. The Contractor and/or his Sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials, or any trademark or copyright in connection with work agreed to be performed under this contract, and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after, completion of the work.

10. Surveys, Permits, and Regulations

10.1 Unless otherwise expressly provided for in the Specifications, the Owner will furnish to the Contractor all surveys necessary for the execution of the work.

10.2 The Contractor shall procure and pay all permits, licenses and approvals necessary for the execution of his contract.

10.3 The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

11. Contractor's Obligations

11.1 The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified. The Contractor will perform the Work in accordance with the provisions of this contract and said specifications and in accordance with the plans and drawings covered by this contract any and all supplemental plans and drawings, and in accordance with the directions of the Architect/Engineer as given from time to time during the progress of the work. He shall furnish, erect, maintain, and remove such construction plant and such temporary works as may be required.

11.2 The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the contract and specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Architect/Engineer and the Owner.

12. Weather Conditions

12.1 In the event of temporary suspension of work, or during inclement weather, or whenever the Architect/Engineer shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Architect/Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his Subcontractors so to protect his work, such materials shall be removed

and replaced at the expense of the Contractor.

13. Protection of Work and Property-Emergency

13.1 The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in the contract or by the Owner, or his duly authorized representatives.

13.2 In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Architect/Engineer, in a diligent manner. He shall notify the Architect/Engineer immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Architect/Engineer for approval.

13.3 Where the Contractor has not taken action but has notified the Architect/Engineer of an emergency threatening injury to persons to damage to the work or any adjoining property, he shall act as instructed or authorized by the Architect/Engineer.

13.4 The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in Paragraph 17 of the General Conditions.

14. Inspection

14.1 The authorized representatives and agents of the Department of Housing and Urban Development shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.

15. Reports, Records, and Data

15.1 The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.

16. Superintendence by Contractor

16.1 At the site of the work the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Architect/ Engineer and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

17. Changes in Work

17.1 No changes in the work covered by the approved Contract Documents shall be made without having prior written approval of the Owner and funding agency. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:

A. Unit bid prices previously approved.
B. An agreed lump sum.
C. The actual cost of:
    1. Labor, including foremen;
    2. Materials entering permanently into the work;
    3. The ownership or rental cost of construction plant and equipment during the time of use on the extra work;
    4. Power and consumable supplies for the operation of power equipment;
    5. Insurance;
    6. Social Security and old age and unemployment contributions.

17.2 To the costs under 17.1 there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

17.3 The Contractor must submit in writing any request for any modifications to the plans and specifications. Shop drawings that are submitted to the Architect/Engineer for review do not constitute "in writing" unless it is brought to the attention of the Architect/Engineer that specific changes are being proposed. In any event, the responsibility for proposing changes to the plans and specifications by means of shop drawings resides with the Contractor and no additional costs resulting from such changes will be paid to the Contractor.

17.4 All change orders will include the total added (or deducted) cost to the Owner, including gross receipts tax. The Owner must approve any increase or decrease to the Construction Cost.

17.5 All change orders will be approved by the funding agency (Local Government Division, DFA) before taking effect. Any additional project costs (including GRT) approved by the Owner without LGD approval, shall become the sole responsibility of the Owner.

17.6 Any party that becomes aware of an expected project cost over-run, will notify the Owner immediately. The Owner will notify the Funding Agency. If funding is not already in place to cover the entire over-run, the owner and Architect/Engineer will: 1) amend the scope of work to bring the project back within budget, 2) secure additional and timely funding to cover the entire over-run or 3) deny approval of the change order.

18. Extras

18.1 Without invalidating the contract, the Owner may order extra work or make changes by altering, adding to or deducting from the work, the contract sum being adjusted accordingly, and the consent of the Surety being first obtained where necessary or desirable. All the work of the kind bid upon shall be paid for at the price stipulated in the proposal, and no claims for any extra work or materials shall be allowed unless the work is ordered in writing by the Owner or its Architect/Engineer, acting officially for the Owner, and the price is stated in such order.

19. Time for Completion and Liquidated Damages

19.1 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are *essential conditions* of this contract: and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed."

19.2 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

19.3 If the said Contract shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the contract shall be in default after the time stipulated in the contract for completing the work.

19.4 The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

19.5 It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; Provided, further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

A. To any preference, priority or allocation order duly issued by the Government;

B. To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

C. To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections a) and b) of this article:

19.6 Provided further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of it decision in the matter.

20. Correction of Work

20.1 All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the Architect/ Engineer who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture, and methods of construction for the purposes for which they are used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Architect/Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Architect/Engineer shall be equitable.

21. Subsurface Conditions Found Different

21.1 Should the Contractor encounter sub-surface and/or latent conditions at the site materially differing from those shown on the Plans or indicated in the Specifications, he shall immediately give notice to the Architect/Engineer of such conditions before they are disturbed. The Architect/Engineer will thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the Plans or indicated in the Specifications, he will at once make such changes in the Plans and/or Specifications as he may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Paragraph 17 of the General Conditions.

22. Claims for Extra Cost

22.1 No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Architect/Engineer approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of subparagraph 17.3 of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, giver the Owner access to accounts relating thereto.

23. Right of the Owner to Terminate Contract

23.1 In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangement of correction be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the contract; Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the Contractor and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefor.

24. Construction Schedule and Periodic Estimates

24.1 Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule. The

Contractor shall also furnish on forms to be supplied by the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereof. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

25. Payments to Contractor

25.1 Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/ Engineer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Contract for the period ending the ___ day of the month as follows:

A. Not later than thirty (30) working days following receipt by the Owner of an undisputed Application for Payment or as stated in Paragraph 3 of the Supplemental General Conditions, one hundred percent (100%) of the portion of the Contract Sum properly allocable to labor, materials, and equipment incorporated in the Work and one hundred percent (100%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or some other location agreed upon in writing for the period covered by the Application for Payment, less the aggregate of previous payments made by the Owner; and less such amounts as the Architect/ Engineer shall determine for all incomplete Work and unsettled claims as provided in the Contract Documents.

B. When making payments, an owner, contractor or subcontractor shall not retain, withhold, hold back or in any other manner not pay amounts owed for work performed. For additional information regarding retainage and the Prompt Payment Act refer to Section 57-28-5 NMSA 1978.

25.2 In preparing estimates the material delivered on the site and preparatory work done may be taken into consideration.

25.3 All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the contract.

25.4 Owner's Right to Withhold Certain Amounts and Make Application Thereof: The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, material men, and furnisher of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this contract. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the Contractor fails so to do, then the Owner may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor or his Surety. In paying any unpaid bills of the Contractor, the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner shall be considered as a payment made under the contract by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

26. Acceptance of Final Payment Constitutes Release

26.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this contract or the Performance and Payment Bond.

27. Payments by Contractor

27.1 Contractors and subcontractors shall make prompt payment to their subcontractors and suppliers for amounts owed for work performed on the construction project within seven days after receipt of payment from the owner, contractor or subcontractor. If the contractor or subcontractor fails to pay his subcontractor and suppliers by first-class mail or hand delivery within seven days of receipt of payment, the contractor or subcontractor shall pay interest to his subcontractors and suppliers beginning on the eighth day after payment was due, computed at one and one-half percent of the undisputed amount per month or fraction of a month until payment is issued. These payment provisions apply to all tiers of contractors, subcontractors and suppliers (Section 57-28-1 et. seq. NMSA 1978).

28. Insurance

28.1 The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until the insurance required of the subcontractor has been so obtained and approved.

28.2 Compensation Insurance. The Contractor shall procure and shall maintain during the life of this contract Workmen's Compensation Insurance as required by applicable State or territorial law for all of this employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the project under this contract is not protected under the Workmen's Compensation statute, the Contractor shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such of his employees as are not otherwise protected.

28.3 Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The Contractor shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the amounts specified in the Supplemental General Conditions.

28.4 Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The Contractor shall either 1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplemental General Conditions specified in subparagraph 28.3 hereof or, 2) insure the activities of his policy, specified in subparagraph 28.3 hereof.

28.5 Scope of Insurance and Special Hazards. The insurance require under subparagraphs 28.3 and 28.4 hereof shall provide adequate protection for the Contractor and his subcontractors, respectively, against damage claims which may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by him and, also against any of the special hazards which may be encountered in the performance of this contract as enumerated in the Supplemental General Conditions.

28.6 Builder's Risk Insurance (Fire and Extended Coverage). Until the project is completed and accepted by the Owner, the Owner, or Contractor [at the Owner's option as indicated in the Supplemental General Conditions, Form HUD-4238-N] is required to maintain Builder's Risk Insurance (fire and extended coverage) on a 100 percent completed value basis on the insurable portion of the project for the benefit of the Owner, the Contractor, subcontractors as their interests may appear. The Contractor shall not include any costs for Builder's Risk Insurance (fire and extended coverage) premiums during construction unless the Contractor is required to provide such insurance; however, this provision shall not release the Contractor from his obligation to complete, according to plans and specifications, the project covered by the contract, and the Contractor and his Surety shall be obligated to full performance of the Contractor's undertaking. Certificates of insurance acceptable to the Owner shall be filed with the Owner within ten (10) days after receipt of the Notice of Award. These certificates shall contain a provision that coverage's afforded under the policies will not be cancelled unless a least thirty (30) days prior written notice has been given to the Owner. A copy of the Builder's All-Risk Policy, if required, shall be provided to the Owner before any portion of Work is commenced by the

Contractor. The original Owner's Protective Liability Insurance Policy shall be provided to the Owner before any portion of the work is commenced by the Contractor.

28.7 Payment of Damages. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operation under this contract.

28.8 Proof of Carriage of Insurance. The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the Owner."

29. Contract Security

29.1 The Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the contract prices as security for the faithful performance of this contract and also a payment bond in an amount not less than one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by state, territorial or local law, as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law.

29.2 A claimant is further defined as set forth in □Sections 13-4-18 through □13-4-20 NMSA 1978. The security is bound by the provisions of □Sections 13-4-18 through □13-4-20 NMSA 1978.

30. Additional or Substitute Bond

30.1 If at any time the Owner for justifiable cause shall be or become dissatisfied with any surety or sureties, then upon the Performance or Payment Bonds, the Contractor shall within five (5) days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

31. Assignments

31.1 The Contractor shall not assign the whole or any part of this contract or any moneys due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or any part of any moneys due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this contract.

32. Mutual Responsibility of Contractors

32.1 If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration if such other Contractor or subcontractors will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

33. Separate Contract

33.1 The Contractor shall coordinate his operations with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his subcontractors, shall keep informed of the progress and the detail work of other Contractors and shall notify the Architect/ Engineer immediately of lack of progress or defective workmanship on the part of other Contractors. Failure of a contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

34. Subcontracting

34.1 The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

34.2 The Contractor shall not award any work to any subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require.

34.3 The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

34.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the contract documents.

34.5 Nothing contained in this contract shall create any contractual relation between any subcontractor and the Owner.

35. Architect/Engineer's Authority

35.1 The Architect/Engineer shall give all orders and directions contemplated under this contract and specifications, relative to the execution of the work. The Architect/Engineer shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Architect/Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Architect/Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.

35.2 The Architect/Engineer shall decide the meaning and intent of any portion of the specifications and of any plans or drawings where the same may be found obscure or be in dispute. any differences or conflicts in regard to their work which may arise between the Contractor under this contract and other Contractors performing work for the Owner shall be adjusted and determined by the Architect/Engineer.

36. Stated Allowances

36.1 The Contractor shall include in his proposal the cash allowances stated in the Supplemental General Conditions. The Contractor shall purchase the "Allowed Materials" as directed by the Owner on the basis of the lowest and best bid of at least three competitive bids. If the actual price for purchasing the "Allowed Materials" is more or less than the "Cash Allowance," the contract price shall be adjusted accordingly. The adjustment in contract price shall be made on the basis of the purchase price without additional charges for overhead, profit, insurance or any other incidental expenses. The cost of installation of the "Allowed Materials" shall be included in the applicable sections of the Contract Specifications covering this work.

37. Use of Premises and Removal of Debris

37.1 The Contractor expressly undertakes at his own expense:

A. to take every precaution against injuries to persons or damage to property;

B. to store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other contractors;

C. to place upon the work or any part thereof only such loads as are consistent with the safety of the portion of the work;

D. to clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;

E. before final payment to remove all surplus material, false-work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition.

F. to effect all cutting, fitting or patching of his work required to make the same to conform to the

plans and specifications and, except with the consent of the Architect/Engineer, not to cut or otherwise alter the work of any other Contractor.

38. Quantities of Estimate

38.1 Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this contract, and such increase or diminution shall in no way vitiate this contract, nor shall any such increase or diminution give cause for claims or liability for damages.

39. Lands and Rights-of-Way

39.1 Prior to the start of construction, the Owner shall obtain all lands and rights-of-way necessary for the carrying out and completions of work to be performed under this contract.

40. General Guaranty

40.1 Neither the final certificate of payment nor any provision in the Contract Documents, nor partial or entire occupancy of the premises by the Owner, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness.

41. Conflicting Conditions

41.1 Any provisions in any of the Contract Documents which may be in conflict or inconsistent with any of the paragraphs in these General Conditions shall be void to the extent of such conflict or inconsistency.

42. Notice and Service Thereof

42.1 Any notice to any Contractor from the Owner relative to any part of this contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the said Contractor at his last given address, or delivered in person to the said Contractor or his authorized representative on the work.

43. Provision Required by Law Deemed Inserted

43.1 Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

44. Protection of Lives and Health

44.1 "The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The safety provisions of applicable laws and building and construction codes, in addition to specific safety and health regulations described by Chapter XIII, Bureau of Labor Standards, Department of Labor, Part 1518, Safety and Health Regulations for Construction; as outlined in the Federal Register, Volume 36, No. 75, Saturday, April 17, 1971. Title 29 - LABOR, shall be observed and the Contractor shall take or cause to be taken, such additional safety and health measures as the Contracting Authority may determine to be reasonably necessary."

45. Subcontracts

45.1 It is the contractor’s responsibility to provide the owner an updated listing of subcontractors or any further subcontracts (Table A) within 10 days of the award.

46. Interest of Member of or Delegate to Congress

46.1 No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for

its general benefit.

47. Other Prohibited Interests

47.1 No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

48. Use and Occupancy Prior to Acceptance by Owner

48.1 The Contractor agrees to the use and occupancy of a portion or unit of the project before formal acceptance by the Owner, provided the Owner:

A. Secures written consent of the Contractor except in the event, in the opinion of the Architect/ Engineer, the Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other contract requirements.

B. Secures endorsement from the insurance carrier and consent of the surety permitting occupancy of the building or use of the project during the remaining period of construction, or,

C. When the project consists of more than one building, and one of the buildings is occupied, secures permanent fire and extended coverage insurance, including a permit to complete construction. Consent of the surety must also be obtained.

MODIFICATIONS TO GENERAL CONDITIONS

***If the Architect/Engineer must make changes to the General Conditions of this contract they must be included here.**

NONE

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SUPPLEMENTAL GENERAL CONDITIONS

TABLE OF CONTENTS

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1. ENUMERATION OF PLANS, SPECIFICATIONS AND ADDENDA

Following are the Plans, Specifications and Addenda which form a part of this contract, as set forth in Paragraph 1 of the General Conditions, "Contract and Contract Documents":

DRAWINGS

General Construction: Nos. **Sheet 1 through 91**

Heating & Ventilating: Nos. **N/A**

Plumbing: Nos. **N/A**

Electrical: Nos. **N/A**

Other: Nos. **N/A**

Other: Nos. **N/A**

SPECIFICATIONS

General Construction: Page **01.1** to **11.3**, inclusive

Heating & Ventilating: Page **N/A** to **N/A**, inclusive

Plumbing: Page **N/A** to **N/A**, inclusive

Electrical: Page **N/A** to **N/A**, inclusive

Other: Page **N/A** to **N/A**, inclusive

ADDENDA

No. _____ Date _____ No. _____ Date _____
No. _____ Date _____ No. _____ Date _____
No. _____ Date _____ No. _____ Date _____

2. STATED ALLOWANCES

A. Pursuant to paragraph 36 of the General Conditions, the Contractor shall include the following cash allowances in the Bid:

1. For (page **N/A** of Specifications) $ **N/A**

2. For (page **N/A** of Specifications) $ **N/A**

3. For (page **N/A** of Specifications) $ **N/A**

4. For (page **N/A** of Specifications) $ **N/A**

5. For (page **N/A** of Specifications) $ **N/A**

6. For (page **N/A** of Specifications) $ **N/A**

3. NOTICE OF EXTENDED PAYMENT PROVISION

This contract allows the Owner to make payment within **Forty-Five** (not to exceed 45 days) days after submission of an undisputed request for payment (Section 57-28-5 B (2) NMSA 1978).

4. CONTRACTOR'S AND SUBCONTRACTOR'S PUBLIC LIABILITY, VEHICLE LIABILITY, AND PROPERTY DAMAGE INSURANCE

As required under paragraph 28 of the General Conditions, the policy shall be written for not less than the following or greater if required by law:

4.1 Worker's Compensation (including accident and occupational disease coverage):

a. State	Statutory
b. Employer's Liability	$ 100,000 each accident
	$ 500,000 disease-policy limit
	$ 100,000 disease-each employee

4.2 Comprehensive General Liability (including Premises Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):

a. Bodily Injury	$ 500,000 per person
	$1,000,000 each occurrence
b. Property Damage	$ 500,000 each occurrence
	$ 500,000 annual aggregate

c. Property Damage Liability Insurance shall provide X, C or coverage as applicable.

4.3 Comprehensive Automobile Liability:

a. Bodily Injury	$ 500,000 per person
	$1,000,000 each occurrence
b. Property Damage	$ 500,000 each occurrence
	$ 500,000 annual aggregate

4.4 Umbrella Excess Liability: $1,000,000 over primary insurance

4.5 The Contractor shall either: (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage of the type and in the same amounts as specified in the preceding paragraph, or (2) insure the activities of his subcontractors in his own policy.

5. PHOTOGRAPHS OF PROJECT

As required by the Funding Agency, the Contractor will furnish photographs before construction, during construction and upon completion of the project.

6. SCHEDULE OF OCCUPATIONAL CLASSIFICATIONS AND MINIMUM HOURLY WAGE RATES.

Given on pages Exhibit 4-B through Exhibit 4-C. Note: Applicable federal and state regulations require that the higher of the federal or the state wage rate for each classification must be paid. See Section 9 of the Additional Conditions.

7. BUILDER'S RISK INSURANCE

7.1 As provided in the General Conditions, Paragraph 28, the Contractor ☐ will ✓ will not* maintain Builder's Risk Insurance (fire and extended coverage) on a 100 percent completed value basis on the insurable portions of the project for the benefit of the Owner, the Contractor, and all subcontractors, as their interests may appear.

8. SPECIAL EQUAL OPPORTUNITY PROVISIONS - Executive Order 11246

A. Section 202 Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin.

3. The Contractor will send to each labor union

or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice to be provided by the Contract Compliance Officer advising the said labor union or workers' representatives of the Contractor's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and the rules, regulations, and relevant orders of the Secretary of Labor.

5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and others.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the provisions of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the department may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

B. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246).

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for Minority Participation: * % listed by County below	**6.9%**		Goals for Female Participation: **46.9%**
Bernalillo	**38.3%**	Catron	"
Sandoval	"	Colfax	"
De Baca	"		
Chaves	**49.0%**	Guadalupe	"
Dona Ana	"	Lincoln	"
Eddy	"	Los Alamos	"
Grant	"	McKinley	"
Hidalgo	"	Mora	"
Luna	"	Rio Arriba	"
Otero	"	San Juan	"
Sierra	"	San Miguel	"
Santa Fe	"		
Lea	**31.0%**	Socorro	"
Roosevelt	"	Taos	"
Torrance	"		
Curry	**11.0%**	Valencia	"
Harding	"		
Quay	"		
Union	"		

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographic area located outside of the covered area, it shall apply the goals established for such geographic area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-Federally involved construction.

The Contractor's compliance with the Executive

Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographic area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed, giving the State, County, and Municipality, if any).

C. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:

a. *covered area* means the geographic area described in the solicitation from which this contract resulted;

b. *Director* means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. *Employer identification number* means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. *Minority* includes:

(1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. When the Contractor, or any Subcontractor at any tier, subcontracts a portion of the Work involving any construction trade, is shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith

performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing contracts in geographical areas where they do not have a Federal or Federally-assisted construction contract shall apply the minority and female goals established for the geographic area where the contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provided written notification to minority and female recruitment sources and to community or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or female sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and female, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs

funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as

fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and females in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation shall not be a defense for the Contractor's non-compliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall not carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended.

D. Civil Rights Act of 1964

Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

E. Section 109 of the Housing and Community Development Act of 1974

No person in the United States shall on the ground of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

F. "Section 3" Compliance in the Provision of Training, Employment and Business Opportunities

1. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 170lu. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

2. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR 134, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

3. The Contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

4. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued hereunder prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors or subcontractors, its successors and assigns to those sanctions specified by the grant or loan agreement or contract through which federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

G. Section 504 Handicapped (if $ 2,500 or over), Affirmative Action for Handicapped Workers

1. The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

2. The Contractor agrees to comply with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to this Act.

3. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to this Act.

4. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the Contracting Officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

5. The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contractual understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance physically and mentally handicapped individuals.

6. The Contractor will include the provisions of this part in every subcontract or purchase order of $2,500 or more unless exempted by the rules, regulation, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor and vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

H. Age Discrimination Act of 1975

No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance.

9. CERTIFICATION OF COMPLIANCE WITH AIR AND WATER ACTS

(Applicable to Federal assisted construction contracts and related subcontracts exceeding $100,000).

Compliance with Air and Water Acts

A. During the performance of this contract, the Contractor and all subcontractors shall comply with the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended.

B. In addition to the foregoing requirements, all nonexempt Contractors and Subcontractors shall furnish to the Owner, the following:

1. A stipulation by the Contractor or subcontractors, that any facility to be utilized in the performance of any nonexempt contract or subcontract, is not listed on the "List of Violating Facilities" issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.

2. Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 USC 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

3. A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the contract, is under consideration to be listed on the EPA "List of Violating Facilities".

4. Agreement by the Contractor that he will include, or cause to be included, the criteria and requirements in paragraph a through d of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the Government may direct as a means of enforcing such provisions.

10. SPECIAL CONDITIONS PERTAINING TO HAZARDS, SAFETY STANDARDS AND ACCIDENT PREVENTION

A. Lead-Based Paint Hazards

(Applicable to contracts for construction or rehabilitation of residential structures)

The construction or rehabilitation of residential structures is subject to the HUD Lead-Based Paint regulations, 24 CFR Part 35. The Contractor and Subcontractors shall comply with the provisions for the elimination of lead-based paint hazards under sub-part B of said regulations. The Owner will be responsible for the inspections and certifications required under Section 35.14(f) thereof.

B. Use of Explosives

When the use of explosives is necessary for the prosecution of the work, the Contractor shall observe all local, state and federal laws in purchasing and handling explosives. The Contractor shall take all necessary precautions to protect completed work, neighboring property, water lines, or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timber, steel or rope mats.

The Contractor shall notify all Owners of public utility property of intention to use explosives at least eight hours before blasting is done, close to such property. Any supervision or direction of use of explosives by the Architect/Engineer does not in any way reduce the responsibility of the Contractor or his Surety for damages that may be caused by such use.

C. Danger Signals and Safety Devices

The Contractor shall make all necessary precautions to guard against damages to property and injury to persons. He shall put up and maintain in good condition, sufficient red or warning lights at night, suitable barricades and other devices necessary to protect the public. In case the Contractor fails or neglects to take such precautions, the Owner may have such lights and barricades installed and charge the cost of this work to the Contractor. Such action by the Owner does not relieve the Contractor of any liability incurred under these specifications or contract.

11. FLOOD DISASTER PROTECTION

This contract is subject to the requirements of the Flood Disaster Protection Act of 1973 (P.L. 93-234). Nothing included as a part of this contract is approved for acquisition or construction purposes as defined under Section 3(a) of said Act, for use in an area identified by the Secretary of HUD as having special flood hazards which is located in a community not then in compliance with the requirements for participation in the National Flood Insurance Program pursuant to Section 201(d) of said Act; and the use of any assistance provided under this contract for such acquisition or construction in such identified areas in communities then participating in the National Flood Insurance

Program shall be subject to the mandatory purchase of flood insurance requirements of Section 102(a) of said Act.

Any contract or agreement for the sale, lease, or other transfer of land acquired, cleared or improved with assistance provided under this Contract shall contain, if such land is located in an area identified by the Secretary as having special flood hazards and in which the sale of flood insurance has been made available under the National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4001 et seq., provisions obligating the transferee and its successors or assigns to obtain and maintain, during the ownership of such land, such flood insurance as required with respect to financial assistance for acquisition or construction purposes under Section 102(a) of the Flood Disaster Protection Act of 1973.

12. ACCESS TO RECORDS AND MAINTENANCE OF RECORDS

The State grantor agency (funding agency), the Department of Housing and Urban Development, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers and records of the Contractor which are directly pertinent to this specific contract, for the purpose of audits, examinations, and making excerpts and transcriptions. All records connected with this contract will be maintained in a central location by the unit of local government and will be maintained for a period of six (6) years from the official date of close-out of the Grant.

13. CONFLICT OF INTEREST OF OFFICERS OR EMPLOYEES OF THE LOCAL JURISDICTION, MEMBERS OF THE LOCAL GOVERNING BODY, OR OTHER PUBLIC OFFICIALS

No officer or employee of the local jurisdiction or its designees or agents, no member of the governing body, and no other public official of the locality who exercises any function or responsibility with respect to this contract, during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed. Further, the Contractor shall cause to be incorporated in all subcontracts the language set forth in this paragraph prohibiting conflict of interest.

14. MINORITY AND FEMALE CONTRACTOR ASSOCIATIONS

Lists are available from various sources including the state Department of Transportation, the U.S. Department of Housing and Urban Development, Ft. Worth Area Office. These lists are provided solely for the benefit of the Contractor for the purpose of assisting him/her in meeting the Equal Opportunity Provisions contained in these Supplemental General Conditions. The lists do not contain a complete listing of minority and female businesses. The information may in some cases be out of date.

15. SPECIAL HAZARDS

The Contractor's and his Subcontractor's Public Liability and Property Damage Insurance shall provide adequate protection against the following special hazards:

Potential hazards include tree trimming and limbing adjacent to private properties; protection of existing utility pole(s), and subsurface utilities to remain in place undisturbed.

MODIFICATIONS TO SUPPLEMENTAL GENERAL CONDITIONS

***If the Architect/Engineer must make any modifications to the Supplemental General Conditions of this contract they must be included here.**

WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION; REMOVAL; OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee

1.1 Contractor warrants and guarantees to Owner that all materials and equipment will be new unless specified and that all Work will be of good quality, will be free from faults or defects, and will be in accordance with the requirements of the Contract Documents and of any inspections, tests, or approvals referred to in paragraph 1.2. All unsatisfactory Work, all faulty or defective Work, and all Work not conforming to the requirements of the Contract Documents or of such inspections, tests, or approvals, shall be considered defective. Prompt notice of all defects shall be given to Contractor. All defective Work, equipment and materials whether or not in place, may be rejected, corrected, or accepted as provided in this Article 1.

Tests and Inspections

1.2 If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by some public body, Contractor shall assume full responsibility, therefore, shall pay all costs in connection therewith and shall furnish Owner the required certificates of inspection, testing, or approval.

Quality Assurance Materials Testing (Geotechnical)

1.3 A material testing laboratory shall be retained by the Owner for Quality Assurance testing. The frequency of the Quality Assurance testing shall be as determined by the Owner. The Contractor shall notify the testing laboratory, the Owner, and the Engineer when Contractor is ready for each Quality Assurance test and shall cooperate fully in making way for the laboratory technician to make the tests. If any Work fails to meet the standards specified, the Contractor shall correct such failures in a manner acceptable to the Engineer. The Contractor shall pay for the cost of all Quality Assurance retesting necessary due to failure to meet specification requirements on the initial Quality Assurance testing. If the Contractor requests the testing laboratory to obtain density tests and the area to be tested is not ready when the technician arrives at the job site, the Contractor shall pay for all trip charges or stand by time assessed. All cost of retesting, standby time, and other charges associated with a failed QA test will be deducted from the amount due on the Contract.

1.4 Contractor shall be responsible for providing the Owner the Proctor, Gradation, and Liquid Limits of the subgrade material and base course material.

1.5 Material testing as referenced in this article is for the Owner's Quality Assurance. The Contractor is responsible for Quality Control of material, process, and method.

1.6 Contractor shall give Owner, Engineer, Inspecting Agency, and Geotechnical Testing Lab a minimum of twenty-four (24) hours' notice of readiness of the Work for all inspections, tests, or approvals. All requests for QA testing shall be made in writing or email to the Engineer, Owner, and Testing Laboratory and by phone to the Testing Laboratory. If any such Work required so to be inspected, tested, or approved is covered without written approval of Engineer, it must, if required by Engineer, be uncovered for observation; and such uncovering shall be at the Contractor's expense unless Contractor has given Engineer timely notice of

Contractor's intention to cover such Work and Engineer has not acted within reasonable promptness in response to such notice.

1.7 Neither observations by Engineer nor inspections, tests, or approvals by persons other than Contractor shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the requirements of the Contract Documents. Refer to Technical Specifications, Article 01-002.1, Section 4, Quality Assurance Materials Testing.

Access to Work

1.8 Engineer and Engineer's representatives and other representatives of Owner will have access to the Work at reasonable times. Contractor shall provide proper and safe facilities for such access and observation of the Work and also for any inspection or testing thereof by others.

Uncovering Work

1.9 If any Work is covered contrary to the request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and the cover replaced in compliance with the Contract Documents at Contractor's expense.

1.10 If any Work has been covered which Engineer has not specifically requested to observe prior to its being covered or if Engineer considers it necessary or advisable that covered Work be inspected or tested by others, Contractor, at Engineer's request, shall uncover or otherwise make available for observation, inspection, or testing as Engineer may require that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including compensation for additional professional services; and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be defective, Contractor shall be allowed an increase in Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction if Contractor makes a claim therefor.

Owner May Stop the Work

1.11 If the Work is defective or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, when an imminent hazard condition is known to exist, when the Contractor either delays in correcting or permits repeated occurrences of a hazardous condition, or if Contractor fails to make prompt payments to Subcontractors or for labor, materials, or equipment, Owner may order Contractor to stop the Work or any portion thereof until the cause of such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of Contractor or any other party. This authority to suspend Work does not relieve the Contractor of the legal responsibility for safety at the jobsite.

Correction or Removal of Defective Work

1.12 If required by Engineer prior to approval for final payment, Contractor shall promptly (as determined by Engineer), without cost to Owner and as specified by Engineer, either correct any defective Work, whether or not fabricated, installed, or completed or, if the Work has been rejected by Engineer, remove it from the site and replace it with non-defective Work. If Contractor does not correct such defective Work or remove and replace such rejected Work within a reasonable time as determined by Engineer, all as specified in a written notice from Engineer, Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services, shall be paid by Contractor and an appropriate deductive Change Order shall be issued. Contractor shall also bear the expense of making good all Work of others destroyed or damaged by such correction,

removal, or replacement of Contractor's defective Work.

One Year Correction Period

1.13 If, after the approval of final payment and prior to the expiration of one year after the date of Final Acceptance provided by letter by Owner or such longer period of time as may be prescribed by law or by terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instruction, either correct such defective Work or, if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, Owner may have defective Work corrected or rejected Work removed and replaced and all direct cost of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor.

Acceptance of Defective Work

1.14 The Owner may elect to accept defective Work instead of requiring correction or removal and replaced of the defective Work. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after approval of Final Payment, an appropriate amount shall be paid by Contractor to Owner.

Neglected Work by Contractor

1.15 If Contractor shall fail to prosecute the Work in accordance with the Contract Documents, including any requirements of the progress schedule, Owner, after seven (7) days written notice to Contractor may, without prejudice to any other remedy Owner may have, make good any deficiencies and the cost thereof, including compensation for additional professional services, shall be charged against Contractor if Engineer approves such action, in which case a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including an appropriate reduction in the Contract Price. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner.

Digital Video Recording

Prior to initiating construction operations, Contractor, shall perform digital video recording of the entire project, its full length and width. The Contractor shall also include or add as necessary, any areas to be disturbed for material storage, employee parking, or equipment storage.

The video documentation shall be completed in digital format; it shall be a minimum resolution of 1920 x 1080 pixels, at 60 fps (frames per second) and in color. The video documentation shall be performed between 10:00 AM and 2:00 PM during periods of full sun exposure. The actual date of recording shall be date-stamped within each frame of the video. Approval of the video must be obtained from the Engineer prior to the commencement of any clearing and grubbing operations.

A DVD copy of the video recording shall be submitted to the Engineer, in the formal compatible with standard DVD players.

All cost associated with the video recording specified in this article shall be considered incidental to other related work and no separate payment will be made unless specifically indicated elsewhere in the Contract.

ADDITIONAL CONDITIONS

TABLE OF CONTENTS

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1. CONSTRUCTION INDUSTRIES LICENSING ACT

1.1 This Contract is subject to the provisions of the New Mexico Construction Industries Licensing Act (§§60-13-1 to 60-13-59 NMSA 1978), the rules and regulations of the New Mexico Construction Industries Commission and the rules, regulations and codes of the various trade boards adopted pursuant to the Construction Industries Licensing Act.

2. CONTRACT AUDIT

2.1 The Owner shall be entitled to audit the books and records of a Contractor or any Subcontractor under any negotiated Contract or subcontract other than a firm fixed-price Contract to the extent that such books and records relate to the performance of such Contract or subcontract. Such books and records shall be maintained by the Contractor for a period of six years from the date of final payment under the prime Contract and by the Subcontractor for a period of six years from the date of final payment under the subcontract unless a shorter period is otherwise authorized by the Owner in writing (§13-1-161 NMSA 1978).

3. ASSIGNMENT OF ANTITRUST CLAIMS

3.1 All contractor, suppliers, subcontractors agree that any and all claims which it may have or may inure to it for overcharges resulting from antitrust violations as to goods, services and materials purchased in connection with this Project are hereby assigned to the Owner and the funding agency, but only to the extent that such overcharges are passed on to the Owner. It is agreed that the contractor, supplier, subcontractor or sub-subcontractor retains all rights to any such antitrust claims to the extent of any overcharges not passed on to the Owner, including the right to any treble damages attributable thereto.

4. BRIBES, GRATUITIES, AND KICKBACKS

4.1 It is illegal in this state for any public employee to solicit or accept anything of value in connection with award of this Contract and for any person to offer or pay anything of value to any such public employee (§§30-24-1 through 2 NMSA 1978).

4.2 Pursuant to §13-1-191 NMSA 1978 reference is hereby made to the criminal laws of New Mexico, including §§30-24-1 through 30-24-2, and §§30-41-1 through 30-41-3 NMSA 1978, which prohibit bribes, kickbacks, and gratuities and violation of which constitutes a felony. Further, the Procurement Code, §§13-1-28 through 13-1-199 NMSA 1978, imposes civil and criminal penalties for its violation.

5. NON-RESIDENT CONTRACTOR'S REQUIREMENTS REGARDING GROSS RECEIPTS TAX SURETY BOND

5.1 Section 7-1-55A NMSA 1978 provides that any person (as defined in §7-1-3 NMSA 1978) engaged in the construction business who does not have his principal place of business in New Mexico and enters into a prime construction contract to be performed in this state shall, at the time such contract is entered into, furnish the Director of the Revenue Division, Taxation and Revenue Department, or his delegate with a surety bond or other acceptable security in a sum equivalent to the gross receipts tax to be paid under the contract multiplied by the applicable rate of the gross receipts tax imposed by §7-9-4 NMSA 1978 to secure payment of the tax imposed on the gross receipts from the contract, and shall obtain a certificate from the Director of the Revenue Division, Taxation and Revenue Department, or his delegate, that the requirements of this paragraph have been met.

5.2 If the total sum to be paid under the contract is changed by ten percent or more after the date the surety bond or other acceptable security is furnished, to the Director or his delegate, such person shall increase or decrease, as the case may be, the amount of the bond or security within fourteen days after the change (§7-1-55B NMSA 1978).

5.3 In addition to the above requirements, the Contractor will be subject to all the requirements of §7-1-55 NMSA 1978.

6. CONTRACTOR'S GROSS RECEIPTS TAX REGISTRATION

6.1 §7-10-4 NMSA 1978 provides that any person (as defined in §7-10-3 NMSA 1978) performing services for the state or its political subdivisions, as those terms are used in the Gross Receipts and Compensating Tax Act (§§7-10-1 through 7-10-5 NMSA 1978) must be registered and be issued an identification number with the Revenue Division of the Taxation and Revenue Department of the state to pay the gross receipts tax.

6.2 For information in obtaining the identification number contact: Revenue Processing Division, Taxation and Revenue Department, Manuel Lujan Sr. Building, 1200 St. Francis Drive, Santa Fe, New Mexico 87505, or call (505) 827-0825.

6.3 If any person who performs services for the State or its political subdivisions is not registered to pay the gross receipts tax, the Owner shall withhold payment of the amount due until the person has presented evidence of registration with the Revenue Division to pay the gross receipts tax.

7. CONTRACTS WITH NONRESIDENT PERSONS OR PARTNERSHIPS OR UNADMITTED FOREIGN CORPORATIONS, AGENT FOR SERVICE OF PROCESS

Special attention of contractors is called to the requirements of §§ 13-4-21 through 13-4-24 NMSA 1978, whereby a public works contract with a nonresident person or partnership or foreign corporation not authorized to do business in the State shall contain a specific provision designating an agent resident within the State, and his address, upon whom process and writs in any action or proceeding against such business may be served in any action arising out of such contract.

7.1 The Contractor warrants and agrees that he, all subcontractors and any further subcontractors will comply with all applicable provisions of the New Mexico Public Works Minimum Wage Act, §13-4-11 NMSA 1978.The attached Minimum Wage Rate Determinations are declared to be prevailing and apply to all construction. Note: Applicable federal and state regulations require that the higher of the federal or the state wage rate for each classification must be paid.

8. SAFETY STANDARDS AND ACCIDENT PREVENTION

With respect to all work performed under this contract, the Contractor shall:

A. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (P.L. 91-596), and the requirements of Title 29 of the Code of Federal Regulations, 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.

B. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

C. Maintain at his/her office or other well-known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

9. MINIMUM WAGE RATES

9.1 Submission of weekly payroll records to the Owner and Department of Workforce Solutions is mandatory. Include the decision number on Contractor's and subcontractor's payrolls. The scale of wages must also be posted in a prominent location at the site.

9.2 In the event it is found by the Labor Commission, that any laborer or mechanic employed by the

Contractor, subcontractor or any further subcontractors on the site of the project covered by this Contract, has been or is being paid as a result of a willful violation, a rate of wages less than the rate of wages required by the Contract, the Owner may, by written notice to the Contractor, his subcontractor or any further subcontractors if the violation involves a Subcontractor, terminate their right to proceed with the Work or such part of the Work as to which there has been a willful failure to pay the required wages and the Owner may prosecute the work to completion by contract or otherwise, and the Contractor, subcontractor or any further subcontractor shall be liable to the Owner and the State of New Mexico for any excess cost occasioned thereby. If the Owner or State of New Mexico is unable to collect from the Subcontractor or any further Subcontractors, the Contractor will be liable for all costs.

10. PROJECT IDENTIFICATION SIGN

10.1 The Contractor as an incidental cost shall provide, erect, and maintain for the duration of the construction project one identification sign at each construction site. The sign shall be painted on one side with a background color of yellow with red lettering of 3/4" thick, not smaller than 4' x 6' nor larger than 4' x 8', marine grade plywood. Each sign shall be mounted on two 4" x 4" posts, with the bottom of the sign at least four feet above grade. The sign shall be mounted level and at the location designated by the Architect/Engineer or the Owner's Project Manager. The sign shall be salvaged to the Owner at the end of the construction project.

Sample Sign

Sign shall be yellow background with red letters

[21/2""]

CITY OF ALAMOGORDO

[Logo - 1'-6" Dia./Sq.]

[1-1/2"]

COUNCIL/COMMISSION

[1"] JEFF KIELY, DISTRICT 1
[1"] WAYNE SONCHAR, DISTRICT 2
[1"] BRUCE JOEL PERLMAN, DISTRICT 3
[1"] CONSTANCE WILLIAMS, DISTRICT 4
[1"] SPENSER BACA, DISTRICT 5
[1"] EVELYN CABALLERO HOLGUIN, DISTRICT 6
[1"] GARY WHITEHEAD, DISTRICT 7

[2"]

NEW MEXICO COMMUNITY DEVELOPMENT COUNCIL PROJECT
MICHELLE LUJAN GRISHAM, GOVERNOR

[3'] **ALAMOGORDO ADA COMPLIANT SIDEWALK IMPROVEMENTS**

OWNER
CITY OF ALAMOGORDO
1376 E. 9TH STREET ALAMOGORDO, NM 88310
575-439-4235
JASON CASEBOLT, PROJECT MANAGER

[1-1/2"]
[1-1/2"]
[1"]
[1"]
[1"]

ENGINEER
SMITH ENGINEERING COMPANY 201
N. CHURCH ST, SUITE 200A LAS
CRUCES, NM 88001
575-523-2395

[1-1/2"]
[1-1/2"]
[1"]
[1"]
[1"]
[1"]

CONTRACTOR
(NAME)
(ADDRESS)
(CITY, STATE, ZIP CODE)
(TELEPHONE NO. 505-000-0000)

CITY OF ALAMOGORDO COMMISIONERS

SUSAN PAYNE, MAYOR
DUSTY WIGHT, MAYOR PRO-TEM
NICK PAUL, DISTRICT 1
STEPHEN BURNETT, DISTRICT 2
KARL MELTON, DISTRICT 3
JOSH RARDIN, DISTRICT 4
SHARON MCDONALD, DISTRICT 5

FUNDING
CDBG GRANT - $500,000
DOT COOP GRANT - $ 0

[1-1/2" wide red outline, with rounded corners @ interior box]

11. OTHER ADDITIONAL CONDITIONS (list):

11.1 Federal Labor Standards Provisions
11.2 Attachments to Federal Labor Standards Provisions

MODIFICATIONS TO ADDITIONAL CONDITIONS

*If the Architect/Engineer must make any modifications to the Additional Conditions of this contract they must be included here.

NONE

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the Provisions applicable to such Federal assistance.

A. 1.(i)Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United State Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made of incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all time by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a)Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits were appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30 day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for

determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30 day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages or any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) **Payrolls and Basic Records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions make and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140 and 1215-0017).

(ii)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the

Superintendent of Documents (Federal Stock Number 029-005-00014-1). U.S. Government Printing Office, Washington, DC 20402. For all CDBG projects, the mandatory form WH-347 (Exhibit 4-P Certified Payroll) located on the website link http://nmdfa.state.nm.us/CDBG_Implementation_Manual.aspx. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agency who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid in full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 (for all CDBG projects use the mandatory Exhibit 4-P Certified Payroll located on the website link http://nmdfa.state.nm.us/CDBG_Implementation_Manual.aspx) shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3.(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3.(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. (i) **Apprentices and Trainees. Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to any contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rage on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level or progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fine benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that

determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermine rate for the work performed until an acceptable program is approved.

(iii) **Equal Employment Opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirement of Executive Order 11246, as amended and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements. The contractor shall comply with the requirements 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD of its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination; Debarment. A breach of the contract clauses in 9 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) **Certification of Eligibility.** By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act of 29 CFR 5.12(a)(1) or to be awarded HUD contracts or

participate in HUD programs pursuant to 24 CFR 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transaction", provides in part "Whoever, for the purpose of...influencing in any way the action of such Administration...makes, utters or publishes any statement, knowing the same to be false...shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. A. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess or forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; Liability for Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contractor for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards employed in violation of the clause set forth in subparagraph (1) of the paragraph, in the sum of $27 (or as otherwise specified by the Contract Work Hours and Safety Standards Act (CWHSSA) for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of fourth hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for Unpaid Wages and Liquidated Damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

ATTACHMENT TO FEDERAL LABOR STANDARDS PROVISIONS

SO-CALLED "ANTI-KICKBACK ACT" AND REGULATIONS PROMULGATED PURSUANT THERETO BY THE SECRETARY OF LABOR UNITED STATES DEPARTMENT OF LABOR

TITLE 18, U.S.C., section 874

(Replaces section 1 of the Act of June 13, 1934 (48 Stat. 948, 40 U.S.C., sec. 276b) pursuant to the Act of June 25, 1948, 62 Stat. 862)

KICKBACKS FROM PUBLIC WORKS EMPLOYEES

Whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion or repair of any public building, public work, or building or work financed in whole or in part by loans or grants from the United States, to give up any part of the compensation to which he is entitled under his contract of employment, shall be fined not more than $5,000 or imprisoned not more than five years, or both.

SECTION 2 OF THE ACT OF JUNE 13, 1934, AS AMENDED (48 Stat. 948, 62 Stat. 862, 63 Stat, 108, 72 Stat. 967, 40 U.S.C., sec 276c)

The Secretary of Labor shall make reasonable regulations for contractors and subcontractors engaged in the construction, prosecution, completion or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States, including a provision that each contractor and subcontractor shall furnish weekly a statement with respect to the wages paid each employee during the preceding week. Section 1001 of Title 18 (United State Code) shall apply to such statements.

---X X X---

Pursuant to the aforesaid Anti-Kickback Act, the Secretary of Labor, United States Department of Labor, has promulgated the regulations hereinafter set forth, which regulations are found in Title 29, Subtitle A, Code of Federal Regulations, Part 3. The term "this part," as used in the regulations hereinafter set forth, refers to Part 3 last above mentioned. Said regulations are as follows:

TITLE 29 - LABOR

Subtitle A - Office of the Secretary of Labor

PART 3- CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES.

Section 3.1 Purpose and Scope.

This part prescribes "anti-kickback" regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public

works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally assisted constructions that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions.

As used in the regulations in this part:

(a) The terms "building" or "work" generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levers, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a "building" or "work" within the meaning of the regulations in this part.

(b) The terms "construction," "prosecution," "completion," or "repair" means all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing or materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms "public building" or "public work" include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term "building or work financed in whole or in part by loans or grants from the United States" includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term does not include building or work for which Federal assistance is limited solely to loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is "employed" and receiving "wages," regardless of any contracted relationship alleged to exist between him and the real employer.

(f) The term "any affiliated person" includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term "Federal agency" means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies and

instrumentalities.

Section 3.3 Weekly Statement with Respect to Payment of Wages

(a) As used in this section, the term "employees" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervision of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages and shall be on form WH 348, "Statement of Compliance", or on an identical form on the back of WH 317, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office.

(c) The requirements of this section shall not apply to any contract of $2,000 or less.

(d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

[20 F.R. 93, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968]

Section 3.4 Submission of Weekly Statements and the Preservation and Inspection of Weekly Payroll Records.

(a) Each weekly statement required under section 3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building of work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll Deductions Permissible Without Application to or Approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application and approval of the Secretary of Labor:

(a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deductions of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the contractor, subcontractor or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employee, their families and dependents; Provided, however, that the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either (i) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commissions, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deductions voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments; Provided however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under section 516.27(a) of this title shall be kept.

Section 3.6 Payroll Deductions Permissible with the Approval of the Secretary of Labor

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under Section 3.5. The Secretary may grant permission whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly the deduction either in the form of a commission, dividend, or otherwise;

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representative of its employees; and

(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the Approval of the Secretary of Labor

Any application for the making of payroll deductions under section 3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application shall identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions only on specific, identified contracts, except upon a showing of exceptional circumstances.

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of section 3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor Upon Applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of section 3.6; and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited Payroll Deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under Section 3.6 are prohibited.

Section 3.10 Methods of Payment of Wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations Part of Contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see section 5.5(a) of the subtitle.

EXHIBIT 4-B
Request for State Wage Determination

LABOR RELATIONS DIVISION **WWW.DWS.STATE.NM.US**

401 Broadway NE
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

226 South Alameda Blvd
Las Cruces, NM 88005
Phone: 575-524-6195
Fax: 575-524-6194

1596 Pacheco St, Suite 103
Santa Fe, NM 87505
Phone: 505-827-6817
Fax: 505-827-9676

Wage Decision Approval Summary

1) Project Title: GC2004 CDBG ADA Sidewalk Project
Requested Date: 06/01/2022
Approved Date: 06/02/2022
Approved Wage Decision Number: OT-22-1486-A

Wage Decision Expiration Date for Bids: 09/30/2022

2) Physical Location of Jobsite for Project:
Job Site Address: From 1st St to 8th St
Job Site City: Alamogordo
Job Site County: Otero

3) Contracting Agency Name (Department or Bureau): City of Alamogordo
Contracting Agency Contact's Name: Jason Casebolt
Contracting Agency Contact's Phone: (575) 439-4235 Ext. 1

4) Estimated Contract Award Date: 09/02/2022

5) Estimated total project cost: $1,466,594.92
a. Are any federal funds involved?: Yes - $500,000.00
b. Does this project involve a building?: No
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No
d. Are there any other Public Works Wage Decisions related to this project?: No
e. What is the ultimate purpose or functional use of the construction once it is completed?: Construct sidewalks, curbs, gutters, ADA compliant ramps, concrete driveways to improve quality of life for a low to moderate income neighborhood.

6) Classifications of Construction:

Classification Type and Cost Total	Description
Highway/Utilities (A) **Cost:** $1,466,594.92	Construct sidewalks, gutters, curbs, ADA compliant ramps, and driveways in a low to moderate income neighborhood to improve quality of life for residents.

New Mexico Department of WORKFORCE SOLUTIONS

TYPE "A" – STREET, HIGHWAY, UTILITY & LIGHT ENGINEERING

Effective January 1, 2022

Trade Classification	Base Rate	Fringe Rate
Bricklayer/Block layer/Stonemason	24.46	8.81
Carpenter/Lather	26.48	12.14
Carpenter- Los Alamos County	29.24	13.94
Cement Mason	17.74	7.41
Drywall Finisher/Taper	25.21	8.00
Glazier		
Glazier/Fabricator	21.00	6.45
Delivery Driver	11.50	6.45
Ironworker	27.70	17.89
Painter- Commercial	17.75	8.20
Paper Hanger	17.75	8.20
Plumber/Pipefitter	33.10	13.10
Electricians- Outside Classifications: Zone 1		
Ground man	24.57	11.74
Equipment Operator	35.25	16.06
Lineman	44.32	18.08
Journeyman technician	41.47	17.37
Cable Splicer	48.75	19.19
Electricians-Outside Classifications: Zone 2		
Ground man	24.57	11.74
Equipment Operator	35.25	16.06
Lineman	44.32	18.08
Journeyman technician	41.47	17.37
Cable Splicer	48.75	19.19
Electricians-Outside Classifications: Los Alamos		
Ground man	25.27	11.76
Equipment Operator	36.27	16.09

Lineman	45.47	18.36
Journeyman technician	42.41	17.60
Cable Splicer	49.59	19.40
Laborers		
Group I	14.79	6.93
Group II	15.29	6.93
Group III	16.79	6.93
Group IV	17.29	6.93
Operators		
Group I	19.93	6.74
Group II	20.92	6.74
Group III	21.02	6.74
Group IV	21.14	6.74
Group V	21.24	6.74
Group VI	21.44	6.74
Group VII	21.61	6.74
Group VIII	21.92	6.74
Group IX	29.87	6.74
Group X	33.32	6.74
Soft Floor Layers	20.75	8.45
Truck Drivers		
Group I-IX	17.65	8.72

NOTE: All contractors are required to pay SUBSISTENCE, ZONE AND INCENTIVE PAY according to the particular trade. Details are located in a PDF attachment at WWW.DWS.STATE.NM.US. Search Labor Relations/Labor Information/Public Works/Prevailing Wage Rates.

For more information about the Subsistence, Zone, and Incentive Pay rates, or to file a wage claim, contact the Labor Relations Division at (505) 841-4400 or visit us online at www.dws.state.nm.us.

LABOR RELATIONS DIVISION
401 Broadway NE
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

PUBLIC WORKS PROJECT REQUIREMENTS

As a participant in a Public Works project valued at more than $60,000 in the state of New Mexico, the following list addresses many of the responsibilities that are defined by statute or regulation to each project stakeholder.

Contracting Agency

- Ensure that all contractors wishing to bid on a Public Works project when the project is $60,000 or more are actively registered with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa (Contractor Registration) prior to bidding.
- Please submit Notice of Award (NOA) and Subcontractor List(s) to the PWAA website promptly after the project is awarded.
- Please update the Subcontractor List(s) on the PWAA website whenever changes occur.
- All sub-contractors and tiers (excluding professional services) regardless of contract amount must be listed on the Subcontractor List and must adhere to the Public Works Minimum Wage Act.
- Ninety days after project completion please go into the PWAA system and close the project. Only contracting agencies are allowed to close the project. Agents or contractors are not allowed to close projects.

General Contractor

- Provide a complete Subcontractor List and Statements of Intent (SOI) to Pay Prevailing Wages for all contractors, regardless of amount of work, to the contracting agency within 3 (three) days of award.
- Ensure that all subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- Confirm the Wage Rate poster, provided in PWAA, is displayed at the job site in an easily accessible place.
- When the project has been completed, make sure the Affidavits of Wages Paid (AWP) are sent to the contracting agency.
- All subcontractors and tiers (excluding professional services) regardless of contract amount must pay prevailing wages, be listed on the Subcontractor List, and adhere to the Public Works Minimum Wage Act.

LABOR RELATIONS DIVISION
401 Broadway NE
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

Subcontractor

- Ensure that all subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid willexceed $60,000.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- All subcontractors and tiers (excluding professional services) regardless of contract amount must pay prevailing wages, be listed on the Subcontractor List, and adhere to the Public Works Minimum Wage Act.

Additional Information

Reference material and forms may be found in the New Mexico Department of Workforce Solutions Public Works web pages at: https://www.dws.state.nm.us/Labor-Relations/Labor-Information/Public-Works.

CONTACT INFORMATION

Contact the Labor Relations Division for any questions relating to Public Works projects by email at public.works@state.nm.us or call (505) 841-4400.

EXHIBIT 4-C
REQUEST FOR FEDERAL WAGE RATE DETERMINATION/10 DAY CALL

EXHIBIT 4-C
REQUEST FOR FEDERAL WAGE RATE DETERMINATION/10 DAY CALL

Federal Wage Rates MUST be obtained from LGD office. Wages cannot be pulled from DOL website.
Check the appropriate box: ■Initial Request for Federal Wages, or ☐ 10 Day Call

To receive decision fill out this form and mail to:
Local Government Division, DFA; Suite 202, Bataan Memorial Building; Santa Fe, New Mexico 87501
or email to: **Administrative Assistant, Camille Baca at Camille.Baca@state.nm.us , 505-827-8051** *and* **CDB Project Manager**

CDBG Project #: 19-C-NR-I-01-G-18 **Grantee:** City of Alamogordo **Phone #:** (575) 439-4257

Location of work to be performed: Alamogordo, New Mexico **County:** Otero

Date of Request: 5/27/22 **Est. Advertising Date:** 7/5/22 **Est. Bid Opening:** 8/2/22

Description of Work (Exhibit "A" of Grant Agreement):

The City of Alamogordo, NM, located in Otero County, will plan, design and construct ADA-compliant sidewalks, ramps and aprons to City blocks that include New York Avenue to Texas Avenue blocks going east to west and 2nd Street and 8th Street blocks going north to south. This area of the City has a large number of missing curb ramps, non-compliant sidewalks and driveway aprons and gaps in sidewalks. This project would eliminate the City's potential liability and offer safety to the residents of Alamogordo. Furthermore, the Alamogordo Police Department and Fire Department are located in this area. The project location is at approximately 32.898869 latitude and 105.944954 longitude. Construction staking and surveying will be performed. MUTCD compliant project-wide traffic control will be furnished and provided along with mobilization. The construction activities will include, but are not limited to, removal of existing curb/gutter and concrete flatwork, 6/8-inch subgrade preparation, 6-inch base course and installation of new curb/gutter, 4-inch concrete and 6-inch reinforced concrete. Approximately 8,252 square yards of 4-inch concrete and 1,662 square yards of 6-inch concrete will be poured. Additionally, approximately 4,095 linear feet of curb/gutter will be constructed and 1,060 square feet of tactile warning surface (truncated dome CIP plate) will be installed. This project will enhance the lives of the citizens of Alamogordo by providing safe access to both City facilities, places of worship and businesses in the downtown area.

Select type of construction:

☐ **Building:** Generally includes construction of sheltered enclosures with walk-in access for housing persons, machinery, equipment or supplies. This includes all construction within and including the exterior walls, both above and below grade.

■ **Highway:** Includes construction, alteration or repair of roads, streets, highways, parking areas and other projects not incidental to building or heavy construction.

☐ **Residential:** Involves the construction, alteration or repair of single-family houses or apartment buildings no more than four stories tall.

☐ **Heavy:** Is generally considered for all construction not properly classified as highway, residential, or building. Water and sewer line construction will typically be categorized as heavy construction.

***Federal definitions above are not identical to those issued by the New Mexico Department of Workforce Solutions. It is possible to have two different types of wage decisions.**

Send information to:

Name: Jason Casebolt **Phone #:** (575) 439-4230 **Email:** jcasebolt@ci.alamogordo.nm.us

Address: 1376 E. Ninth St., Alamogordo, NM 88310

To be completed by DFA/Local Government Division:

Decision Number: 20220036 **Date of Decision:** 02/25/2022

Expires: _____ **Supersedes Decision:** 20210036

Approved: Camille Baca **Date:** 05/27/2022
DFA/Local Government Division

Rev. 10-19

MICHELLE LUJAN GRISHAM
GOVERNOR

DONNIE J. QUINTANA
DIRECTOR

DEBORAH K. ROMERO
CABINET SECRETARY

STATE OF NEW MEXICO
DEPARTMENT OF FINANCE AND ADMINISTRATION
LOCAL GOVERNMENT DIVISION
Bataan Memorial Building ◆ 407 Galisteo St. ◆ Suite 202 ◆ Santa Fe, NM 87501
PHONE (505) 827-4950 ◆ FAX (505) 827-4948

May 27, 2022

Jason Casebolt
City of Alamogordo NM

RE: Initial Request for Federal Wage Determination: Otero County
Project Number: 19-C-NR-I-01-G-18

Purpose: The City of Alamogordo, NM, located in Otero County, will plan, design and construct ADA-compliant sidewalks, ramps and aprons to City blocks that include New York Avenue to Texas Avenue blocks going east to west and 2nd Street and 8th Street blocks going north to south. This area of the City has a large number of missing curb ramps, non-compliant sidewalks and driveway aprons and gaps in sidewalks. This project would eliminate the City's potential liability and offer safety to the residents of Alamogordo. Furthermore, the Alamogordo Police Department and Fire Department are located in this area. The project location is at approximately 32.898869 latitude and 105.944954 longitude. Construction staking and surveying will be performed. MUTCD compliant project-wide traffic control will be furnished and provided along with mobilization. The construction activities will include, but are not limited to, removal of existing curb/gutter and concrete flatwork, 6/8-inch subgrade preparation, 6-inch base course and installation of new curb/gutter, 4-inch concrete and 6-inch reinforced concrete. Approximately 8,252 square yards of 4-inch concrete and 1,662 square yards of 6-inch concrete will be poured. Additionally, approximately 4,095 linear feet of curb/gutter will be constructed and 1,060 square feet of tactile warning surface (truncated dome CIP plate) will be installed. This project will enhance the lives of the citizens of Alamogordo by providing safe access to both City facilities, places of worship and businesses in the downtown area.

Type of Construction: Highway
Wage Decision Number: NM20210036
Date of Decision: 02/25/2022

Dear Jason Casebolt,

Attached are the results of the initial Davis-Bacon Wage Determinations. Also, the procedure to request the State Wage rates are written in (Exhibit 4-B) Request for State Wage Determination. The Federal and State predetermined wage rates are required to be included in bid contracts for the Community Development Block Grant (CDBG) project which the Davis-Bacon and related Acts apply.

To confirm there are no modifications to the federal wage determinations, within ten (10) days prior to bid opening, please contact me to determine if superseding changes have been made. Any modifications to the federal wage decision must be made available to all contractors who received the original bid package. After bid opening for any contract not awarded within 90 days, you must once again, contact me to determine if superseding changes have been made.

Contractor(s) and subcontractor(s) on this project are required to certify that their firm is eligible to be awarded Government contracts by virtue of the Davis-Bacon Act or HUD contracts. Verification of eligibility of the contractor(s) registration in the System of Award Management (SAM) is approved by the Local Government Division (LGD) by submitting (Exhibit 1-X) Contractor/Subcontractor Clearance Form.

Contractor(s) and subcontractor(s) on this project are required to attend the preconstruction conference and address all the subjects in the (Exhibit 4-L) CDBG Preconstruction Conference Minutes with Required Elements. Refer to the CDBG Implementation Manual – Chapter 4 on our processes, forms and resources used to assist you with questions or concerns regarding required bid documents, equal opportunity, labor standards, and other requirements.

Included is the web link to "Making Davis-Bacon Work: A Contractor's Guide to Prevailing Wage Requirements for Federally-Assisted Construction Projects" https://www.hudexchange.info/resource/2541/making-davis-bacon-work-contractors-guide-prevailing-wage-requirements/. If you do not have access to this web site, please feel free to request a copy from me.

If you should need additional information or have any questions, please contact Maureen Ayers Project Manager

Sincerely,

Camille Baca-Martinez
LGD, Administrative Assistant

Davis-Bacon Act WD # NM20220036

Wage Determination

Modification #

1

Construction

Highway

Last Revised Date

Feb 25, 2022

States and Counties

State

New Mexico

Counties

Catron, Chaves, Curry, De Baca, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro

Document

Print **Download**

"General Decision Number: NM20220036 02/25/2022

Superseded General Decision Number: NM20210036

State: New Mexico

Construction Type: Highway

Counties: Catron, Chaves, Curry, De Baca, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra and Socorro Counties in New Mexico.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to

contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

* SUNM2011-004 08/26/2011

	Rates	Fringes
CARPENTER (Includes Form Work)		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Otero, Roosevelt, Sierra, Socorro..	$ 13.93 **	0.44
Lea.....	$ 13.30 **	0.44
Luna.....	$ 13.11 **	0.44
CEMENT MASON/CONCRETE FINISHER		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Otero, Roosevelt, Sierra, Socorro..	$ 14.17 **	0.55
Lea.....	$ 13.74 **	0.68
ELECTRICIAN (Including Traffic Signalization)		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Otero, Roosevelt, Sierra, Socorro..	$ 26.21	9.35
Lea.....	$ 24.90	8.56
HIGHWAY/PARKING LOT STRIPING: Includes Highway Line/Parking Lot Line Striping and Line Striping Truck Driver.....	$ 15.93	0.35
INSTALLER: (Guardrails, Handrails and Signs)		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Otero, Roosevelt, Sierra, Socorro..	$ 13.58 **	0.35
Lea.....	$ 14.62 **	0.30
IRONWORKER, REINFORCING		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Otero, Roosevelt, Sierra, Socorro..	$ 21.66	6.03
Lea.....	$ 21.77	6.03
IRONWORKER, STRUCTURAL.....	$ 21.77	6.03

LABORER			
Asphalt Raker	$ 13.00	**	0.35
Common or General			
Catron, Chaves, Curry, Hidalgo, Lincoln, Sierra, Socorro	$ 11.67	**	0.35
DeBaca	$ 11.33	**	0.35
Eddy	$ 11.78	**	0.35
Grant	$ 10.62	**	0.35
Lea	$ 11.61	**	0.35
Luna, Roosevelt	$ 12.56	**	0.35
Otero	$ 12.73	**	0.35
Flagger/Cone Setter	$ 12.56	**	0.35
Grade Checker	$ 16.18		1.60
Mason Tender-Brick/Cement/Concrete	$ 11.39	**	0.79
Pipelayer	$ 19.28		
Power/Air Tool Operator, Includes Jack Hammer	$ 13.91	**	0.86
PAINTER (Brush, Roller, and Spray)	$ 15.41		0.44
POWER EQUIPMENT OPERATOR:			
Asphalt/Concrete Paver, Laydown Machine, and Plant	$ 15.42		0.26
Backhoe/Excavator/Trackhoe			
Catron, Chaves, Curry, DeBaca, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 19.92		0.26
Eddy	$ 14.87	**	0.26
Lea	$ 16.88		0.26
Bobcat/Skid Loader	$ 18.06		0.26
Broom	$ 15.48		0.26
Bulldozer	$ 16.25		0.26
Crusher	$ 16.53		0.26
Distributor	$ 14.50	**	0.26
Forklift	$ 17.16		0.26
Grader/Blade	$ 18.02		0.26
Loader (Front End)	$ 16.12		0.26
Mechanic			
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra,			

Socorro	$ 19.44		0.26
Lea	$ 20.69		0.26
Milling Machine	$ 16.59		0.26
Oiler	$ 15.79		0.26
Piledriver	$ 17.82		0.26
Roller (Asphalt, Dirt, and Sheepsfoot)			
Catron, Chaves, Curry, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 15.86		0.26
DeBaca	$ 14.19	**	0.75
Lea	$ 17.41		0.26
Scraper	$ 15.91		0.26
Screed	$ 15.70		0.26
Tractor	$ 15.40		0.26
Trencher	$ 16.31		0.26
TRUCK DRIVER			
Distributor			
Catron, Chaves, Curry, DeBaca, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 13.81	**	0.26
Eddy	$ 13.70	**	0.26
Dump Truck			
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 14.60	**	0.26
Lea	$ 14.61	**	0.26
Flatbed Truck			
Catron, Chaves, Curry, DeBaca, Grant, Hidalgo, Lincoln, Luna, Otero, Sierra, Socorro	$ 12.96	**	0.26
Eddy	$ 12.71	**	0.26
Lea	$ 13.05	**	0.26
Roosevelt	$ 13.26	**	0.26
Pickup and Pilot Car			
Catron, Chaves, Curry, DeBaca, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 12.70	**	0.26
Eddy	$ 12.60	**	0.26

Lea	$ 12.84 **	0.26
Semi-Trailer Truck	$ 16.58	0.26
Tractor Haul Truck	$ 14.00 **	
Water Truck		
Catron, Chaves, Curry, DeBaca, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, Roosevelt, Sierra, Socorro	$ 14.39 **	0.26
Lea	$ 15.07	0.26

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion

date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

EXHIBIT 4-D
ARCHITECT'S & ENGINEERS CERTIFICATION COMPLIANCE WITH MINIMUM STANDARDS FOR ACCESSIBILITY BY THE PHYSICALLY HANDICAPPED

Contract No: Project No. 19-C-NR-I-01-G-18

Project Name: Alamogordo ADA Compliant Sidewalk Improvements

Pursuant to the requirements of the Americans with Disabilities Act (ADA) of 1990, and the regulations issued subsequent thereto, the undersigned certifies that the design of the above-mentioned project is in conformance with the minimum standards contained in the American Standard Specifications for Making Buildings and Facilities Accessible To and Usable By the Physically Handicapped, Number a-1117.1R-1971 (as modified by 41 CFR 101-19.603)

Architect for the Project: Smith Engineering Company

(Legal Name and Address)
Rusty Payne, PE

201 N. Church St., Suite 200A

Las Cruces, NM 88001

Registration Number: 23566

Architect Signature: Rusty Payne

PRINT NAME: Rusty Payne

Grantee Official Signature:

PRINT NAME: Brian Cesar, City Manager

Date: Jan 18, 2022

EXHIBIT 4-E
MINUTES OF BID OPENING

Project Name: _____

Project No.: _____

Bids were opened following the published bid opening date and time of _____.
Bidders and bid amounts in the order of opening were:

Contractor name	$ price	confirm attachments
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Bid recommendation to the governing body is scheduled for (date) _____

_____
Name, Purchasing Agent or Clerk

EXHIBIT 4-G
NOTICE OF CONTRACT AWARD

TO: Project Manager, Local Government Division/DFA
Bataan Memorial Building Suite 202
Santa Fe, New Mexico 87501

CC: New Mexico Department of Workforce Solutions
301 West DeVargas
Santa Fe, New Mexico 87501

FROM: Name of Grantee _____

CDBG Grant No. _____

This is to inform you that a contract has been awarded:

Project Name: _____

Federal Wage Decision _____ State Wage Decision _____

Date of Award _____ Amount of Award _____

The Contractor is:

Firm Name: _____ FEI# _____

Address: _____ Phone #_____

A Preconstruction conference will be held at the below date, time and place:

Date: _____ Time: _____ Where: _____

It is anticipated that construction will take place:

Approximate Starting Date: _____ Approximate Completion Date: _____

The person responsible for compliance with Labor Standards and Equal Opportunity:

Name: _____ Phone: _____

Signature: _____ Date: _____

EXHIBIT 4-H
NOTICE TO ALL EMPLOYEES

NOTICE TO ALL EMPLOYEES

Working on federal or federally Financed Construction Projects

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MINIMUM WAGES — You must be paid not less than the wage rate in the schedule posted with this Notice for the kind of work you perform.

OVERTIME — You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 a week. There are some exceptions.

APPRENTICES — Apprentice rates apply only to apprentices properly registered under approved federal or State apprenticeship programs.

PROPER PAY — If you do not receive proper pay, contact the Contracting Officer listed below:

or you may contact the nearest office of the Wage and Hour Division, U.S. Department of Labor. The Wage and Hour Division has offices in several hundred communities throughout the country. They are listed in the U.S. Government section of most telephone directories under: U.S. Department of Labor Employment Standards Administration

WH Publication 1321
Revised January 1986

U.S. Department of Labor
Employment Standards Administration
Wage and Hour Division

Revised 4/2020

EXHIBIT 4-H-1

EMPLOYEE RIGHTS
UNDER THE DAVIS-BACON ACT
FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

PREVAILING WAGES	You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.
OVERTIME	You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.
ENFORCEMENT	Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.
APPRENTICES	Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.
PROPER PAY	If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Employment Standards Administration | Wage and Hour Division

WH 1321 (Revised April 2009)

Exhibit 4-I

You Have a Right to a Safe and Healthful Workplace.

IT'S THE LAW!

- ❑ You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- ❑ You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- ❑ You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act.*
- ❑ You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- ❑ Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- ❑ You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- ❑ Your employer must post this notice in your workplace.

The *Occupational Safety and Health Act of 1970 (OSH Act),* P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the *OSH Act.* The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, visit our website at www.osha.gov or call 1-800-321-OSHA or your nearest OSHA office:

Atlanta (404) 562-2300	Boston (617) 565-9860	Chicago (312) 353-2220	Dallas (214) 767-4731
Denver (303) 844-1600	Kansas City (816) 426-5861	New York (212) 337-2378	Philadelphia (215) 861-4900
San Francisco (415) 975-4310	Seattle (206) 553-5930	Teletypewriter (TTY) 1-877-889-5627	

If you work in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

1-800-321-OSHA

OSHA Occupational Safety and Health Administration

www.osha.gov U.S. Department of Labor

OSHA 3165-09R

Revised 4/2020

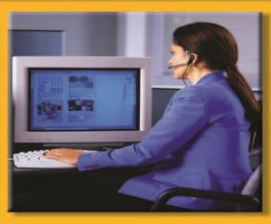
EXHIBIT 4-I-1 (SPANISH)

Seguridad y Salud en el Trabajo ¡Es la Ley!

OSHA®

Administración de Seguridad y Salud Ocupacional

Departamento del Trabajo de los Estados Unidos



EMPLEADOS:

- Usted tiene el derecho de notificar a su empleador o a la OSHA sobre peligros en el lugar de trabajo. Usted también puede pedir que la OSHA no revele su nombre.
- Usted tiene el derecho de pedir a la OSHA que realize una inspección si usted piensa que en su trabajo existen condiciones peligrosas o poco saludables. Usted o su representante pueden participar en esa inspección.
- Usted tiene 30 días para presentar una queja ante la OSHA si su empleador llega a tomar represalias o discriminar en su contra por haber denunciado la condición de seguridad o salud o por ejercer los derechos consagrados bajo la Ley OSH.
- Usted tiene el derecho de ver las citaciones enviadas por la OSHA a su empleador. Su empleador debe colocar las citaciones en el lugar donde se encontraron las supuestas infracciones o cerca del mismo.
- Su empleador debe corregir los peligros en el lugar de trabajo para la fecha indicada en la citación y debe certificar que dichos peligros se hayan reducido o desaparecido.
- Usted tiene derecho de recibir copias de su historial o registro médico y el registro de su exposición a sustancias o condiciones tóxicas o dañinas.
- Su empleador debe colocar este aviso en su lugar de trabajo.
- Usted debe cumplir con todas las normas de seguridad y salud ocupacionales expedidas conforme a la Ley OSH que sean aplicables a sus propias acciones y conducta en el trabajo.

EMPLEADORES:

- Usted debe proporcionar a sus empleados un lugar de empleo libre de peligros conocidos.
- Usted debe cumplir con las normas de seguridad y salud ocupacionales expedidas conforme a la Ley OSH.

Los empleadores pueden obtener ayuda gratis para identificar y corregir las fuentes de peligro y para cumplir con las normas, sin citación ni multa, por medio de programas de consulta respaldados por la OSHA en cada estado del país.

1-800-321-OSHA (6742)

www.osha.gov

OSHA 3167-01-07R

Equal Employment Opportunity is

THE LAW

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, employment agencies and labor organizations are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITY

Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship.

AGE

The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)

In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in the payment of wages to women and men performing substantially equal work, in jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS

Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETALIATION

All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED

There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected:

The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (toll-free) or 1-800-669-6820 (toll-free TTY number for individuals with hearing impairments). EEOC field office information is available at www.eeoc.gov or in most telephone directories in the U.S. Government or Federal Government section. Additional information about EEOC, including information about charge filing, is available at www.eeoc.gov.

EXHIBIT 4-J

EQUAL OPPORTUNITY IS THE LAW POSTER

Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

INDIVIDUALS WITH DISABILITIES

Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

RETALIATION

Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:

The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at OFCCP-Public@dol.gov, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

RACE, COLOR, NATIONAL ORIGIN, SEX

In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

INDIVIDUALS WITH DISABILITIES

Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any institution which receives Federal financial assistance, you should immediately contact the Federal agency providing such assistance.

IMPORTANT: HOW TO POST NOTICES IN A FORMAT ACCESSIBLE TO INDIVIDUALS WITH DISABILITIES

The law requires an employer to post notices describing the Federal laws prohibiting job discrimination based on race, color, sex, national origin, religion, age, equal pay and disability.

The enclosed poster, prepared by the Equal Employment Opportunity Commission (EEOC), summarizes these laws and explains how an employee or applicant can file a complaint if s/he believes that s/he has been the victim of discrimination.

These posters should be placed in a conspicuous location in the workplace where notices to applicants and employees are customarily posted.

The Americans with Disabilities Act (ADA) requires that notices of Federal laws prohibiting job discrimination be available in a location that is accessible to applicants and employees with disabilities that limit mobility.

Printed notices should be made available in an accessible format, as needed, to persons with disabilities that limit the ability to see or read. Notices can be recorded on an audio cassette or read to applicants or employees with disabilities that limit seeing or reading ability.

The EEOC has audio cassette recordings of the "Equal Employment Opportunity is the Law" poster. Employers may order a limited number for free by contacting the EEOC at:

Equal Employment Opportunity Commission
Office of Communications and Legislative Affairs
1801 L. Street, NW
Washington, DC 20507
1-800-669-4000 or 1-800-669-6820 (TTY)
Or (202) 663-4900

e-mail: info@ask.eeoc.gov

(Please include your zip code and/or city and state so that your e-mail will be sent to the appropriate office.)

EXHIBIT 4-J-1

La Igualdad De Oportunidades De Empleo Es

LA LEY

Empleadores con Contratos o Subcontratos Federales

Solicitantes de empleo y empleados de compañías privadas que tienen un contrato o subcontrato federal son protegidos por las siguientes autoridades federales:

RAZA, COLOR, RELIGION, SEXO, ORIGEN NACIONAL

La Orden del Poder Ejecutivo 11246, según enmendada, prohibe la discriminación en el empleo por razón de raza, color, religión, sexo u origen nacional, y requiere programas de acción afirmativa para asegurar la igualdad de oportunidades en todos los aspectos de empleo.

INDIVIDUOS CON IMPEDIMENTOS

La Sección 503 de la Ley de Rehabilitación cle 1973, según enmendada, prohibe la discriminación en el empleo por razón de impedimento y requiere programas de acción afirmativa en la contratación y ascenso de personas calificadas con impedimentos que, con comodidad razonable, pueden desempeñar las funciones esenciales del empleo.

VETERANOS DE LA ERA DE VIETNAM ,VETERANOS CON IMPEDIMENTOS ESPECIALES, Y OTROS VETERANOS PROTEGIDOS

38 U.S.C. 4212 de la Ley de Asistencia para la Readaptación de los Veteranos de Vietnam prohibe la discriminación en el empleo y exige programas de acción afirmativa en la contratación y ascenso de veteranos calificados de Vietnam y de veteranos calificados con impedimentos especiales.

Cualquier persona que crea que un contratista no ha cumplido con sus obligaciones referentes a la no discriminación o los programas de acción afirmativa bajo las leyes anteriormente mencionadas debe comunicarse de inmediato con:

The Office of Federal Contract Compliance Programs (OFCCP), Employment Standards Administration, U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 202 10 o llamar al(202)693-0101, 0 una oficina regional o de distrito del OFCCR listado bajo el titulo U.S. Government, Department of Labor.

Empleadores Privados, Gobiernos Estatales y Locales, Instituciones de Enseñanza

Las siguientes leyes federales protegen solicitantes de empleo y empleados de la mayoria de los empleadores privados, gobier -nos estatales y locales, instituciones de enseñanza, agencias de empleo y organizaciones laborales:

RAZA, COLOR, RELIGION, SEXO, ORIGEN NACIONAL

El Titulo V11 de la Ley de Derechos Civiles de 1964, según enmendada, prohibe la discriminación en el empleo por razón de raza, color, religión, sexo u origen nacional en la contratación, promoción, despido, pago, beneficios suplementarios, programas de adiestramiento, clasificación de empleo, reclutarniento y bajo cualquier otro término y condición de empleo.

IMPEDIMENTO

La Ley para Personas con Impedimentos de 1990, según enmendada, protege solicitantes de empleados y emptea dos con impedimentos contra la discriminación en la contratación, promoción, despido, pago, programas de adiestramiento, beneficios suplementarios, clasificación, asignación, y otros aspectos de empleo por razón de impedimento. La ley también exige que toda entidad comprendida proporcione a solicitantes de empleo y empleados calificados con impedimentos comodidad razonable al menos que esto cause dificultad excesiva.

EDAD

La Ley Contra la Discriminación en el Empleo por Razón de Edad de 1967, según enmendada, protege solicitantes de empleo y empleados de 40 años de edad o más de la discriminación en el empleo por razón de edad en la contratación, promoción, despido, pago, y bajo cualquier otro término, condición o privilegio de empleo.

SEXO (PAGO)

Ademas del Titulo V11 de la Ley de Derechos Civiles de 1964 (anteriormente descrita), la Ley de Igualdad en el Pago de 1963, según enmendada, prohibe la discriminación por razón de sexo en el pago de salario a mujeres y hombres que realizan trabajos sustancialmente iguales en el mismo lugar de trabajo.

Tomar represalia contra una persona que haya presentado una denuncia de discriminación, participe en una investigación, o se oponga a una práctica ilegal de empleo es prohibido por todas estas leyes federales.

Si usted cree que ha sido discriminado bajo cualquiera de las leyes descritas, debe comunicarse de inmediato con:

La Comisión de Igualclad cle Oportuniclades de Empleo (EEOC), 1801 L Street, N.W., Washington, D.C. 20507 o con una oficina local de la Comisión Harnando gratuitamente al (800) 669-4000. Para personas con impedimentos auditivos, el número sin cargo de la Comisión por el sisterna TDD es (800) 669-6820.

Programas o Actividades que Reciben Subsidios Federales

RAZA, COLOR, ORIGEN NACIONAL, SEXO

Además del amparo que brinda el Titulo VII cle la Ley de Derechos Civiles de 1964, el Titulo VI de la ley prohibe la discriminación por razón de raza, color, u origen nacional en programas o actividades que reciben subsidios federales. Discriminación en el empleo está comprendida bajo el Titulo VI si el objetivo primordial del subsidio es proporcionar empleos y en los casos en que la discriminación en el empleo causa o podría causar discriminación en la prestación de servicios de esos programas. El Titulo IX de las Enmiendas de Educación de 1972 prohibe la discriminación en el empleo por razón de sexo en programas o actividades educacionales que reciben subsidios federales.

INDIVIDUOS CON IMPEDIMENTOS

La Sección 504 de la Ley de Rehabilitación de 1973, según enmendada, prohibe la discriminación en el empleo por razón de impedimentos en cualquier programa o actividad que recibe subsidios del gobierno federal. Se prohibe la discriminación en todas las modalidades de empleo contra personas con impedimentos fisicos y mentales que, con comodidad razonable, pueden desempeñar las funciones esenciales del empleo.

Si usted cree que ha sido discriminado en el empleo en un programa de cualquier institución que recibe subsidios federales, debe comunicarse de inmediato con la agencia federal que otorga el subsidio.

EXHIBIT 4-K

COMMONLY ASKED QUESTIONS CONCERNING EQUAL EMPLOYMENT OPPORTUNITY

1. **What are the responsibilities of the Offeror or Bidder to insure equal employment opportunity?**

   The Offeror or Bidder must comply with the "Equal Opportunity Clause" and the "Standard Federal Equal Opportunity Construction Contract Specifications."

2. **Are Contractors required to insure a comfortable working environment for all employees?**

   Yes, it is the Contractor's responsibility to provide an environment free of harassment, intimidation, and coercion to all employees and to notify all foremen and supervisors to carry out this obligation, with specific attention to minority or female individuals.

3. **To alleviate developing separate facilities for men and women on all sites, can a Contractor put all women employees on one site?**

   No, the Contractor must assign two or more women to each site when possible.

4. **Are Contractors required to make special outreach efforts to minority and female recruitment sources?**

   Yes. Contractors must establish a current list of minority and female recruitment sources, notify them when employment opportunities are available, including on-the-job training and apprenticeship programs, and record responses.

5. **Are any efforts made to record the number of minority and females applying for positions with Contractors?**

   Yes. All Contractors must maintain a current file of the names, addresses and telephone numbers of all minority and female applicants and document whatever action was taken.

6. **What happens if a woman or minority is sent to the union by the Contractor and is not referred back to the Contractor for employment?**

   If the unions impede the Contractor's responsibility to provide equal employment opportunity, a written notification is sent to the Director.

7. **What efforts are made by Contractors to create entry level positions for women and minorities?**

   Contractors are required to develop on-the-job training programs or participate in training programs, especially those funded by the Department of Labor, to create positions for women and minorities relevant to the Contractor's employment needs.

8. **Are any efforts made by the Contractor to publicize their Equal Employment Opportunity (EEO) policy?**

   Yes. The Contractor is responsible to notify unions and training programs and request their cooperation as well as to include it in any policy manual or collective bargaining agreement, and to publicize it in the company newspaper and annual report. Externally, the Contractor is responsible to include the EEO policy in all media advertisement.

9. Are any in-service training programs provided for staff to update the EEO Policy?

At least annually a review of the EEO policy and the affirmative action obligations is required of all employees in a decision-making position. A record of the meeting, including date, time, location, persons present, subject matter discussed and disposition of the subject matter must be maintained.

10. What recruitment efforts are made for minorities and women?

The Contractor must notify minority and female recruitment sources one month prior to the date of acceptance for apprenticeship or other training programs. Notification must be orally and in writing. The Contractor must also encourage present minority and female employees to recruit members of their own group.

11. Are any measures taken to encourage promotions for minorities and women?

Yes. An annual evaluation is conducted for all minority and female personnel to encourage these employees to seek higher positions.

12. What efforts are taken to ensure that personnel policies are in accordance with the EEO policy?

Personnel policies regarding job practices, work assignments, etc. are continually monitored to ensure that the EEO policy is carried out.

13. Can women be excluded from utilizing any facilities available to men?

No. All facilities and company activities are non-segregated except for bathrooms or changing facilities to insure privacy.

14. What efforts are made to utilize minority and female contractors and suppliers?

None. However, records are kept of all offers to minority and female construction contractors.

15. If a Contractor participates in a business related association which does not comply with affirmative action standards, does that show a failure to comply?

No. The Contractor's obligation to comply is his own. If he makes every effort to assure that this group has a positive impact on EEO policy and they fail to accept this attitude, it shall not be deemed to be noncompliance on the part of the Contractor.

16. Would a Contractor be in violation of EEO policy and affirmative action if he set up one set of goals to include minorities and women?

Yes. There is a single goal for minorities and a separate single goal for women. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority.

17. Can a Contractor hire a subcontractor who has been debarred from government contracts pursuant to EEO?

No. The Contractor must suspend, terminate or cancel any subcontractor who is in violation of the EEO policy.

18. What effort has been taken by the Contractor to monitor all employment to insure the company EEO Policy is begin carried out?

The Contractor must designate a responsible individual to keep accurate records of all employees, which includes specific information required by the government.

EXHIBIT 4-L
CDBG Preconstruction Conference Minutes with Required Elements

Preconstruction Date: _____ Time: _____

Project Name: _____

CDBG Project #:_____ Total Contract Amount: _____

Project Location/Address: _____

Prime Contractor Name: _____ Phone: _____

Engineer/Architect Name: _____ Phone: _____

A preconstruction conference was held at the above date, time and place, a copy of the sign-in sheet for attendees is attached.

The following subjects were discussed:

This project is subject to the Davis-Bacon Act (DBA), Copeland Act, Contract Work Hours Safety Standards Act (CWHSSA), and the Fair Labor Standards Act (FLSA). DBA specifies the minimum wages to be paid the various classes of laborers and mechanics employed on the project. The Copeland Act prohibits kickbacks being paid by the employee to the employer and sets the requirement for submission of payrolls on a weekly basis. CWHSSA sets a uniform standard of a 40-hour work week with time and a half the basic rate of pay for all work in excess of 40 hours. FLSA sets out the requirement for payment of minimum wages, maximum hours, overtime pay, child labor standards and prohibits wage discrimination on the basis of sex.

General Guidelines

- All entities (units of local government, grant administrator, engineer(s), subconsultant(s), contractor(s), subcontractor(s), etc.) participating in this project in **any** capacity must be registered in the System of Award Management (www.sam.gov). A contractor/subcontractor clearance form (Exhibit 1-X) must be submitted and processed by the Local Government Division (LGD). The purpose of this requirement is to ensure all entities receiving funds associated with this project are actively registered (not excluded), non-delinquent in debt and otherwise capable of receiving federal funds directly or indirectly. Registration is free of charge, but processing applications may take several weeks.
- Executed Certification Concerning Equal Opportunity, Section 3 Plan, Work Force Analysis, and Segregated Facilities must be provided by the Contractor and all subcontractors prior to submission of the first payroll.
- All CDBG activities and qualifying expenses must be captured within the fiscal year. LGD operates on the State of New Mexico's fiscal year; July 1st through June 30th (ex. July 1, 2020 through June 30, 2021). Invoices and payment applications for the month of June should be submitted for payment to the Owner on June 30th, but no later than 3 business days after the end of the fiscal year. This will allow the Owner to make payment and request reimbursement within a reasonable timeframe given the fiscal year-end deadline. If construction is scheduled during the month of June in any year, please consult with LGD staff as soon as possible to identify and avoid potential pitfalls regarding fiscal year end.
- Any state job classification not included on the federal wage decision must be requested and approved by the US Department of Labor prior to the use of the classification on this job. The request must be filled out by the Owner on Standard Form 1444 (Rev. 4/2013) with all applicable information. The form is then submitted to LGD and ultimately routed to the US Department of Labor for a decision. The average response time is 4-6 weeks, but can vary depending on a variety of factors, so it is recommended that requests for authorization of additional classification and rates be done as quickly as possible.
- Only deductions that are required by law, or voluntarily authorized by the workers in accordance with Copeland Act, may be made from paychecks of the workers. Authorization by the employee for all deductions not required by law must be submitted.
- Apprentices may be employed on the project, however, they must be certified by the Bureau of Apprenticeship & Training and the ratio of apprentices to journeymen must not be exceeded.

- The general contractor will be required to certify that all laborers and mechanics employed on the project (including those employed by subcontractors) have been paid hourly rates as prescribed by the applicable laws.
- The prevailing wage will depend on each job classification in accordance with the applicable wage decisions. Unless a "helper" classification is found in the decision, "helpers" may not be used on the project. Employees must be classified and paid based on the work they perform. Generally speaking, only journeymen may use the tools of a trade.
- Any person who is employed on a piece-work basis must be shown on the payroll. The hours worked each day and total hours for the week must be shown. The hourly rate of the piece worker must equal or exceed the prescribed hourly rate for the particular work classification.
- Dual work classifications within the same payroll period are acceptable. A verification of the dual classification signed by the employee is required.

The requirements for compliance with these acts are the responsibility of all parties involved in this project. However, the Labor Standards Officer as listed below and designated by Exhibit 4-N is ultimately responsible for the overall compliance in regards to labor provisions associated with this project including, but not limited to construction site signage requirements, payroll and payroll review, labor violations, restitution, monthly employee interviews and construction observation.

Labor Standards Officer Name: _____

Job Title/Position: _____

Affiliation: _____

State Wage Decision #: _____

Federal Wage Decision #: _____

<u>Construction Site Signage</u>

- The wage decision, posters, and any additional classifications provided must be posted in a prominent place on the job site for the duration of the construction project:
    - New Mexico CDBG sign with Community Development Council Members
    - Copy of state wage decision(s)
    - Copy of federal wage decision(s)
    - Notice to all employees (Exhibit 4-H)
    - Employee Rights notice (Exhibit 4-H-1)
    - Right to a Healthful Workplace (Exhibit 4-I)
    - Right to a Healthful Workplace *Spanish* (Exhibit 4-I-1)
    - Equal Opportunity is the Law (Exhibit 4-J)
    - Equal Opportunity is the Law (Exhibit 4-J) *Spanish*
    - Questions concerning EEO (Exhibit 4-K)

<u>Payroll</u>

- The rate of pay must be at least equal to that in the prevailing wage decision that is contained in the contract documents. For each CDBG project, both the state and federal wages must be formally requested. Each job classification can be found in both the state and federal decisions, the prevailing wage is the higher of the two wages. Please note that the prevailing wage is dependent on each specific job classification, meaning that for some jobs the prevailing wage might be the state wage, while other jobs might be the federal wage.
- WH-347 (expiration 04/30/2021) contains the Certified Payroll Form and Statement of Compliance. This form is to be used by contractors and subcontractors performing work on federally financed projects subject to Davis-Bacon and related Acts. Payrolls must contain a signature by the owner, partner, officer or individual authorized in writing by one of the above. The Local Government Division (LGD) can discretionarily mandate that WH-347 (Exhibit 4-P Certified Payroll) located at

http://nmdfa.state.nm.us/CDBG_Implementation_Manual.aspx and must be used by contractors and/or subcontractors on all CDBG projects.

- Payrolls must be submitted to the Owner on a weekly basis within 7 days following the end of the work week. A pay period is defined as seven consecutive calendar days.
- Payrolls should be numbered consecutively, with the first one being marked "initial" and the last being marked "final". Payrolls and payroll review worksheets must be submitted to the funding agency (LGD) every 2 weeks at a minimum to avoid backlogging.
- All persons working on the job site must be shown on the payroll and should be identified by their name and last four digits of their social security number.
- If the owner of a company performs work on the project, the owner must list him/herself on the payroll and must show the hours worked each day and total hours for the week.

Payroll Review

- The Labor Standards Officer (or designee) will collect all payrolls from contractors and subcontractors. Once received, this individual will complete a payroll review worksheet (Exhibit 4-U) for each week of payroll. All employees and job classifications during each week of payroll must be listed on the payroll review worksheet respectively. Each weekly payroll must be submitted with its corresponding payroll review worksheet in order to obtain LGD approval.
- CDBG reimbursement requests will not be processed until payrolls are up-to-date, have been submitted to and reviewed by the funding agency (LGD). Please note that the Owners must comply with the Prompt Payment Act, regardless of LGD approval of payrolls. Issues with payroll that affect CDBG reimbursements do not constitute justification for an Owner's violation of the Prompt Payment Act.

Overtime & Wage/Overtime Violations

- Payment of overtime at 1.5 times the regular rate of pay (not including fringe rates) must be made for all hours in excess of 40 hours in a 7 day work week. Overtime is calculated as follows:

  Overtime pay = [(regular pay X 1.5) + fringe pay]

- Failure to pay laborers and mechanics at a rate not less than one and one-half times their basic rate of pay per 29 CFR 5.8(a) and 29 CFR 5.5(b)(2) will result in a labor and/or overtime violation. As published by the U.S. Department of Labor per (40 USC 3702(c)), the assessment of liquidated damages related to Contract Work Hours and Safety Standards Act (CWHSSA) shall be assessed at $26 per day/per violation. Additionally, wage restitution must be made to any worker who is underpaid.

  (https://www.dol.gov/whd/govcontracts/cwhssa.htm#cmp)

- Wage and/or overtime violations must be identified and resolved immediately. Requests for reimbursement will not be processed until restitution has been made and proof of payment has been submitted to the funding agency.

Employee Interviews

- The Labor Standards Officer (or designee) is responsible for conducting employee interviews at the construction site on a monthly basis. Employee interviews should be conducted monthly for approximately 10% of each job classification throughout the construction cycle.
- Interviews are to be completed using HUD Form 11. This document contains all required information pertaining to the interviews as well as instructions for completing the form.
- The purpose of the interviews is to ensure that employees are classified and compensated correctly. All information collected is strictly confidential. Interviews should be conducted individually and privately. All laborers and mechanics employed on the job site must be made available for interviews at the interviewer's request. However, employee participation in the interviews is voluntary. Interviews shall be conducted in a manner and place that are conducive to the purposes of the interview and that cause the

least inconvenience to the employer(s) and the employee(s). Interviewers should make reasonable accommodations for persons whose primary language is not English.

Additional items addressed at the conference included:

Prepared by: _____ Date: _____

(Name/Title)

Cc: Contractor

Local Government Division, DFA

EXHIBIT 4-M
NOTICE TO PROCEED
(MUST USE GRANTEE LETTERHEAD)

TO: Contractor_____

FROM: CDBG
Grantee_____

CDBG Contract No._____

State Wage Determination No._____

Federal Wage Determination No._____

In accordance with the contract dated _____ you are hereby notified
to commence work on _____

Project Name_____

Starting Date (on or before)_____

You are to complete the work within _____ consecutive calendar days.

Completion Date (on or before)
_____

Name _____

Title _____

Signature _____

Date _____

cc: Local Government Division, DFA

EXHIBIT 4-N
APPOINTMENT OF LABOR STANDARDS OFFICER

CDBG Contract No: _____ Grantee: _____

I,_____ hereby appoint_____
(Print Mayor/County Chairman) (Print Name)

as the Labor Standards Officer for the aforementioned contract. The appointed Labor Standards Officer is assigned to oversee the labor portion of the contract and will be responsible for assuring compliance with all requirements under **CHAPTER 4 of the New Mexico Community Development Block Grant Implementation Manual**.

Appointed Labor Standards Officer: _____
(Print Name)

Address:_____

City:_____ State: ____ Zip:_____

Telephone Number: (_____) -_____

I acknowledge the appointment and duties of Labor Standards Officer.

Signature:_____ Date_____
(Labor Standards Officer)

Appointed by:_____ Title:_____
(Print Mayor/County Chairman)

Signature:_____ Date:_____
(Mayor/County Chairman)

EXHIBIT 4-O

Record of Employee Interview

U.S. Department of Housing and Urban Development
Office of Labor Relations

OMB Approval No. 2501-0009
(exp. 12/31/2013)

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number. The information is collected to ensure compliance with the Federal labor standards by recording interviews with construction workers. The information collected will assist HUD in the conduct of compliance monitoring; the information will be used to test the veracity of certified payroll reports submitted by the employer. **Sensitive Information**. The information collected on this form is considered sensitive and is protected by the Privacy Act. The Privacy Act requires that these records be maintained with appropriate administrative, technical, and physical safeguards to ensure their security and confidentiality. In addition, these records should be protected against any anticipated threats or hazards to their security or integrity that could result in substantial harm, embarrassment, inconvenience, or unfairness to any individual on whom the information is maintained. **The information collected herein is voluntary, and any information provided shall be kept confidential**.

1a. Project Name	2a. Employee Name
1b. Project Number	2b. Employee Phone Number (including area code)
1c. Contractor or Subcontractor (Employer)	2c. Employee Home Address & Zip Code
	2d. Verification of identification? Yes ☐ No ☐

3a. How long on this job?	3b. Last date on this job before today?	3c. No. of hours last day on this job?	4a. Hourly rate of pay?	4b. Fringe Benefits?	4c. Pay stub?
				Vacation Yes ☐ No ☐ Medical Yes ☐ No ☐ Pension Yes ☐ No ☐	Yes ☐ No ☐

5. Your job classification(s) (list all) --- continue on a separate sheet if necessary

6. Your duties

7. Tools or equipment used

	Y	N		Y	N
8. Are you an apprentice or trainee?	☐	☐	10. Are you paid at least time and ½ for all hours worked in excess of 40 in a week?	☐	☐
9. Are you paid for all hours worked?	☐	☐	11. Have you ever been threatened or coerced into giving up any part of your pay?	☐	☐

12a. Employee Signature	12b. Date

13. Duties observed by the Interviewer (Please be specific.)

14. Remarks

15a. Interviewer name (please print)	15b. Signature of Interviewer	15c. Date of interview

Payroll Examination

16. Remarks

17a. **Signature of Payroll Examiner**	17b. **Date**

U.S. Department of Labor
Wage and Hour Division

PAYROLL (Exhibit 4-P)

(For Contractor's/Subcontractors Use in New Mexico CDBG projects;

See Instructions at www.dol.gov/whd/forms/wh347instr.htm)

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

U.S. Wage and Hour Division

Rev. Dec. 2008

OMB No.:1235-0008
Expires: 04/30/2021

NAME OF CONTRACTOR OR SUBCONTRACTOR	ADDRESS	
PAYROLL NO.	FOR WEEK ENDING	PROJECT AND LOCATION / PROJECT OR CONTRACT NO.

(1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	OT. OR ST.	(4) DAY AND DATE — HOURS WORKED EACH DAY	(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS: FICA	WITH-HOLDING TAX			OTHER	TOTAL DEDUCTIONS	(9) NET WAGES PAID FOR WEEK
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that is will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W. Washington, D.C. 20210

(over)

Date _____

I, _____ _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)

_____; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,

all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

_____

_____

_____

_____

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ – in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ – Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

EXHIBIT 4-Q
OVERTIME VIOLATIONS REPORT

TO: Local Government Division/Department of Finance & Administration

ATTENTION: Labor Standards Compliance Officer

FROM: _____
(Grantee)

CDBG GRANT No. _____

DATE: _____

SUBJECT: Report of Overtime Violation(s)

Project Name_____

Contractor or Subcontractor Name _____

****

Indicate overtime violations below:

Name(s) of Affected Employee(s)	Classification	Rates(s) of Pay (Basic + Fringe)	Violation(s) Date(s) #Hours

Signed _____ Title _____ Date _____
(Chief Elected Official)

EXHIBIT 4-R
FINAL WAGE COMPLIANCE REPORT

Grantee:	**CDBG Project #:**
Federal Wage Decision #:	**State Wage Decision #:**
Construction Contract Amount:	**Contract Award Date**:
Construction Completion Date:	

Prime Contractor: _____
(Name) (Address) (City) (State) (Zip Code)

Subcontractor(s): _____
(Name) (Address) (City) (State) (Zip Code)

_____
(Name) (Address) (City) (State) (Zip Code)

_____
(Name) (Address) (City) (State) (Zip Code)

_____
(Name) (Address) (City) (State) (Zip Code)

_____
(Name) (Address) (City) (State) (Zip Code)

I. <u>Violations</u>

A. Were any workers paid less than the specified **<u>State</u>** rates that applied to this project?
Yes ☐ / No ☐

B. Were any workers paid less than the specified **<u>Federal</u>** rates that applied to this project?
Yes ☐ / No ☐

If YES:
1. What was the total amount of restitution paid by or on behalf of the above listed contractors?
   $ _____ *(Complete Exhibit 4-R-2)*
2. What was the method of restitution?
   ☐ Paid by Contractor or Subcontractor
   ☐ Paid by _____ with funds withheld from payment to the Contractor
   (City/County)

C. Were any workers paid ***incorrect*** overtime payments? Yes ☐ / No ☐ **If YES**, **attach a detailed report** that includes the nature of the overtime violations including the following:

1. Company's name, address and phone number;

2. Date Contractor was notified in writing of the amount of liquidated damages which could be assessed;
3. Date the Contractor responded to the written notice: (Must be within 30 days of the receipt); and
4. Were liquidated damages incurred for overtime violations exceeding $1000?

D. Were any wage underpayments willful? YES☐ / NO☐ *(If yes, attach detailed report)*

E. Should sanctions against the Contractor/Subcontractor be considered? YES☐ / NO☐ *(If yes attach a justification for the sanctions)*

F. Wage underpayments were discovered through:

G. The types of violations were:

II. <u>Disposition</u> *(Narrative)*:

Labor Compliance Officer:

Signature: _____
Printed Name: _____

Date: _____

Contact Information:
Phone:
E-mail:

Grantee Contact: (if different)

Printed Name: _____

Contact Information:
Phone:
E-mail:

NOTE: When underpayments by a construction contractor or subcontractor total $1,000 or more to his/her entire workforce (not to individual employees), or when there is reason to believe that the violations are aggravated or willful (or, in the case of the Davis-Bacon Act, that the construction contractor has disregarded its obligations to employees and subcontractors), the Grantee shall furnish within 30 days after completion of investigation, this enforcement report to the Department.

EXHIBIT 4-R-1

EMPLOYEE'S RESTITUTION RECEIPT

NAME AND ADDRESS OF PRIME CONTRACTOR	DATE CONTRACT NO.
NAME AND ADDRESS OF SUBCONTRACTOR	PROJECT NAME AND NO.

EMPLOYEE'S NAME AND ADDRESS	PERIOD COVERED	CLASSIFICATION	HOURS WORKED		HOURLY RATE ACTUALLY PAID		HOURLY RATE IN CONTRACT	
			ST	OT	ST	OT	ST	OT

AMOUNT OF GROSS WAGES EARNED FROM HOURS INDICATED ABOVE IN ACCORDANCE WITH CONTRACT RATES: $ -

AMOUNT OF WAGES ACTUALLY RECEIVED FOR HOURS INDICATED ABOVE. $ -

GROSS AMOUNT OF WAGE RESTITUTION DUE: $ -

I DO HEREBY CERTIFY THAT I HAVE RECEIVED WAGE RESTITUTION DUE AS FOLLOWS

GROSS AMOUNT: $ -

LESS LEGAL PAYROLL DEDUCTIONS: $ -

NET PAY RECEIVED: $ -

THE ABOVE REPRESENTS FULL RESTITUTION FOR THE HOURS WORKED AS INDICATED ABOVE.

SIGNATURE OF EMPLOYEE

AS REPRESENTATIVE OF THE ABOVE NAMED (CONTRACTOR OR SUBCONTRACTOR). I DO HEREBY CERTIFY THAT PAYMENT HAS BEEN MADE TO THE ABOVE EMPLOYEE FOR WAGES DUE AS INDICATED ABOVE.

PRINT NAME & TITLE AND PROVIDE SIGNATURE ***DATE***

STATE OF: _____ COUNTY OF: _____

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____, 20

NOTARY PUBLIC: _____

MY COMMISSION EXPIRES: _____

EXHIBIT 4-R-2
EMPLOYEE RESTITUTION SUMMARY

				Federal/State Violation						
		OT Violation								
Employee Name	Job Classification	OT Violation	Liquidated Damages	Hours Worked	Amount Paid	Federal Wage (Plus Fringe)	State Wage (Plus Fringe)	Federal Violation Y/N	State Violation Y/N	Total Due

EXHIBIT 4-S

Presented below is language that may be useful in the preparation of:

A LISTING OF THE DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE.

Adaptation to the peculiarities and requirements of each Project is essential.

ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing performance of the Work of the Contractor.

Through more extensive on-site observations of the Work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the Work; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

A. **General**

RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. **Duties and Responsibilities of RPR**

1. *Schedules:* Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.
2. *Conferences and Meetings:* Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
3. *Liaison:*
   a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
   b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. *Shop Drawings and Samples:*
   a. Record date of receipt of Shop Drawings and samples.
   b. Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.

c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

5. *Review of Work, Rejection of Defective Work, Inspections and Tests:*
   a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
   b. Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
   c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
   d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

6. *Interpretation of Contract Documents:* Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

7. *Modifications:* Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.

8. *Records:*
   a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
   b. Keep a diary or log book, recording CONTRACTOR hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
   c. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.

9. *Reports:*
   a. Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
   b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.

c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.
d. Report immediately to ENGINEER and OWNER upon the occurrence of any accident.

10. *Payment Requests:* Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

11. *Certificates, Maintenance and Operation Manuals:* During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.

12. *Completion:*
    a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
    b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
    c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. **Limitations of Authority**

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.
7. Shall not authorize OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

EXHIBIT 4-T
CONSTRUCTION CONTRACT CHECKLIST

Bid Package Review

- ✓ **Advertisement and Invitation for Bids**
- ✓ **Instructions to Bidders includes Statement of Bidder's Qualifications**
- ✓ **Bid Format (*including all deductive or additive alternates as applicable*)**
- ✓ **Bid Bond**
- ✓ **Performance Bond**
- ✓ **Payment Bond**
- ✓ **Standard Form Contract**
- ✓ **General Contract Conditions**
- ✓ **Wage Rate Decision** **Date:** **By:**
  - **Wage Rate determination requested:** _____ _____
  - **Wage Rate determination acknowledged:** _____ _____
  - **Changes in wage rate reviewed:** _____ _____
- ✓ **Davis-Bacon provisions ($2,000)**
- ✓ **Contract Work Hours and Safety Standards Clauses (CWHSSC)**
- ✓ **Copeland Anti-Kickback clause**
- ✓ **Employment of Apprentices/Trainees clause**
- ✓ **Civil Rights Act of 1964-Title VI clause**
- ✓ **Compliance with Title VIII Fair Housing**
- ✓ **EO 11246 standard clause**
- ✓ **Hsng. & Community Development Act of 1974 (Section 109)**
- ✓ **Section 3 Plan**
- ✓ **Age Discrimination Act of 1975**
- ✓ **Federal Labor Standards Provisions (HUD Form 4010)**
- ✓ **Drawings and Technical Specifications (*including location of all utility lines and similar services*)**

Pre-Construction/Notice to Proceed

- ✓ **Contractor Clearance** **Date:_____ By: _____**
- ✓ **Surety Verification**
- ✓ **Notice of Contract Award/Preconstruction conference**
  - **(*To be sent to LGD and NM Department of Workforce Solutions*)**
- ✓ **Pre-construction Conference Minutes**
- ✓ **Notice to proceed issued to Contractor**
- ✓ **Appoint Labor Standards Officer**
- ✓ **Contractor/Subcontractor Report**

Inspection

- ✓ **Project Inspection:**
  - **Month 1: _____**
  - **Month 2: _____**
  - **Month 3: _____**
  - **Month 4: _____**
- ✓ **Complaints, if any, and actions taken** **Date:_____ By: _____**
- ✓ **Correspondence concerning contract or EO Compliance**
- ✓ **Project Labor Standards Enforcement file established**

- ✓ **Project Inspection Checklist** **Date:** **By:**
  - **Project Site Posting**
    - **Wage Decision** _____ _____
    - **Notice to Employees** _____ _____
    - **Safety & Health Protection on Job** _____ _____
    - **EEO Requirements** _____ _____
  - **Employee Interviews**
    - **Attach Employee Interview form for each interview conducted. All classifications represented on the job must be included in interviews.**

      _____ _____
  - **Inspector's report written (*re: posting of site, contractor compliance with EO specification*)**

    _____ _____

Project Completion

- ✓ **Files reviewed to determined completeness, establish that all required restitutions have been made and are adequately documented.**
- ✓ **Final Wage Compliance Report**
- ✓ **Copy of "As-Built" record drawings**
- ✓ **Contractor's Certification of Equal Employment Opportunity**
- ✓ **Subcontractor's Certification of Equal Employment Opportunity**
- ✓ **Contractor's Certification regarding Section 3**
- ✓ **Subcontractor's Certification regarding Section 3**
- ✓ **Contractor established own Equal Employment Opportunity file**
- ✓ **Requested and received wage decision for any classification not included on wage decision**
- ✓ **If apprentices are to be used on contract, received copy of Contractor's apprentice program from State Bureau of Apprenticeship and Training (SBAT)**
- ✓ **If trainees are to be used on contract, received copy of Contractor's trainee program certification from SBAT**
- ✓ **Bonding/Insurance on file with Grantee**

Construction/Enforcement

- ✓ **Payrolls and Statement of Compliance**

	Received	**Reviewed**	**Discrepancies**
Week 1:	_____	_____	_____
Week 2:	_____	_____	_____
Week 3:	_____	_____	_____
Week 4:	_____	_____	_____
Etc.	***(Document on attached sheet including resolutions and notice to State)***		

EXHIBIT 4-U

PAYROLL REVIEW WORKSHEET

Project Name and Number: LGD Project Manager

Federal Wage Decision Number:_____ State Wage Decision Number:_____

Contractor/Subcontractor:_____ **Payroll End Date:** _____

Trade	What was Actually Paid	State Rate	Fringe	Total State	Federal Rate	Fringe	Total Fed	Amt. of Restitution
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	
				$ -			$ -	

NOTE: If the actual rate paid to any employees is lower than the prevailing rate, ie, the higher of the two, for any particular trade, the contractor or sub-contractor must make & document wage restitution immediately! If restitution is not made quickly, progressive contract payments may be withheld.

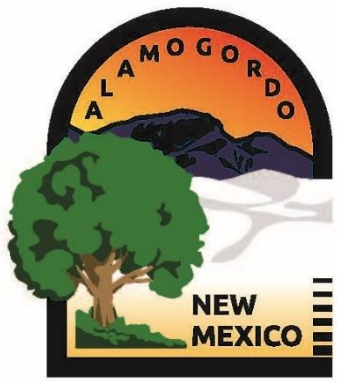
_____ _____

Name of Reviewer (Print)

_____

Signature of Reviewer Date

TECHNICAL STANDARDS



City of
ALAMOGORDO

Adopted: June 14, 2022

Resolution No. 2022-28

WRITTEN NOTICE PROCEDURES

Throughout this document there are numerous references to written notification; below is pertinent information on the meaning of written notification, means for submitting the notification, and the typical materials required to be provided through the notification(s).

Written Notification Format:
All written notifications shall be submitted through electronic mail (email) to the following address:

contractor@ci.alamogordo.nm.us

Dissemination of Written Notification:
City personnel will field the written notifications, daily during working hours, and will forward on to the appropriate City department for response and resolution.

Written Notification Response:
Each notification will receive an email response addressed to the original enquiry.

Who Submits a Written Notification:
Contractors, Builders, Developers, Service Providers, or any other provider who intends to work within public right-of-way.

Items Requiring Written Notification:

- Requests for Information (RFI)
- Variance Requests
- Submittals and Shop Drawings
- Substitution Requests
- Deviation Requests
- Inspection Requests
- Testing Reports
- Testing Requests
- Decision Appeal Requests
- Design Clarifications
- Change Order Requests
- Etc.

While the above listing is not exhaustive of all potential items, it should be utilized for construction correspondence to streamline the process and minimize the potential for disruption of construction related activities.

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

TECHNICAL STANDARDS

TABLE OF CONTENTS

LIST OF TABLES PAGE NUMBER

LIST OF FIGURES PAGE NUMBER

UTILITIES DEPARTMENT – STANDARD FORMS PAGE NUMBER

STANDARD DETAIL DRAWINGS:

STANDARD DETAIL DRAWINGS:

CHAPTER 1 – GENERAL STANDARDS

ARTICLE 01-01 - GENERAL

Article 01-01-010 Acronyms and Definitions

Acronyms:

AASHTO	American Association of State Highway and Transportation Officials
AC	Asbestos-Cement
ACI	American Concrete Institute
ACNM	Associated Contractors of New Mexico
AGC	Associated General Contractors of America, Inc.
ANSI	American National Standards Institute
APWA	American Public Works Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
AWG	American Wire Gage
AWWA	American Water Works Association
BM	Benchmark
EPA	Environmental Protection Agency
FH	Fire Hydrant
FHWA	Federal Highway Association
FCCCHR	University of Southern California Foundation for Cross-Connection Control & Hydraulic Research
G	Gas Line
GIS	Geographic Information System
ID	Inside Diameter
Inv	Invert
MH	Manhole
mg/l	Milligrams per Liter
MUTCD	Manual on Uniform Traffic Control Devices
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NM811	New Mexico One-Call (https://www.nm811.org/)
NMAC	New Mexico Administrative Code

NMDOT	New Mexico Department of Transportation
NMPRC	New Mexico Public Regulation Commission
NMSA	New Mexico Statutes Annotated--1978 Compilation as Amended
NSF	National Sanitation Foundation
OD	Outside Diameter
OHP	Overhead Power
OHP&T	Overhead Power & Telephone
OHT	Overhead Telephone
OSHA	Occupational Safety and Health Association
PC	Point of Curvature
PDI	Plumbing and Drainage Institute
PMBP	Plant Mix Bituminous Pavement
Ppm	Parts per Million
POWTS	Publicly owned Wastewater Treatment System
PRC	Point of Reverse Curvature
Psf	Pounds per Square Foot
Psi	Pounds per Square Inch
PT	Point of Tangency
PVC	Polyvinyl Chloride Pipe
Pvmt	Pavement
Q	Rate of Flow
RCP	Reinforced Concrete Pipe
RFI	Request for Information
SCCP	Steel Cylinder Concrete Pipe
Sec	Section
Sta	Station
Std	Standard
TCP	Traffic Control Plan
TCS	Traffic Control Supervisor
TCT	Traffic Control Technician
UGT	Underground Telephone
UL	Underwriters' Laboratories, Inc.
UPC	Universal Plumbing Code
V	Velocity

Definitions:

Alley – A public way, other than a street, intended for secondary access and service to the rear or side of the property.

Arterial Street – Is a roadway classification defined by higher traffic volumes, used for trips of moderate lengths, and offers connectivity to higher arterial systems (i.e., interstates). This roadway classification is characterized by a high degree of mobility with limited abutting direct access points.

Asphalt Treated Base Course – Is a dense-graded hot mix asphalt with a wide gradation band and lower asphalt content intended for use as a stabilizing base course.

Backfill – Is suitable material used to refill an excavation.

Building Setback – Is the required separation between a lot line and a building or structure.

Change Order – Written documentation of agreement to add or subtract work, modify the design, revise the schedule, modify the price, or deviate from the original Contract Documents in some other way.

City - The City of Alamogordo and all assigned representatives.

City Engineer – The City of Alamogordo's Engineer.

Collector Street – Is a roadway classification which typically connects larger traffic generators to the Arterial network. Typically characterized by more connecting driveways, fewer travel lanes, lower speed limits, and are prevalent between Arterial routes.

Complex Traffic Control Plan – A traffic control plan is a compilation of diagrams (plans) and/or written procedures on the management of vehicular, bicycle, and pedestrian traffic within a proposed construction zone throughout the construction duration. Complex traffic control plans shall include multiple construction phases, shifting of traffic patterns, removing/relocating of traffic control devices for subsequent construction phases, and as required on jurisdiction facilities (NMDOT Roads and City administered minor/major arterial roadways). A complex traffic control plan will require a State of New Mexico licensed engineer's seal and signature for review and implementation.

Construction and Demolition Activities – Activities directly related to a public or private improvement project.

Contract Documents - The written agreement between the Contractor and the Owner setting forth the obligations of the parties thereunder, including but not limited to the performance of the work and the basis of payment. The Contract Documents are defined in the Agreement and may include:

the Advertisement for Bids, Addenda (whether issued prior to the opening of bids or the execution of the agreement), Instructions to bidders, Contractor's Bid, the Performance Bonds and Labor and Payment Bond (for both Contractor and subcontractor, if applicable to subcontractor), the Certificate of Insurance, the Statement of Bidder's Qualifications, the Campaign Contribution Disclosure Form, the Notice of Award, the Notice to Proceed, the General Conditions, the Contract Specifications, any Special Conditions, any referenced Specifications or Standards, Drawings and Plans, and all modifications to the above, including Change Orders and extensions of Contract Time, all of which constitute one instrument.

Contractor - The person, firm, or corporation with whom an owner has executed the agreement.

Crown – Is the side-to-side or cross-sectional shape of a roadway surface. Roadways may have center-crown, in-sloped crowns, or out-sloped crowns.

Cul-De-Sac – A local street with only one (1) outlet having an appropriate terminus for the safe and convenient reversal of traffic movement.

Curb Cut – Is an opening in an existing curb to allow for a driveway, right-of-way entry from the street, or a temporary cut for the installation of subsurface utility.

Curb Return – Is a curved section of a curb located at a corner of intersecting roadways, connection point of curbs on the main road to an intersecting road.

Deformed Reinforcing Steel Bars – Is a steel bar, with surface ribs, with high tensile strength typically used in reinforced concrete structures.

Detour – An alternate route necessary to avoid something (i.e., vehicle crash, construction activities, etc.) within the existing travel route.

Drawings or Plans - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by an engineer.

Driveway, Private – A vehicular way not serving more than one (1) lot or parcel of land.

Driveway, Common – A vehicular way serving more than one (1) lot or parcel of land.

Engineer - The person or firm designated by an Owner, who is responsible for providing engineering services.

Easement, Private – A right-of-use granted for the limited use of private landowners and where general use and maintenance of such area is governed by an agreement which runs with the land. This easement is serviceable only by mutual consent of all of the parties that benefit from the Easement.

Easement, Public – An easement dedicated for use by the public, which is included within the dimensions or areas of lots or parcels of land.

Embankment – Excavation, borrow, or imported material suitable for use in fill sections above prepared existing grades.

Federal Highway Administration (FHWA) – Is a division of the United States Department of Transportation that specializes in highway transportation.

Field Order - A written order issued by an engineer or Inspector which clarifies or interprets the Plans and Specifications, which does not affect the cost or time to complete the work stipulated by the Contract Documents.

Frontage Road – Used to relieve Major Arterial streets of side traffic.

Grade – The slope of any surface specified in percentage terms or in terms of elevation.

Grading – Any disturbance of the surface of the land with earth moving equipment.

Hot Mix Asphaltic Concrete – Is a combination of stone, sand, or gravel bound together by asphalt cement. After it is mixed at a high temperature, laid and compacted, the result is an improved driving surface.

Inspector - Inspector representing the City of Alamogordo responsible for inspection of all Work done and all materials furnished. Inspector is authorized to call to the attention of the Contractor any failure of the Work or materials to conform to the City's Standards, Plans, and Specifications. Inspector shall have the authority to reject materials or suspend Work until any questions at issue can be resolved.

Intersection – the location where two (2) or more streets cross at grade.

Local Street – Is a roadway classification which typically carry no through traffic movement and are used to provide access to adjacent lands and developments.

Lot – is defined as an individual parcel of land for a development. Secondarily, it is a particular batch or collection of materials (i.e., pipe or other material).

Mandrel Deflection Test – is a deflection test conducted on gravity sewer pipe where a nine (9) ribbed mandrel (typically constructed from aluminum or steel) is hand pulled from manhole to manhole to confirm ovality of the pipe. This test confirms that the pipe in place was properly bedded and backfilled. The test is typically a "Go – No-Go" (pass/fail) where deflection in excess of five percent (5%) of the internal diameter is considered failing and the mandrel will not pass.

Median – A strip of land that separates the opposing flows of traffic on a street.

New Mexico One-Call (NM811) – Acts as a communication link between utility companies and individuals planning any digging activity.

Owner – The City of Alamogordo's representatives.

Parkway – Is defined as a buffer between a roadway and roadside improvements (sidewalks, walking paths, developments, etc.). Typically consisting of beautification or landscaping.

Pedestrian Way – A specifically designated place, means, or way by which pedestrians shall be provided safe, adequate and usable circulation; normally provides access through the interior of a property or development. Does not include street, vehicular easement, right-of-way, or required sidewalk along a street or vehicular way.

Plans – Documents governing construction of improvements.

Plat – Is a map, drawn to scale, depicting how a parcel of land is divided. A plat includes a description of the different boundaries, land features, and adjacent amenities.

Property Line – The line(s) of record bounding a lot or other parcel of land.

Project - The entire construction to be performed as provided in the Contract Documents.

Project Manager – The owner's representative who is delegated the responsibility for administration of the Project and who is the primary point of contact for the Contractor.

Public Rights of Way – A general term denoting land, property, or interest therein which is acquired, dedicated, or reserved for use by state, county, or municipal transportation purposes.

Public Works – The American Public Works Association defines public works as the combination of physical assets, management practices, policies, and personnel necessary for government to provide and sustain structures and services essential to the welfare and acceptable quality of life for its citizens. City Public Works oversees: Planning & Zoning, Streets, Weeds & Drainage, Facility Maintenance, and Fleet Maintenance.

Reference Specifications, Test Methods, and Applicable Codes - All Standard Specifications and test methods of any society, association, or organization, referred to herein, are hereby made a part of these Technical Standards the same as if written in full (any reference to a paragraph or subparagraph within an article shall include all general provisions of the article to which reference is made). References to such Standards refer to the latest published issues as of the date of the development or Project is approved, unless otherwise specified. Reference to local or state codes

and laws shall mean the latest adopted and published codes as of the date of the development or Project is approved, unless otherwise specified.

Request for Information – is a formal written process in which parties, such as the Contractor and designer, seek and receive clarification of plans, drawings, specifications, and agreements.

Roadway – A thoroughfare, including shoulders, for vehicular use.

Service Connections - Service Connections shall be construed to mean all or any portion of the pipe, conduit, cable, or duct which connects a utility main or distribution line to a building, home, residence, or property.

Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by Contractor, a subcontractor, manufacturer, supplier, or distributor which have been approved by owner and/or the City Engineer and which illustrate the equipment, material, or some portion of the Work.

Shoulder – The portion of the roadway contiguous with the traveled way, outside of the edge of pavement (designated driving surface), for accommodation of stopped vehicles, emergency use, and lateral support of base and surface courses.
Sidewalk – A paved path (typically concrete pavement) paralleling roadways or parking lots.

Slope – The gradient or incline of the land. Typically expressed in percent (i.e., 2% slope) or in horizontal distance per vertical distance (i.e., 6:1 slope).

Special Conditions - Conditions which modify any article or paragraph of these Technical Standards.

Specifications (also Technical Specifications) - A written technical description of materials, equipment, construction systems, standards and workmanship as applied to the Work.

Street – A right-of-way dedicated to the use of the public by which vehicles and pedestrians shall have lawful and usable ingress and egress, which has been accepted for maintenance and control by the City, County, or State. See Streets and Roads Detail Drawings for street classifications and typical cross sections.

Street, Stub – A street that has been designed to allow for the future extension of the street through subsequent developments.

Subcontractor - An individual, firm or corporation having a direct contract with Contractor or with any other subcontractor for the performance of a part of the Work at the site, and who has a current City of Alamogordo Business Registration.

Subgrade – The prepared earth surface on which an asphalt road section, concrete section, or other proposed surface treatment or foundation is to be placed.

Technical Standards – A written set of guidance covering City-wide public works and utility related improvements. This set of standards is complementary to City General Conditions, City Codes, and City Ordinances as well as other jurisdictional standards and guidelines as applicable. Discrepancies between various governances shall be resolved towards the more stringent directive.

Traffic Control Plan – Compilation of diagrams (plans) and/or written procedures on the management of vehicular, bicycle, and pedestrian traffic within a proposed construction zone throughout the construction duration. A TCP is required for all construction activities within Public Right-of-Ways.

Traffic Control Supervisor – An individual trained on the concepts and techniques of temporary traffic control as well as the design of setups, their implementation, and recognizing, analyzing, and correcting deficiencies. Typically certified by the American Traffic Safety Services Association (ATSSA) or Associated Contractors of New Mexico (ACNM).

Traffic Control Technician – An individual trained in a basic knowledge of temporary traffic control with experience in installing traffic control devices, monitoring their performance, and recognizing their deficiencies. Typically certified by the American Traffic Safety Services Association (ATSSA) or Associated Contractors of New Mexico (ACNM).

Utility - Overhead or underground wires, pipes, conduits, ducts, or structures, operated and maintained in or across a public right-of-way or easement or private easement operated and maintained to supply such commodities as water, gas, power, telephone, cable television, or sewer.

(a) Public Utility - Owned and operated by a municipality or another political subdivision of the state.

(b) Private Utility - Owned and operated by a private company or corporation.

Utility Department – Provides the City's residents and businesses with safe drinking water, wastewater treatment, and trash disposal services. Services are provided in an efficient manner, while complying with all federal, state, and local regulations, such as the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA).

Work - Any and all obligations, duties, and responsibilities necessary to the successful completion of the Project assigned to or undertaken by Contractor, including all labor, materials, equipment, incidentals, and the furnishing and installation thereof.

Workmanlike Manner – Means installation or repair which meets the minimum recommended installation and maintenance requirements of the product manufacturer and meets all applicable code requirements.

Written Notification – As referenced throughout these Technical Standards, a written notification shall mean an electronic mail (email) regarding construction related documents: RFIs, deviation requests, variances, substitution requests, inspection requests, submittals, test reports, etc. This email shall be sent to the following address: contractor@ci.alamogordo.nm.us City personnel monitoring this address will distribute the notification to the appropriate City Department for review and response.

Article 01-01-020 Purpose

The following general standards and their requirements have been prepared and adopted by the City of Alamogordo, New Mexico, to guide and assist developers, sub-dividers, owners of subdivisions, engineers and Contractors, in the preparation of plans, specifications, and for the construction of City utilities, streets, and improvements inside the public right-of-way in accordance with the Alamogordo Municipal Code. These Technical Standards shall be the minimum requirements for the design and construction of these improvements.

All the Technical Standards and requirements in the Subdivision Regulations of the Alamogordo Municipal Code are hereby made part of these requirements, even though they may not be specifically mentioned and described herein.

In the case of discrepancy or conflict between these Technical Standards and the current Code of Ordinances the more stringent requirement shall apply unless expressly written by the City.

Article 01-01-030 General

(a) The Contractor is required to locate all existing utilities prior to commencing work on the Project. It shall be the Contractor's sole financial and legal responsibility to field verify locations and depths of all existing utilities and coordinate any relocation Work required. NMAC 18.60.5 provides guidance on the One-Call Notification System and utility locate requirements.

(b) The Contractor shall be required to maintain adequate temporary access for the private residences and the businesses and facilities within the construction area, to the satisfaction of the City.

(c) At the end of each workday, as required during each day, or as required due to weather conditions, the Contractor shall perform grading, shaping, and cleanup, to maintain an acceptable site condition, as determined by the engineer.

(d) Notices and/or requests made by Contractors or Owners to the City shall be made in writing. Each written request will receive a written response with further direction or detail.

Article 01-01-040 Workmanship and Materials

(a) These standards are prepared with the intention that only first-class workmanship and materials of the best quality will be provided. Materials and workmanship of less than best quality will not be acceptable. In the event that these Standards may

not completely describe each and every part, item, and detail, it will not relieve the Contractor of the full responsibility for providing the necessary part, item or work necessary to complete the Project satisfactorily for proper operation, as intended.

(b) The materials and equipment specified are considered the minimum standard of quality necessary to produce a satisfactory Project. Substitutions for the materials and equipment that have been specified will not be permitted except on written approval of the City.

(c) Any materials that are found to be damaged either before or after installation shall be removed promptly and replaced with new materials. The City inspection of the materials before they are installed shall not relieve the Contractor from any responsibility to furnish and install good quality materials, totally undamaged.

Article 01-01-050 Water for Construction

(a) The Contractor will be responsible for purchasing all construction water (reclaimed water or potable water) needed for construction from the City. The cost will be determined in accordance with the current reclaimed or potable water rates. It shall be the Contractor's responsibility to transport and apply the construction water as specified or as ordered by the engineer.

Reclaimed Hydrant Locations

Purple Hydrants

(1) RS_HYD_01 – 3500 Airport Road (Airport use Only)
(2) RS_HYD_02 – 3500 Airport Road
(3) RS_HYD_03 – 2143 S. Walker Avenue
(4) RS_HYD_04 – 500 LaVelle Road
(5) RS_HYD_05 – 220 LaVelle Road
(6) RS_HYD_06 – 2150 US Highway 54 South
(7) RS_HYD_07 – 2518 Puerto Rico Avenue
(8) RS_FIL_01 – 800 E. First Street

(b) The Contractor shall meter the reclaimed water used at the fire hydrant from which the reclaimed water is taken. Construction water is the sole responsibility and expense of the Contractor that requires water. Water for construction purposes is available for a fee from the City reclaimed water system. An application may be made to the Customer Service Division for which the Contractor will place a deposit, to be refunded when the meter is returned in good working condition. In cases where potable water is to be used for construction purposes and the Contractor does not have an air-gap method of utilizing water, a reduced pressure backflow preventor must be installed and certified by the City prior to being used.

(c) Construction water is generally made available by means of a City furnished meter attached to a reclaimed, purple fire hydrant, potable fire hydrant, or through the used of the automated reclaimed fill stand. The charges for City furnished construction water consist of a monthly rental fee plus a cost based on the actual water usage recorded at the meter. Since fees vary, the Contractor is encouraged to determine the current cost of the service prior to utilizing the service.

(d) The Contractor shall furnish and maintain the piping and/or equipment necessary to connect to the reclaimed water source and to convey the reclaimed water into the Contractor's reclaimed water tank. Contractor shall not allow reclaimed water to go to waste during the tank filling operations and shall not allow their piping and equipment to leak water.

(e) The water truck tank filling equipment shall be placed and maintained in such a way as to provide prevention against accidents of any nature to Contractor personnel or the public in general.

(f) The Contractor is required to connect the fill stand or fill equipment to the fire hydrant and leave the fire hydrant valve open. Contractor shall install a valve in the fill stand piping to control the water flow without leaks. The Contractor shall repair leaks from their respective plumbing immediately. The Contractor shall repair all asphalt/gravel driveways and turnouts that are damaged, during the utilization of locations to acquire water for construction, to pre-existing condition.

(g) The hydrant valve shall not be closed except when water will not be needed over a weekend or a period of two (2) or more days. Hydrant valve must be fully opened when in use. The hydrant valve shall be closed during periods of freezing temperatures or inclement weather.

(h) If it is observed that water for construction is being used from a potable water source or a reclaimed water source that is not metered, the work will be shut down by the City and will not be allowed to resume until a source for metered construction water is provided.

Article 01-01-060 Quality Assurance Materials Testing

(a) An independent material testing laboratory shall be retained by the City for quality assurance testing. The frequency of the quality assurance testing shall be as determined by the City. The Contractor shall notify the City 24-hours prior to being ready for each quality assurance test and cooperate fully in making way for the laboratory technician to make the required tests. The Contractor shall notify the City if any of the work fails to meet the standards specified, the Contractor shall correct such failures in a manner acceptable to the City. The Contractor shall pay

for the cost of all quality assurance re-testing necessary due to failure to meet Specification requirements on previous quality assurance testing. If the Contractor requests the testing laboratory to obtain density tests and the area to be tested is not ready when the technician arrives at the job site, the Contractor shall pay for all trip charges or stand-by time assessed. All costs for failed test and stand-by time will be deducted from the amount due on the Contract.

(b) Contractor shall notify the Geotechnical Testing Lab a minimum of twenty-four (24) hours in advance of readiness of the work for quality assurance tests.

(c) Contractor shall be responsible for providing to the City the Proctor, Gradation, and Liquid Limits of subgrade material and base course material.

(d) Material testing as referenced in this Article is for the City's quality assurance. The Contractor is responsible for quality control of material, process, and method. Neither observations by the City nor inspections, tests, or approvals by persons other than Contractor shall relieve the obligations to perform the work in accordance with the requirements of the standards.

(e) Minimum quality assurance testing intervals are provided at the end of this chapter.

Article 01-01-070 Surveying and Staking

The Contractor shall be responsible for all horizontal and vertical control required to build the Project; the latest City benchmarks are provided at the end of Chapter 01. City benchmarks shall be used insomuch as possible unless unnecessarily constrained by distance from the project. Any field adjustments made will be accepted as if incorporated herein and shall not make any claims for additional surveying or surveying expenses resulting therefrom. All Public Works Surveying shall be completed by a State of New Mexico Licensed Surveyor.

Article 01-01-080 Sanitary Facilities

(a) The Contractor shall provide the necessary number of sanitary facilities for all the workers on the work site. The sanitation facilities shall be moved along the Project routes so that they will be convenient for the workers.

(b) Adequate potable drinking water shall be provided on the work site as well as drinking cups, for the benefit of all employees.

Article 01-01-090 Truck Bed Covers

All trucks or other conveyances hauling any loose materials, including hot-mix bituminous materials, on public streets, highways, and detours shall be covered in such a manner as to prevent such materials from dropping, sifting, leaking, or otherwise escaping therefrom. Coverings for trucks or other conveyances hauling loose materials shall be securely fastened so as to prevent said covering or load from becoming loose, detached, or in any manner a hazard to public traffic. The Contractor shall observe legal load restrictions when hauling materials or equipment within or outside the Project. Any vehicles in violation of this provision will not be permitted to operate.

Article 01-01-100 Method of Bidding

The Bid Schedule has been prepared for a Unit Price Contract procedure. All the quantities shown in the Bid Schedule are estimated and are not purported to be exactly correct. Contractor shall be required to furnish more or less of each estimated quantity that may be required to satisfactorily complete all the Work. The Contractor will be paid on the unit basis for all the material that is actually furnished and installed in the construction of the Project to plan dimensions. In no case shall the Contractor claim extra compensation for building any portion of the Project beyond plan dimensions.

Article 01-01-110 Underground and Overhead Utilities

(a) Any interference with, or damage to, either underground or overhead utilities of any nature shall be the Contractor's legal and financial responsibility, saving the Owner harmless from any or all claims resulting from damage to these utilities by reasons of their operations.

(b) The Contractor shall contact New Mexico One-Call at 1-800-321-2537 or by cell phone at 811 to request field utility locates forty-eight (48) hours prior to digging. New Mexico One-Call Website: https://www.nm811.org/.

(c) Contractors shall reference NMAC – Public Regulation Commission Rules and Regulations, specifically Title 18 Chapter 60 found at http://164.64.110.134/nmac/T18C060.

Article 01-01-120 Contractor Communications

The Contractor shall contact the City to provide information related to traffic control impacts, as well as to obtain any new requirements or restrictions for traffic control procedures.

Article 01-01-130 Sequence of Work

(a) The Work shall be carried out with the intent of causing as little disruption as possible to the public. The Contractor shall perform cleanup operations on a continuous basis. Any area requested to be cleaned up by the City shall be cleaned immediately.

(b) Contractor shall be responsible for advising the businesses, residents, and occupants along each street as to when work will be done in that particular area. Contractor will notify the businesses, residents, and occupants not less than two (2) days in advance of doing the Work.

(c) The Contractor shall notify, in writing, the City of anticipated disruptions for issuance of PSA by the City if necessary. Additionally, the Contractor shall provide door hangers to alert businesses, residents, and occupants of upcoming work.

(d) Contractor will request businesses, residents, and occupants to move their vehicles out of the way of construction if required. If occupant is unresponsive within 48-hours or uncooperative, the City will assist having the vehicles removed.

Article 01-01-140 Authority and Duties of Inspector(s)

(a) Inspectors representing the City of Alamogordo shall be authorized to inspect all work done and all materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. The inspector is not authorized to revoke, alter, or waive any requirements of the Project. The inspector is authorized to call to the attention of the Contractor any failure of the work or materials to conform to the Project. The inspector shall have the authority to suspend the work when an imminent hazard condition is known to exist, or when the Contractor either delays in correcting or permits repeated occurrences of a hazardous condition. This authority to suspend work does not relieve the Contractor of the legal responsibility for safety at the jobsite.

(b) The inspector shall have the authority to suspend work due to rejected materials or rejected work at the direction of the City or due to safety concern. Any questions at issue as to quality of materials and/or work installed may be referred to the City. If the Contractor refuses to suspend operations on verbal order, the inspector shall issue a written order giving the reason for suspending the work. After placing the order in the hands of the Contractor's person-in-charge, the inspector shall immediately leave the project. Work done during the absence of the inspector will not be accepted.

(c) The inspector shall in no case act as foreman or perform other duties for the Contractor, nor shall they interfere with the management of the work by the Contractor. Any advice which the inspector may give the Contractor shall not be construed as binding the City in any way or releasing the Contractor from fulfilling all required Contract terms.

(d) Contractor supplied photographic evidence will not replace physical observation and/or inspection by the City.

Article 01-01-150 Sanitary Landfill

All waste and recyclable materials shall be disposed of or stockpiled in approved locations per EPA regulations.

Article 01-01-160 Sign Removal and Replacement

The Contractor shall be responsible for removing and replacing all existing signs that are in the way of the Project construction. The existing sign location and height shall be indexed before removal. Removed signs shall be properly and adequately stored. When replaced, signs shall be in existing or better condition, in all respects, than before removal. The Contractor shall replace any signs that are damaged due to negligence, mishandling, or inadequate storage at their own expense.

Article 01-01-170 Protecting the Work

The Contractor shall be responsible for protecting all portions of the work against any and all damage including but not limited to vandalism, accidents, and weather conditions, until accepted. No additional payment will be allowed for rebuilding any portion of the Project caused by such damage.

Article 01-01-180 Fencing

(a) The Contractor shall be responsible for removing and rebuilding any and all existing fencing that is damaged or is in the way of the Project construction. This work shall be considered incidental to the Project and no payment will be allowed for this work.

(b) Facility Security Chain Link Fence

(1) Fabric: the chain link fabric shall be galvanized steel. The fabric shall be 9-gauge core wire, woven in a two-inch (2") bottom selvage mesh and be hot dipper galvanized all conforming to ASTM A641. The height of the fabric shall be 96-inches. Fabric shall be fastened to intermediate posts with

No. 6 aluminum fabric wire spaced approximately 15-inches apart and to top rail with 9-gauge wires spaced at 24-inches apart. The fabric shall be secured to all terminal and gate posts with ¼-inch by 3/4-inch stretcher bars with No. 11 gauge pressed steel bands spaced approximately 12-inches apart.

(2) Posts, Rails, and Braces

A. Posts, rails, and braces shall be fabricated of Class I (round steel sections), Grade A (hot dipped galvanized), seamless steel pipe in accordance with ASTM F1083 (Schedule 40) and be of the following sizes:

1. Corner and Terminal Posts: 2.875-inch O.D.
2. Bracing: Terminal posts braced and trussed to nearest line post with 1.625-inch O.D. SS-40 pipe and 0.375-inch truss rod and truss rod tightener.
3. Line Posts: 2.375-inch O.D.
4. Gate Posts: 4.00-inch O.D.
5. Rails and Braces: 1.625-inch O.D.
6. Spacing of posts shall not exceed ten feet (10').

(3) Accessories

A. Accessories shall be hot-dipped galvanized in accordance with ASTM A123 or A153. In addition to wire ties and clips, brace bands, tension bands and bars, tension wire and truss rods, accessories shall include the following:

1. Caps for all exposed ends of posts.
2. Top rail and brace ends.
3. Top rail sleeves to allow for expansion and contraction of the top rail.
4. Bottom tension wire shall be a 7-gauge galvanized steel wire. Fabric shall be attached to tension wire with 9-gauge galvanized steel hog rings spaced no more than 24-inches on center.
5. Barbed wire shall be three strands of 12.5-gauge with 14-gauge 4 point round barbs.
6. Barbed wire support arms shall be single arm, for three (3) strands of barbed wire, and be at an angle of 45 degrees.

(4) Execution: Set all line posts 24-inches deep in eight-inch (8") diameter footing and end posts to 36-inches deep in 12-inch diameter footing. After setting and plumbing posts, fill holes with 3,000 PSI truck-poured concrete. Crown top surface of concrete to shed water away from all posts. Brace all terminal posts horizontally with sections used for top rail. The top rail shall extend through all line posts to form a continuous brace from end to end of each stretch of fence, be securely fastened at the end of each run, and have joints made with expansion sleeve couplings not less than six inches (6") long. Refer to Standard Detail W-32.

Article 01-01-190 Existing Water Valve Boxes

(a) The Contractor shall reference the location of all existing water valve boxes within the construction areas. Any valve boxes that are damaged during construction shall be replaced in accordance with the Standard Details with no additional payment. After the new paving has been installed and approved, the Contractor shall neatly saw-cut an opening in the new pavement, centered on the valve, and the Contractor shall install a new reinforced concrete collar, as provided in the Standard Details. Valve box grade adjustments shall be completed in accordance with Standard Detail W-6 and W-7.

(b) Existing valves scheduled for removal shall have the entire valve box and valve operating nut removed. Final valve position (open or closed) shall be provided by the City. Backfill requirements shall adhere to Chapter 09.

Article 01-01-200 Existing Manholes

(a) The Contractor shall reference the location and carefully remove and store manhole rings and lids within the construction areas. Any manhole rings and lids damaged shall be replaced by the Contractor at their own expense. Any manhole lids and covers that do not conform to the requirements of the Standard Details shall be replaced by the Contractor. The top portion of the manhole shall be removed to a depth below the limits of work, and a steel plate covering over the manhole shall be provided. After the new surface treatment has been installed and approved, the Contractor shall neatly saw cut an opening in the new pavement, centered on the manhole, in conformance with Standard Details S-4 and S-5.

(b) The Contractor shall provide concrete grade adjustment rings as required to reconstruct the top of the manhole to the proper elevation so that the manhole frame and lid are flush with the new surface treatment. A maximum of one foot of adjustment may be made utilizing grade adjustment rings. Each manhole shall receive a new reinforced concrete collar, as provided in the Standard Details.

Article 01-01-210 Water Shut-Offs

(a) All water shut offs shall be done by the City. The Contractor shall notify the City forty-eight (48) hours prior to the time of the required shut-off. The Contractor shall also notify, at least twenty-four (24) hours in advance, each household, office, business, and/or other affected water user that a shut-off will be made.

(b) The Contractor shall notify, in writing, the City of anticipated disruptions for issuance of PSA by the City if necessary. Additionally, the Contractor shall provide approved door hangers to alert businesses, residents, and occupants of upcoming work.

Article 01-01-220 Concrete Washout

Contractors shall designate, maintain, and remove concrete washout wastes in accordance with the EPA Best Management Practices. This shall include collection, retention, and recycling/disposal of washout water and solids to prevent caustic material exposure to soils and ground water. Measures shall include washout containment facilities, directional signage, and daily inspections for leak monitoring and capacity of containment facility. See Detail R-16 for temporary concrete washout area.

Article 01-01-230 Construction Communication Documents

(a) Notice to Proceed (NTP) – the written notice provided by the City/Owner to the Contractor that establishes the construction start date and completion time frame associated there with.

(b) Request for Information (RFI) – the Contractor shall initiate a written request seeking clarification of construction/contract documents on an as-needed basis. The City and/or designer will provide a written response providing the required information. Work associated with the RFI shall not progress until written response has been received.

(c) Field Change/Field Order – a written directive, provided by the City and/or designer, to the Contractor to change or deviate from the as-bid or issued for construction plans and associated documents. The work directed in the Field Order shall be contractually binding once signed by the City and the Contractor.

(d) Change Order – typically resulting from the issuance of a Field Order, this written document updates the agreement/contract with the financial or performance period modifications required to complete the alterations within the Field Order directive.

(e) Baseline Construction Schedule – A fixed project timeline that establishes the overall project progression. Typically delivered prior to the issuance of the Notice to Proceed or at the preconstruction conference.

(f) Monthly Update Schedule – typically required commensurate with interim pay applications. This schedule update shows work completed to date with work to be completed in the remaining Contract time.

(g) Shop Drawing – is the Contractor's or manufacturer's drawing, diagram, calculation, or relevant data for the fabrication of work/system components within the Construction Documents. Shop drawings shall be submitted to the City for review and written approval prior to fabrication.

(h) Submittal – is written information provided by the Contractor submitted to the City for review for compliance with the Construction Documents. Submittals shall be submitted to the City for review and written approval prior to ordering and/or furnishing the product.

(i) Pay Request – is a detailed construction invoice with a number of supporting documents. A pay request provides accounting on work completed and materials stored through a certain time period. They track change orders which modify the original Contract terms and provide insight on completion progression. Pay requests shall be in written format acceptable to the City and shall be signed by all relevant parties prior to review and acceptance.

(j) As-Built Drawings – are the Contractor's "red line" or working set of construction documents annotating changes, differing field conditions, or modifications made during the construction duration. The drawings shall be kept current and provided to the City as the completion of construction.

(k) Punch List – is written documentation compiling incorrect installation or work not completed which must be addressed prior to the issuance of the Notice of Substantial Completion.

(l) Substantial Completion – is written documentation provided by the City to the Contractor stating the Work or Project has been completed in accordance with the Construction Documents and can be placed into service for its intended use.

Table 1: Quality Control Testing & Minimum Frequency

Material/Product	Test	Feature	Frequency	Minimum	Chapter
Import/Borrow	Proctor & Soils Classification ASTM D-1557	Determines the maximum density or compaction a soil sample can reach	At beginning of project, Contractor responsible to provide to City	1 Location per Soil Type	Chapter 5
Import/Borrow	Compaction ASTM D-1557 Moisture Content	Density and Moisture Content in-place	Every 500 SY for Each lift	3 Minimum	Chapter 5
Subgrade	Proctor & Soils Classification ASTM D-1557	Determines the maximum density or compaction a soil sample can reach	---	1 Location per Soil Type	Chapter 5
Subgrade	Compaction ASTM D-1557 Moisture Content	Density and Moisture Content in-place	Every 500 SY	3 Minimum	Chapter 5
Base Course	Proctor ASTM D-1557	Determines the maximum density, optimum moisture, & gradation of material	At beginning of project, Contractor responsible to provide to Cit	1 Per Material	Chapter 5
Base Course	Moisture Content	Moisture Content AASHTO T-99 AASHTO T-180	Every 500 SY for Each Lift	3 Minimum	Chapter 5
Base Course	Compaction ASTM D-1557	Density	Every 500 SY for Each Lift	3 Minimum	Chapter 5
Base Course	3/8” Maximum Deviation	Surface Tolerance	---	---	Chapter 5
Bed Course or Base Course for Curbs, Fillets, and Valley Gutters	Compaction ASTM D-1557 Moisture Content	Density and Moisture Content in-place	Every 400 LF	3 Minimum	Chapter 5
Plant Mix Bituminous Pavement (PMBP)	Compaction & Moisture Content	AASHTO T310 & ASTM D-6938	3 per 500 SY for Each Lift	3 Minimum	Chapter 5
Plant Mix Bituminous Pavement (PMBP)	Strap Test	Asphalt Content	1 Per Day’s Run	1 Per Day’s Run	Chapter 5
Plant Mix Bituminous Pavement (PMBP)	3/16” Maximum Deviation	Surface Tolerance	---	---	Chapter 5
Concrete	Compressive Strength Test Cylinders	Concrete Compressive Strength	7 and 28 Days	1 Set Total from first 3 loads (random)	Chapter 5
Concrete – Slip Form	Individual Strength Test	Concrete Compressive Strength ASTM C-39	7 Days, 14 Days for slip-form concrete, and 28 Days	4 Cylinders per Sample	Chapter 5

Table 1 Continued: Quality Control Testing & Minimum Frequency					
Material/Product	**Test**	**Feature**	**Frequency**	**Minimum**	**Chapter**
Concrete Curbs, Gutters, Walks, Driveways, Aprons, Curb Returns, Fillets, Valley Gutter & Slope Paving	Compressive Strength Test Cylinders	Concrete Compressive Strength	3 Cylinders for initial 10 yards placed, 3 cylinders for every 100 CY placed thereafter	1 Set of Three (3) Cylinders	Chapter 5
Concrete	Slump, Unit Weight, Air Content ASTM C-143 ASTM C-172 ASTM C-231	Materials, Consistency, Content, and Properties	1 Sample from each of the first 3 Concrete loads delivered, then 1 randomly selected load from each sub-lot of 6 trucks	---	Chapter 5
Pipe Mains Backfill	Compaction ASTM D-1557 Moisture Content	Density & Moisture Content In-Place	1 Per 200 LF per two feet (2') of Depth	2 Minimum	Chapter 6 Chapter 8 Chapter 9 Chapter 10
Pipe Service Line Backfill	Compaction ASTM D-1557 Moisture Content	Density & Moisture Content In-Place	One Per Three (3) Service Lines	1 Minimum	Chapter 6 Chapter 9 Chapter 10
Sanitary Sewer - Manholes	Vacuum Testing ASTM C-1244	Leakage	All Manholes	---	Chapter 6
Sanitary Sewer - Manholes	Water Test	Leakage	All Manholes	---	Chapter 6
Sanitary Sewer	Low Pressure Air or Water Test	Tightness Uni-Bell PVC Pipe Assn UNI-B-6-98	All Pipe	---	Chapter 6
Sanitary Sewer	Ex-Filtration Test	Pressure & Leakage	All Pipe	---	Chapter 6
Sanitary Sewer	Deflection Test	Pipe Strength	All Pipe	---	Chapter 6
Force Main	Hydrostatic Pressure Test AWWA C-600	Tests for Leaking	All Force Main Piping	---	Chapter 8
Water Supply Pipes	Hydrostatic Pressure Test AWWA C-600	Tests for Leaking	All Water Lines	---	Chapter 9 Chapter 10
Water Supply Pipes – Air Valves & Access Points	Disinfection AWWA C-651	Tests for Chlorine Residual	All Water Lines	---	Chapter 9
Water Supply Pipes – Air Relief Valves & Vacuum Relief Valves	Pressure Test	Test for Strength and Leakage	All Valves	---	Chapter 9 Chapter 10 Chapter 11

END OF CHAPTER 01

CHAPTER 02 - TRAFFIC CONTROL & MANAGEMENT

ARTICLE 02-01 - GENERAL

Article 02-01-010 Work Description

(a) The work shall consist of providing Traffic Control and Traffic Control Management in accordance with the Contract and the MUTCD, current edition, including supervision of personnel and the installation, inspection, and maintenance of all traffic control devices on the Project.

(b) Complex traffic control plans, as determined by the City, shall be developed and sealed by a State of New Mexico registered professional engineer prior to submittal to the City.

ARTICLE 02-02 – REQUIREMENTS

Article 02-02-010 Contractor Requirements

(a) The Contractor may assign more than one (1) traffic control supervisor (TCS) to provide traffic control management for the Project provided that a schedule is submitted to the City.

(b) If assigning more than one (1) TCS to provide traffic control management, submit to the City a weekly schedule identifying who shall be in charge of providing traffic control management each day.

(c) The TCS shall possess, at all times, a set of approved traffic control plans and a current copy of the MUTCD.

(d) Traffic control shall be required when any public street or alley requires work. Traffic control shall also be required to prevent through-traffic, where new development meets existing streets, until all utilities, new streets, and infrastructure have been completed.

(e) Where more than one Contractor is working in an area requiring traffic control, the Contractor shall coordinate all traffic control operations.

(f) If the Contractor is using a subcontractor to provide traffic control management, the Contractor shall ensure that the TCS is in accordance with the Contract.

(g) The Contractor may assign one (1) or more traffic control technicians (TCT) to assist the TCS in inspection and maintenance of traffic control devices.

Article 02-02-020 Certification

(a) Before commencing work that requires traffic control management, submit to the City a copy of the "Work Zone Safety Supervisor" certificate for the TCS (wallet size card) issued by the American Traffic Safety Services Association (ATSSA), the Associated Contractors of New Mexico (ACNM), or an agency or firm approved by the City.

(b) The City will accept the TCS certification by ATSSA, ACNM, or any agency or firm only if the following requirements are met:

(1) Successful completion of an approved work-zone traffic control course;
(2) Passing a written examination on a work-zone traffic control course;
(3) At least one (1) year of full-time field experience, verified by the agency or firm, in work zone traffic control; the City may verify the experience at its discretion.

The TCT must only satisfy requirements 1 and 2, above.

(c) Before commencing work that requires flagger traffic control, submit a copy of the "Flagger Training" certificate (wallet sized card) issued by ATSSA, ACNM, FHWA, or an agency or firm approved by the City.

Article 02-02-030 Re-Certification

(a) Renew the TCS's certification every four (4) years through the ATSSA, ACNM, or a City-approved agency or firm.

(b) Re-certify in the fourth year, before the expiration date of the current certification.

(c) Flaggers must obtain refresher training which meets the requirements of ATSSA, ACNM, FHWA, or agency or firm approved by the City prior to the fourth anniversary date shown on the current certificate.

Article 02-02-040 Duties

(a) The TCS's only responsibility is traffic control management. The City may allow exceptions to this rule if the Project is small and requires limited traffic control. The City will determine approval of the exception at the preconstruction conference.

(b) The TCS's primary duties include the following:

(1) Providing management and supervision services at the Project site.

(2) Preparing revisions requested by the Contractor to the traffic control plan in the Contract and submitting the new traffic control plan, in hard copy format, to the City.

(3) Coordinating the flagging and signing personnel training.

(4) Supervising the flagging and signing personnel.

(5) Coordinating traffic control operations for the duration of the Contract, including those of subcontractors, utility companies, and suppliers, to ensure that traffic control is in place and fully operational before the commencement of work. When dealing with utility companies, the TCS shall coordinate concurrent utility traffic control with other construction traffic control to avoid conflicts.

(6) Coordinating, in writing, Project activities with the appropriate individual traffic control, law enforcement, emergency services, and fire control agencies.

(7) Preparing and submitting statements concerning road closures, delays, and other project activities to the City for distribution, as necessary.

(8) Notifying the City of accidents related to the project traffic control.

(9) Recording time and date of accident notification in accordance with Article 02-02-040, "Traffic Control Diary".

(10) Attending the preconstruction conference.

(11) Maintaining, cleaning, and replacing traffic control devices in use per the current traffic control plan during working and non-working hours.

Article 02-02-050 Traffic Control Diary

(a) The TCS shall maintain a project traffic control diary in a bound book. Obtain the diary from the ACNM.

(b) The TCS shall keep the traffic control diary current each day and sign each daily entry.

(c) The TCS shall make entries in ink, in a format approved by the City, without erasures or white-outs. The TCS shall strike out unacceptable entries and replace with acceptable ones. The TCS may use photographs to supplement the written text.

(d) Ensure that the traffic control diary is always available for inspection by the City and submit a copy of the diary to the City at the end of each week. The traffic control diary shall be kept on site during construction activities.

(e) The traffic control diary will become the property of the City at the completion of the Project. If the Contractor fails to submit the diary, the City may withhold final payment until it is submitted.

Article 02-02-060 Inspection of Traffic Control

(a) The TCS shall inspect traffic control devices every day that traffic control devices are in use at least once a week during nighttime periods and at an interval not to exceed 12 hours not during standard working hours. The TCS shall provide for the immediate cleaning, repair, or replacement of traffic control devices that are not functioning as required to ensure the safety of the motorists, pedestrians, and construction personnel.

(b) The TCS shall conduct inspections of the traffic control devices at the beginning and end of each day that traffic control devices are in use, and as scheduled or directed by the City during working hours.

(c) The TCS shall inspect the traffic control devices during non-working hours on a schedule approved in writing by the City.

(d) The TCS shall inspect traffic control devices and shall provide for the immediate repair, cleaning, or replacement of traffic control devices not functioning as required or not meeting MUTCD Standards to ensure the safety of the public and construction personnel.

Article 02-02-070 Availability of TCS

(a) Provide traffic control management under the supervision and direction of the TCS on a 24-hour-per-day basis throughout the duration of the Project.

(b) The TCS shall be on the Project whenever work is in progress, and available by telephone to be on the Project within 1 hour at all other times.

(c) The provisions for availability of the TCS will also apply during times of partial or full project suspension.

(d) Contact information for the TCS shall be provided prior to construction, including a cell phone number for contact during non-working hours.

(e) An alternate contract who is a manager of TCS shall also be provided.

ARTICLE 02-03 - COMPLIANCE

Article 02-03-010 Failure to Comply

(a) If the Contractor fails to comply with the approved traffic control plan or fails to immediately correct unsafe traffic conditions after written notification of the problem, the City may suspend all or part of the Contractor's operations.

(b) In the event that the Contractor does not take appropriate action to bring the deficient traffic control into compliance with the approved Traffic Control Plan – or to correct the unsafe traffic conditions – the City may proceed with the corrective action and charge the Contractor for the additional cost incurred.

(c) If the City suspends the Contractor's operations, the City will include the period necessary to correct these unsafe conditions and traffic control deficiencies in the normal assessment of contract time.

(d) The City will not relieve the Contractor of the responsibility to provide traffic control safety to the traveling public if the City fully or partially suspends the Project.

(e) If the City suspends the Project due to the Contractor's failure to comply with this Article, or the contract is in liquidated damages, the Contractor shall continue to provide traffic control management, at no additional cost to the City.

(f) If the Contractor requests full or partial suspensions of the work, the Contractor shall perform the additional traffic control management to accommodate the suspension duration at no additional cost to the City.

Article 02-03-020 City Modification

The provisions included in the Contract Documents and Specifications for handling and controlling traffic during construction may be changed by the City due to actual field conditions encountered. Contract should only be changed by Field Order or Change Order.

END OF CHAPTER 02

CHAPTER 03 - CLEANUP

ARTICLE 03-01 – GENERAL

The work shall consist of cleanup, in accordance with this Article, the Contract Documents, and all applicable specification items in these documents. Contractor shall furnish all the labor, equipment, and materials necessary to perform all work required.

ARTICLE 03-02 – PROJECT CLEANUP

(a) Cleanup of debris, trash, and waste materials shall be performed on a continuous basis by the Contractor in such a way that will always keep the work site(s) clean and neat.

(b) The Contractor shall be responsible for cleaning up the Project. All areas disturbed shall be left in excellent condition, free of any debris, trash, and the like. All trees that were limbed during construction shall be neatly and properly coated so as to protect the cut face, in accordance with good tree surgery practices.

(c) All areas disturbed shall be graded smooth and shall be free of ruts and uneven places.

(d) All excess materials, trash, dirt, and rocks shall be disposed of at an approved site or at a place approved by the New Mexico Environment Department.

ARTICLE 03-03 – FINAL INSPECTION CLEANUP

Immediately before the final inspection tour is to be conducted, the Contractor shall cleanup the Project site in its entirety, removing all debris, waste, trash, excess materials, and equipment. Contractor shall review the entire Project before the final inspection and shall have it neat and clean in appearance.

END OF CHAPTER 03

CHAPTER 04 - PRODUCT OPTIONS

ARTICLE 04-01 - GENERAL

This section includes requirements for product options and substitution procedures.

ARTICLE 04-02 - PRODUCT OPTIONS

(a) For products specified by reference standards or by description only, provide products meeting those standards or description as approved by the City.

(b) For products specified by naming one or more manufacturers with the designation that no substitutions are allowed, provide only named products.

(c) For products specified by naming one or more manufacturers, provide named products or approved substitute products.

(d) Requests to use unspecified products shall be made in accordance with the "Substitution Request Procedures" as specified herein.

ARTICLE 04-03 – SUBSTITUTION REQUESTS

(a) Where products are specified by naming specific products of one or more manufacturers, these products shall establish a minimum acceptable level of quality and performance.

(b) Prior Approval: The City will consider requests made during bidding to use unspecified products only when indicated in individual standard sections.

(1) When substitution requests are allowed during bidding by individual standard sections, requests shall be made in accordance with the "Substitution Request Procedures" as specified herein.

(2) If product is acceptable, City will provide approval by addendum issued to known recipients of Bidding Documents.

(c) After signing of Agreement between City and Contractor, City will consider written requests for substitutions.

(1) Requests shall be made in accordance with "Substitution Request Procedures" as specified herein.

(2) City will determine acceptability of proposed substitutions and notify Contractor of decision in writing.

(3) Substitutions will not be considered when indicated or implied on shop drawings and product data submittals.

(d) Request for substitution and use of approved substitution shall constitute representation that Contractor:

(1) Has investigated product and determined it meets or exceeds quality level of specified product.

(2) Will provide same warranty for substitution as for specified product.

(3) Will coordinate installation and make changes to other work required to accommodate accepted substitution and complete work.

(4) Waives claims for additional costs or time extensions related to substitutions which later become apparent.

ARTICLE 04-04 – SUBSTITUTION REQUEST PROCEDURES

(a) Submit separate request for each substitution with "Substitution Request Form".

Copy of form follows this Section.

(b) Submit 3 copies of request for substitution and include the following:

(1) Complete data substantiating compliance of proposed substitution with Contract Documents.

(2) For products:

A. Product identification, including manufacturer's name and address.

B. Manufacturer's literature containing product description, performance and test data, and reference standards.

C. Samples as required.

D. For construction methods:

1. Detailed description of proposed method.

2. Drawings illustrating methods.

E. Itemized comparison of proposed substitution with product specified.

F. Data relating to changes in construction schedule.

G. Give cost data comparing proposed substitution with specified product.

H. For substitution requests made after signing Agreement, include proposed changes to Contract Amount and Time if substitution is accepted.

END OF CHAPTER 04

Read **CHAPTER 04 - PRODUCT OPTIONS** prior to submission of this form.

The undersigned requests that the following product be accepted for use in the Project.

Product: _____

Model No: _____

Manufacturer: _____

Address: _____

The above product would be used in lieu of:

Product: _____

Specified in: Section: _____ Paragraph: _____

Reason for substitution request: _____

_____

Attached are the following items:

Product description including specifications, performance and test data, and applicable reference standards.

- ☐ Drawings
- ☐ Photographs
- ☐ Samples
- ☐ Tabulated comparison with specified product
- ☐ For items requiring color selections, full range of manufacturer's color samples
- ☐ Documentation of reason for request.
- ☐ Cost data for comparing proposed substitution with specified product

☐ Other: _____

The undersigned certifies that the following statements are correct. Explanations for all items which are **not** true are attached.

1. Proposed substitution has been thoroughly investigated and function, appearance, and quality meet or exceed that of specified product. True □ False□

2. Same warranty will be provided for substitution as for specified product. True □ False□

3.	No aspect of Project will require re-design.	True □	False□
4.	Use of substitution will **not** adversely affect:		
	a. Dimensions shown on Drawings.	True □	False□
	b. Construction schedule and date of completion.	True □	False□
	c. Work of other trades.	True □	False□
5.	Maintenance service and replacement parts for proposed substitution will be readily available in the New Mexico area.	True □	False□
6.	Proposed substitution does **not** contain asbestos in any form.	True □	False□
7.	All changes to Contract Sum related to use of proposed substitution are included in price listed below. Contractor waives claims for additional costs related to acceptance of substitution which may subsequently become apparent.	True □	False□
8.	Costs of modifying project design caused by use of proposed substitution which subsequently become apparent will be paid for by Contractor.	True □	False□

If substitution requested after signing of Agreement between Owner and Contractor is accepted:

Contract Sum will be [decreased] [increased] by $ _____

Contract Time will be [decreased] [increased] by _____ calendar days.

Submitted By: _____

Company: _____

Address: _____

Telephone Number: _____

Name: _____ Date: _____

Signature: _____

CHAPTER 05 – STREETS AND ALLEYS
ARTICLE 05-01 – General
Article 05-01-010 Street Standards

(a) These standards will be used in conjunction with the most current edition of the NMDOT Standard Specifications for Highway and Bridge Construction.

(b) Street Classification and Geometric Design Standards

(1) Existing streets are identified and classified in the City of Alamogordo Comprehensive Plan. Street classifications for new construction within public rights-of-way shall be determined by the City. Minimum street rights-of-way shall meet the requirements established herein as noted in Table 2.

(2) Cul-de-sac Geometric Standards

A. Maximum length of cul-de-sac shall not exceed 600-feet without approval from the City. Length of the cul-de-sac shall be measured from the back of curb of the perpendicular street to the radius point in the middle of the cul-de-sac.

B. Minimum diameter:

1. Right-of-way – 100 feet
2. Pavement (in bulb back-to-back of curb) – 96 feet
3. Geometry must be approved by the City

(c) Pavement Design Standards

(1) Typical sections for construction in the City shall be designed in accordance with the latest edition of the AASHTO "Guide for the Design of Pavement Structures.", or as modified in this section.

(2) Laboratory analysis of the subgrade soils underneath the street is required for pavement design.

Table 2: Street Geometric Design Standards

Parameter	Minimum Right-of-Way Width (feet)				Minimum Street Width (Feet) (Back-to-Back of Curb)				Minimum Fillet Radius (Feet) (Back of Curb)				Minimum Curve Radii (Feet) (Back of Curb)				Minimum Tangent Length Between Curves				Minimum Sight Distance (Feet)			
Roadway Type	Local Street	Collector Street	Minor Arterial	Major Arterial	Local Street	Collector Street	Minor Arterial	Major Arterial	Local Street	Collector Street	Minor Arterial	Major Arterial	Local Street	Collector Street	Minor Arterial	Major Arterial	Local Street	Collector Street	Minor Arterial	Major Arterial	Local Street	Collector Street	Minor Arterial	Major Arterial
Without Bike Lanes/Parking	48	72	80	112	28	52	60	92	30	35	40	45	100	100	300	500	150	150	250	350	200	240	275	300
With Bike Lanes/Parking	62	82	90	122	42	62	70	102	30	35	40	45	100	100	300	500	150	150	250	350	200	240	275	300

Minimum Fillet Radii may vary depending on existing right-of-way widths.

Parameters in the table above are minimums. Developer may exceed the minimums, or the City may require greater parameters based on the proposed development.

Refer to Detail R-6 for Local Collector Street Detail.

Refer to Detail R-7 for Collector Street Detail.

Refer to Detail R-8 for Minor Arterial Street Detail.

Refer to Detail R-9 for Major Arterial Street Detail.

(d) Engineering Data

(1) Grades – The grades of all streets shall be a minimum of 0.30% except where topographical conditions unquestionably justify a departure from the minimum. Typical crown slopes shall be a minimum of two percent (2%). Street cross slopes shall not exceed five percent (5%) without prior authorization from the City.

Street construction drawings shall be submitted and shall contain a complete plan and profile exhibiting all existing grades, proposed grades, and elevations and grades of proposed connections to existing streets.

(2) Temporary Street Terminations – Where new roadways are terminated in advance of future extension, the termination shall have a flush header curb installed to prevent premature pavement end damage.

(3) Maximum Side Slopes – cut and fill slopes for roadway prism shall be two (horizontal) to one (vertical) maximum. Street construction drawings shall show side slope catch points to ensure slopes fit with the existing right-of-way.

(4) Street Intersections – shall be designed to intersect at right angles insomuch as possible. Angles of intersection of 75 degrees or less shall be preapproved by the City.

(5) AASHTO roadway design guidance shall be consulted for horizontal and vertical design elements based on intended roadway classification, design speeds, and traffic volumes.

(6) Traffic Report – The City, at its discretion, may require traffic impact analysis for subdivisions and commercial developments. For commercial developments requiring more than 49 parking spaces or 9,000 square feet of parking, whichever is less, and for all properties fronting on New Mexico State Highways, the analysis must be performed by a registered engineer. Properties fronting on State Highways require additional separate permits from the NMDOT.

Article 05-01-020 Alley Standards

(a) Engineering Data

(1) Use of Inverted Crown – Inverted crowns will not be allowed in alleys without prior approval by the City.

(2) Paving of Alleys – In all cases, an alley to be paved shall be paved for its entire block length. In no case will a part or section of an alley be paved where other sections are left unpaved.

(3) All alleys in commercial and industrial zoned areas, locations where sole access is by an alley(s), or any alley used for drainage ways shall be paved.

(b) Alley Entrances – A drive entrance (drivepad) will be required at the entrance and exit of all alleys and shall conform with Standard Drawing R-12. If difficult or unusual site conditions warrant, the designer may submit an alternate detail for approval by the City. If an alley requires a radius, the length must be approved by the City. All alley pads and access across alleys shall meet American Disabilities Act (ADA) accessibility requirements.

(c) Alley Within New Developments – New developments shall be platted and designed without alleys. Any new development(s) requiring alleys shall be pre-approved by the City

Article 05-01-030 Concrete Flatwork Standards

(a) General - This section shall deal with the placement, replacement, and/or removal of sidewalks, valley gutters, fillets, and drivepads within the public rights-of-way within the City of Alamogordo. Construction shall meet the American Disabilities Act (ADA) requirements. Sidewalk and driveway installation and replacement shall be the responsibility of the property owner or developer.

(b) Engineering Requirements – Sidewalk, valley gutter, fillet, and drivepad construction shall conform to the standard details contained herein, unless otherwise submitted by plan and approved by the City. The City may require that the plan illustrate existing and proposed grades of the curb and gutters and streets. No permits for construction will be issued until such information have been provided and approved by the City.

(c) Sidewalk Placement

(1) Sidewalks shall be placed adjacent to the back of curb on both sides of the street/road regardless of the road type designation.

(2) Width and Section – All sidewalks will be constructed with a minimum width of five-feet (5’). Sidewalks shall be four-inches (4”) thick in all areas except when used as a driveway or drivepad.

(3) Grades for Sidewalks – Sidewalks shall have a running slope concurrent with the adjacent street and a typical cross slope of 1.5 percent (2.0 percent maximum). The sidewalk shall slope toward the street. This stipulation may be waived by the City in areas where topographical features will not allow for such slopes.

(4) If an obstruction is located in the sidewalk (i.e. utility pole, mailbox, etc.) a minimum four-feet (4') clear space must be maintained at the obstacle along the sidewalk.

(5) All concrete sidewalks, valley gutters. drivepads, fillets, etc. must be protected from freezing for a minimum of four (4) days.

(6) Development on corner lots shall be required to construct or reconstruct existing fillets and sidewalks to comply with ADA requirements at the time the lot is developed or redeveloped.

(d) Drivepad Placement

(1) Drivepads on interior lots (lots not on a corner) shall be located to allow the maximum slope of 15:1 where the drivepad ties to new or existing sidewalk. Drivepads on corner lots requiring a new building, remodel of existing building, curb cut, or driveway permit shall be located as follows:

Table 3: Drivepad Location

Street Type	Drivepad Location
Local Street	Minimum 20-feet from the curb return
Collector Street	Minimum 40-feet from the curb return
Minor Arterial Street	Minimum 50-feet from the curb return
Major Arterial Street	Minimum 50-feet from the curb return

(2) Width and Section – All drivepads will be constructed to the back of sidewalk or to the property line, whichever is less. Drivepads shall be six-inches (6") thick in all areas. Drivepads shall not be wider than forty-feet (40') and may not be placed closer than twenty-feet (20') from any curb return. Developer may submit alternate drivepad details for approval by the City. All drivepads shall meet ADA accessibility requirements. All drivepads shall have a typical cross slope of 1.5% across its width to accommodate the pedestrian travel path.

(e) Fillets shall be a minimum of six-inches (6") in thickness and shall meet all ADA requirements. Developments on corner lots may elect to construct or reconstruct fillets in lieu of radial pavement surfacing.

Article 05-01-040 Curb Cuts

(a) General: This section deals with the removal and replacement of curb and gutter sections as defined below.

(b) Engineering Data: The plan for the proposed curb cuts shall illustrate information regarding all the existing elevations of the existing curb. Additionally, proposed elevations shall be displayed. The grade of the replacement shall be such that it is continuous with the existing section to which it is being tied. Any existing utilities in the area shall be noted.

(c) Curb cuts shall only be completed by City staff.

(d) City of Alamogordo Code of Ordinances 2-01-030 (o) – Moratorium on Curb Cuts:

At time of filing a request to cut a curb adjacent to a public right-of-way, applicant shall pay a non-refundable fee to cover costs of verification the curb cut meets building code and city ordinance requirements, administration, and other expenses. Additional cost for City personnel to cut the curb and to perform an inspection of the final concrete placement will be billed to the property owner separately. A curb cut permit will not be issued within sixty (60) months of initial pavement, or repaving, of a road except due to emergency circumstances.

(e) When curb/street cuts are required for installation, repair, or replacement of subsurface utilities the finished patch shall extend five-feet (5') from the top surface edge on both sides of the necessary trench (minimum overall patch width of 10-feet). Cuts within pavement shall extend curb-to-curb insomuch as possible.

Article 05-02 – Materials Requirements

All streets shall be constructed in accordance with the current edition of the NMDOT Standard Specifications, as modified herein. Reference to NMDOT shall be replaced with the City of Alamogordo.

Article 05-02-010 Borrow

(a) Borrow materials used in the embankment and fill shall not be uniformly fine-grained materials. The fill materials shall be classified as SC, SM-SC, GC, GM, or GM-GC according to the Unified Soil Classification System. No soils in the embankment shall have a median grain size (D50) finer than #200 USA Standard Sieve. Proper mixing and blending of materials will be required.

(b) Areas of natural ground to receive embankment or fill not already at optimum moisture shall be scarified to a depth of eight (8) inches, wetted or dried to bring the moisture content to within plus two percent (+2%) to minus one percent (-1%) of optimum and re-compacted to the specified percent of the maximum density, tested and approved before the first layer of suitable embankment material is placed.

(c) Only suitable material for embankment and fill will be allowed in the permanent work at locations shown on the Contract Documents.

(d) After areas to receive embankment or fill have been properly prepared, suitable material shall be placed and spread in loose eight-inch (8") lifts across the entire fill or backfill section. The City may authorize roadway fill materials to be placed in layers in excess of eight-inches (8") thickness if the Contractor can demonstrate that the required compaction can be achieved for the full depth of the lift. Lesser thickness shall be used if necessary, to achieve specified compacted density. Suitable material shall then be windrowed, disked, or manipulated by other suitable means to achieve a homogeneous mixture of proper moisture content, free of hard lumps of soil or frozen material, and compacted to the required density.

(e) Rocks larger than two and one-half (2-1/2) inches shall not be placed within twelve inches (12") of the subgrade for paving.

(f) Compacting shall begin only after the suitable material has been properly placed and the material to be compacted is at optimum moisture, not to exceed plus two percent (+2%) or minus one percent (-1%) of optimum. All materials used for embankments shall be compacted to a minimum of ninety five (95) percent of maximum dry density, modified proctor, (ASTM D 1557).

(g) If the suitable material to be compacted contains excessive moisture, such material shall be processed to reduce the moisture to the specified content. If the suitable material has less than the specified moisture content or is likely to lose enough moisture to bring the moisture content below requirements before completion of compaction, water shall be added and the lift thoroughly mixed before compacting.

(h) Subsequent layers of suitable material for embankment shall be placed, as described above, in generally horizontal layers of loose thickness not to exceed eight-inches (8"), unless otherwise approved, and shall extend across the full width of the embankment area.

(i) After compacting of the material, in place density tests shall be made. If the compacted material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified density.

(j) Embankment, or fill, adjacent to structures such as concrete walls, culverts, boxes or similar structures shall not be compacted with heavy equipment but shall be compacted with hand operated equipment to a distance of four (4) feet or greater, beyond the sides of the structure.

Article 05-02-020 Subgrade Preparation

(a) Subgrade Preparation shall adhere to the current edition of the NMDOT Standard Specifications.

(b) If subgrade preparation is left over 48-hours without procession of the next phase of construction, subgrade preparation may be rechecked for compaction, moisture, and surface tolerance at the discretion of the City. No separate measurement or payment will be made for rehandling or reworking of material resulting in need of this recheck and associated work.

Article 05-02-030 Base Course and Subbase

(a) Base course and subbase shall adhere to the current edition of the NMDOT Standard Specifications.

(b) If constructed base course or subbase course is left over 48-hours without procession of the next phase of construction, base course or subbase course may be rechecked for compaction, moisture, and surface tolerance at the discretion of the City. No separate measurement or payment will be made for rehandling or reworking of material resulting in need of this recheck and associated work.

If constructed base course or subbase course has been treated with a bituminous material, (prime coat) or other approved treatment, the City reserves the right to have base course or subbase course rechecked for surface tolerance and compaction.

At a minimum, Contractor will spray a light application of water and “tight roll” base course prior to asphalt pavement operations or the next phase of operations as per Project requirements.

Article 05-02-040 Tack Coat

(a) Tack coat shall adhere to the current edition of the NMDOT Standard Specifications.

(b) Tack coat application is required for all pavement patching.

Article 05-02-050 Prime Coat

(a) Prime coat shall adhere to the current edition of the NMDOT Standard Specifications.

Article 05-02-060 Plant Mix Bituminous Pavement

(a) Superpave hot mix asphalt shall be used unless otherwise approved by the City. Hot mix asphalt shall adhere to the current edition of the NMDOT Standard Specifications.

Article 05-02-070 Concrete Flatwork

(a) Concrete flatwork shall consist of sidewalks, curb and gutter, valley gutters, fillets, ramps, median pavement, and drive or alley pads.

(b) Concrete flatwork shall be constructed with Class A Concrete Classification as presented in the current edition of the NMDOT Standard Specifications.

Article 05-02-080 Flowable Fill

(a) Flowable fill shall adhere to the current edition of the NMDOT Standard Specifications.

Article 05-02-090 Steel Reinforcement

(a) Bar Reinforcement

(1) Bar reinforcement shall be deformed bars of Grade 60 and shall conform to the requirements of ASTM A 615. Field bending of Grade 60 bars will not be permitted.

(2) Bar mat reinforcement shall conform to the requirements of ASTM A 184, billet steel, Grade 60.

(3) Shop Bending: Bent bar reinforcement shall be cold shop bent around a pin to the shapes shown in the Contract Documents. Unless otherwise provided, bends shall have a radius measured on the inside of the bar of not less than two and one-half (2 ½) bar diameters.

(4) Bundling and Tagging: Bar reinforcement shall be shipped in standard bundles, tagged, and marked in accordance with the Code of Standard Practice of the Concrete Reinforcement Steel Institute. The Contractor shall

furnish, from the fabricator, a certificate of compliance. Two (2) copies shall accompany all shipments of reinforcing steel to the Project. The certificates of compliance shall show the name of the manufacturer, pounds shipped, heat numbers, laboratory test report numbers, and grade of steel.

(b) Welded wire fabric shall conform to the requirements of AASHTO M 55.

(c) Metal chairs or other metal supports for reinforcement which contact the exposed surfaces of the concrete shall be galvanized and bond breaker provided between metal chairs and reinforcement.

(d) Wire for reinforcement shall conform to the requirements of AASHTO M 32.

(e) Dowel bars for load transfer in concrete shall be plain, straight, with ends square, and free from burrs, and shall conform to the requirements of ASTM A 306, Grade 80. Expansion caps for one (1) end of the dowel bars shall be close fitting and shall be a minimum length of three inches (3”). The enclosed end of the expansion cap shall contain a suitable stop to hold the end of the dowel bar one inch (1”) from the end of the cap.

Article 05-02-100 Potholes and Exploratory Excavations

(a) Potholes or exploratory excavations utilized to determine the exact horizontal and vertical location of existing utilities shall be limited to 24-inches in diameter. Potholes shall be placed no closer than three-feet (3’) from the resulting asphalt patch as shown in Standard Detail R-14.

(b) Any utility damage shall be brought to the utility provider’s attention immediately. Remedial measures to correct the damage shall be at the contractor’s expense.

(c) Under no circumstance shall a pothole, within a public travel way, remain unpatched for longer than 14 calendar days. The Contractor shall provide traffic control plan(s) and temporary measures (trench plates, etc.), for City review and approval, necessary to restore vehicular and/or pedestrian traffic in a timely manner. Should the local batch plant not be in production at the time of construction a written notice from the batch plant shall be provided to the City in writing. The statement shall also state the anticipated production date to schedule the patching activity.

(d) Potholes and excavations outside of public travel ways may be subject to alternate backfill means and methods at the City’s sole discretion. These pothole activities shall be coordinated with the City prior to commencement.

ARTICLE 05-03 – CONSTRUCTION STANDARDS

Article 05-03-010 Concrete Flatwork Forms

(a) Form material shall be free from warps, with smooth and straight upper edges and, if used for the face of curb, shall be surfaced on the side against which the concrete is to be placed. Timber forms may be used for forming curved sections but shall not be used for straight work unless authorized in writing by the City. Metal forms for such work being of a gauge that will provide proper rigidity and strength for the purpose for which they are intended. Wood forms used on curb returns shall be not less than three-quarter (3/4) of an inch in thickness, cut in the length and radius shown on the Contract Documents and held rigidly in place using metal stakes and clamps. The curb face shall be cut to conform exactly with the curb face batter, as well as being cut to the required length and radius. In every case, however, the forms shall be of sufficient rigidity and strength and shall be so supported as to adequately resist springing or deflection because of the placing or tamping of the concrete.

(b) All curb and combined curb and gutter shall be divided into blocks or stones in lengths of five (5) or ten (10) feet long using metal templates not less than one-sixteenth ($1/16^{th}$) inch nor more than one-fourth ($1/4^{th}$) inch thick cut to the same cross section as the curb or curb and gutter being constructed. Templates shall be securely attached to forms to prevent movement during concrete placement.

(c) Form material shall be thoroughly clean at the time it is used and shall be given a coating of light oil or other suitable material immediately prior to the placing of the concrete.

(d) Forms, except curb block planks, shall be set with the upper edges thereof flush with the specified grade of the finished surface of the adjacent portion of the work and shall be not less than a depth equivalent to the full specified depth of thickness of the concrete to be supported thereby.

(e) Back forms shall be held securely in place by means of stakes driven in pairs, one at the front form and one at the back, at intervals not to exceed four feet (4'); clamps, spreaders, and braces being used in connection therewith to such extent as may be necessary to insure proper rigidity of the forms. Forms for walks, gutters, and similar work shall be firmly secured by means of stakes driven flush with the upper edge of the forms at intervals not to exceed five feet (5'). The stakes shall be of sufficient size and shall be so driven as to support the forms properly and adequately.

(f) Form clamps, specifically designed, and manufactured for the curb and gutter to be constructed, may be used if approved by the City.

Article 05-03-020 Reinforcing Bars

(a) Before concrete is placed, the reinforcement bars shall be clean of dirt, mortar, oil, loose rust, loose mill scall, and any other analogous material that would reduce or destroy the bond.

(b) Reinforcing bars shall be placed as shown on the Contract Documents and shall be securely tied in position with 0.080-inch or 0.0624-inch diameter wire at all intersections, except where spacing is less than one foot (1') in either direction. Where the spacing is less than one foot (1') in either direction, alternate intersections shall be tied. Metal spacers, chairs, hangers, and other approved devices of adequate strength to prevent crushing under full load shall be used to hold the reinforcing in position. The use of concrete blocks to support reinforcement will not be permitted, except that dense, rectangular concrete blocks may be used to support the bottom mat of reinforcement in slabs which are cast on earth. Such concrete blocks shall meet the following requirements:

(1) Have compressive strength and density equal to, or greater than, the concrete to be placed.

(2) Occupy a small area, as approved by the City.

(3) Be free from subjection to deterioration.

(4) Contain embedded tie wires to provide for the attachment of reinforcement to the block.

(5) Reinforcement other than lower mats in slabs cast on earth shall be supported with metal spacers, chairs, or hangers

(6) Wooden spacers or supports shall not be used to hold reinforcing in place.

(c) Bars shall be placed with a variation in spacing between adjacent bars of not to exceed one-half inch (1/2") or one-twenty-fourth (1/24th) of the spacing dimension shown in the Contract Documents, whichever is greater. With the exception of slabs cast on earth, the clear coverage of the reinforcement shall not vary more than one-fourth inch (1/4") or one-eighth (1/8th) of the dimension shown on the Contract Documents, whichever is greater. The clear cover of reinforcing cast on earth shall not vary more than minus one-fourth inch (1/4") to plus one-half inch (1/2") from the position shown on the Contract Documents.

(d) Reinforcement shall be furnished in the full length indicated on the Contract Documents, unless otherwise approved by the City. Splicing of bars will not be

permitted, except when shown on the Contract Documents as allowable. Bars in lapped splices shall be placed and securely tied in a manner to maintain not less than the minimum distance to the surface of the concrete shown on the Contract Documents.

(e) Welded wire fabric and bar mat reinforcement shall be lapped as shown on the Contract Documents but not less than two (2) mesh in width, and securely tied at the ends and edges.

(f) Reinforcing steel shall be welded only when shown on the Contract Documents or authorized in writing by the City. Welding shall conform to the requirements of AWS Specification D12.1 – Reinforcing Steel Welding Code.

(g) The minimum cover from the surface of the concrete to the face of any reinforcement bar shall not be less than shown below, unless otherwise shown on the Contract Documents.

(1) Minimum cover shall be as follows:

A. Concrete cast against and permanently exposed to earth – two inches (2”).

B. Concrete exposed to earth or weather:

Principal reinforcement – two inches (2”).
Stirrups, ties, and spirals – one inch (1”).

C. Concrete not exposed to weather or in contact with the ground:

Principal reinforcement – one and one-half inch (1 ½”).
Stirrups, ties, and spirals – one inch (1”).

(2) For bar bundles, minimum concrete cover shall be equal to the lesser of the diameter of a single bar of equivalent area or two inches (2”), but not less than the minimum cover given in (1) above.

(3) Exposed reinforcing bars, inserts, and plates intended for bonding with future extensions shall be protected from corrosion.

(h) Inspection: No concrete shall be placed until the City has inspected the reinforcing steel in place and has authorized the Contractor to place the concrete. Acceptance of reinforcing steel will not relieve the Contractor of responsibility for coverage and position control of the steel.

Article 05-03-030 Concrete Placement

(a) The concrete shall be placed on a thoroughly dampened subgrade sufficiently moist to ensure that no moisture will be absorbed from the fresh concrete.

(b) Surfaces of structures in sidewalks, curbs, and gutters shall be adjusted as necessary prior to placing of concrete to meet the contiguous sidewalk surfaces.

(c) Concrete shall be placed in horizontal layers not to exceed six (6) inches each in thickness, each layer being spaded along the forms and thoroughly tamped. However, if the section is more than six (6) inches in depth, the concrete may be placed to provide the thickness shown or specified if mechanical internal vibrators are used.

(d) After the concrete for walk has been placed between the side forms, a strike-off shall be used to bring the surface to the proper section to be compacted. It shall then be spaded along the form faces and tamped with appropriate tampers not less than two (2) times, in order to assure a dense and compact mass, forcing the larger aggregate into the body thereof and bringing to the surface sufficient free mortar for finishing.

(e) After the concrete has been placed and tamped, the upper surface shall be struck off uniformly smooth and true to the specified grade.

(f) Weather and Temperature Limitations: Concrete shall have a temperature of at least 50° F and not more than 90° F at time of placement.

(1) Hot Weather Concrete: When concrete is placed during high ambient temperatures, low humidity, and/or windy conditions precautions shall be taken to reduce the rate of evaporation and control the temperature of the concrete per ACI 305, latest revision.

(2) Cold Weather Concrete: When concrete is placed at or below an atmospheric temperature of 35º F, the water or aggregates, or both, shall be heated, and suitable enclosures and heating devices shall be provided. The mixed concrete shall have a temperature of at least 50º F and not more than 90º F at the time of placing. The heating equipment or methods shall be capable of heating the water and aggregates uniformly, and these materials shall not be heated to a temperature exceeding 150º F. Concrete shall not be placed on frozen ground.

(3) Protection of Concrete: After any concrete is placed, the Contractor shall provide suitable measures to maintain a concrete surface temperature of 40º F or above for a period of not less than twenty-four (24) hours.

Article 05-03-040 Expansion Joints

(a) Expansion joints shall be constructed in curbs, walks, and gutters as hereinafter specified, being filled with pre-molded joint filler strips. No such joints shall, however, be constructed in cross gutters, alley intersection, or driveway aprons.

(b) Unless otherwise shown on the plans, one-half (1/2) inch joints shall be constructed in curbs and gutters at the end of all returns except where cross gutters are being constructed. They shall be at the ends of the cross-gutter transitions and also along the line of the work at regular intervals not to exceed fifty (50) feet, joints in gutter being continuous with those in adjacent curb. No joints shall be constructed in returns. Where continuous curb and gutter is constructed adjacent to cement concrete pavement, weakened plane joints shall be installed continuous with alternate joints installed in the adjacent pavement, in which case expansion joints for sidewalks shall be placed at intervals not to exceed twenty (25) feet with joint filler strips.

(c) Expansion joint filler strips shall be placed in walks at the PT and PC of all walk returns, between walk and a building or structure, in walk returns between the walk and the back of the curb returns, and around all utility poles encountered along the line of the work. Joint filler strips shall extend the full depth of the concrete being placed. Joint filler strips between walk and curb shall be the full depth of the walk with the top of the filler strip set flush with the top of the concrete. Expansion joint filler strips including those around utility poles shall not be less than one-half (1/2) inch in thickness.

(d) Expansion joint filler strips shall be vertical and shall extend to the full depth and width of the work in which they are installed, being constructed at right angles or radial to the line of the curb or gutter. The filler strips shall completely fill these joints at least to within one-fourth (1/4th) of an inch of any surface of the concrete that will be exposed upon completion of the work and must fully extend at least to those surfaces that will not be exposed. However, before the work will be accepted, any joint filler that protrudes beyond a surface that will not be exposed or beyond one-fourth (1/4th) of an inch below a surface that is exposed shall be trimmed off to the specified dimension in a neat and workmanlike manner. During the placing and tamping of the concrete, the filler strip shall be held rigidly and securely in proper position.

Article 05-03-050 Concrete Finishing

Surfaces of the various items of work shall be finished as specified. Edges of concrete at expansion joints shall be rounded to one-fourth inch (1/4") radius. Upon completion, the finished surface shall be true to line and grade and free from irregularities.

(a) Curbs – Standard Detail R-2

(1) The front forms may be stripped as soon as the concrete has set sufficiently but must be removed before the expiration of six (6) hours after pouring. Immediately following the stripping of the forms, mortar, as thinned to consistency of grout, shall be applied to the curb face. If monolithic curb and gutter is being constructed, this mortar shall be applied to the full-exposed face; otherwise, it shall extend for an additional two inches (2") below the gutter.

(2) The face and top of the curb shall then be carefully troweled to a smooth and even finish, the top being finished to a transverse slope of one-fourth (1/4th) of an inch toward the front, with both edges rounded to a radius of three-fourth (3/4th) of an inch. The troweled surface shall be finished with a fine hair broom parallel with the line of the work.

(3) Contraction joints or control joints shall not exceed intervals of five (5) feet. Joints shall be made at regular intervals along the line of the work. On straight work, the joints shall be parallel with and at right angles to the line of the work; at curves the joints shall, in general, be long lines concentric with and radial to the proportion of the work in which they are placed. The markings shall be made with jointed tools that will round the edges of the scoring lines to a radius of one-eighth (1/8th) of an inch, with a depth of not less than one inch (1"). The finished joint opening, excluding of radii, shall not be wider than one-eighth (1/8th) inch. The Contractor will be required to have a sufficient number of jointed tools on the job to accomplish the above specified requirements.

(4) At railroad approaches and departures, concrete curbs and gutters shall be terminated flush, with adjacent pavement, ten feet (10') from the centerline of the nearest track.

(b) Walks – Standard Detail R-1

(1) Following the placing of concrete, the surface shall be worked to a true and even grade, free from waves and irregularities. After the preliminary troweling, the initial scoring for the block marking shall be made to a depth

of one inch (1”) to ensure the scoring depth required. The work shall then be carefully troweled to a smooth and even finish, with the edges rounded to a radius of one-half inch (1/2”), the scoring markings made to the required depth following which it shall be given a fine hair broom finish, applied transversely and remarked when required to insure a new uniform joint. Troweling may be done with a long-handled trowel or "Fresno."

(2) Contraction joints or block joints shall not exceed intervals of five feet (5’). Joints shall be made at regular intervals along the line of the work. On straight work, the joints shall be parallel with and at right angles to the line of the work; at curves the joints shall, in general, be long lines concentric with and radial to the proportion of the work in which they are placed. The markings shall be made with jointed tools that will round the edges of the scoring lines to a radius of one-eighth (1/8th) of an inch, with a depth of not less than one inch (1”). The finished joint opening, excluding of radii, shall not be wider than one-eighth (1/8th) inch. The Contractor will be required to have enough jointed tools on the job to accomplish the above specified requirements.

(3) The side forms shall remain in place after completion of the walk until the concrete is sufficiently set but must be removed before the work will be accepted.

(4) At railroad approaches and departures, concrete sidewalks shall be terminated a minimum of two feet (2’) from the railroad crossing. The remaining segment(s) shall be completed with flexible pavement (asphalt) against the railroad crossing.

(c) Gutters

(1) After the concrete has been thoroughly tamped in such manner and to such extent as to force the larger aggregates into the body thereof and bringing to the top sufficient free mortar for finishing, the surface shall be worked to a true and even grade by means of a float, troweled with a long handled trowel or "Fresno" and then longitudinally broom finished, following which the flow line of the gutter shall be troweled smooth for a width of approximately three (3) inches and the outer edge rounded to a radius of one-half inch (1/2”).

(2) Side forms shall remain in place until the concrete is sufficiently set, after completion of the gutter, but must be removed before the work will be accepted.

(3) Reinforcement shall be included as shown on the Contract Documents.

(4) Construction joints and one-half inch (1/2") pre-molded expansion joints and other details of construction shall be as specified in the Contract Documents. The finished surface shall conform to the required roadway section as to both line and grade. The gutter sections will not be opened to traffic until specimen beams have attained a flexural strength of not less than five hundred (500) pounds per square inch (AASHTO T 97). When such tests are not conducted, the gutter shall not be opened to traffic until determined by the City.

(d) Slope Paving

(1) All subgrade preparation required for this item shall be done in accordance with these Standards, with the exception that minimum density requirements will be ninety (90) percent of maximum density as determined by ASTM D 1557 in all cases, instead of ninety-five (95) percent of maximum in the top six (6) inches or twelve (12) inches of compacted fill.

(2) Reinforcement shall be included as shown on the Contract Documents.

(3) Thickness of concrete shall be as specified in the Contract Documents. Concrete shall be screeded and finished with wood float or equivalent to a plane surface having no variation when measured with a ten-foot (10') straight-edge more than one-fourth (1/4th) inch unless a curvilinear surface is designated for a particular job.

(e) Curing

(1) After the completion of the finishing operations, all curbing shall be sprayed with concrete curing compound. The surface of the concrete shall be kept thoroughly damp between the completion of the finishing operations and the application of the curing compound.

(2) The curing compound shall be applied under pressure, by means of a spray nozzle, in such manner and quantity as to entirely cover all exposed surfaces of the concrete with a uniform film. The preparation so used shall be Type 2 as specified in ASTM C 309.

(f) Driveway and Alley Pad at Entrances

(1) Driveway entrances shall be provided in new curbs at all existing driveways along the line of the work and at locations shown on the plans or as directed by the City.

(2) The location and construction details for driveways shall conform to the Contract Documents.

(3) Reinforcement shall be included as shown on the Contract Documents.

(4) Where walk is to be constructed across driveway, the thickness of the walk shall be not less than six (6) inches, unless otherwise specified or shown on the Contract Documents.

(g) Miscellaneous Types of Curbs, Gutters, and Walks – extruded type concrete curb and gutter, precast curb and gutter sections, cut stone curbs, brick sidewalks, flagstone sidewalks, etc. will be permitted where approved by the City and in accordance with the Contract Documents.

(h) Repairs and Replacement – New work that is found to be defective or damaged prior to the acceptance or existing work damaged by the Contractor's operations shall be repaired or replaced by the Contractor with no additional compensation. Sidewalk that is to be replaced shall be neatly sawcut to the next control joint on either side of the defective or damaged portion. The minimum size slab that is removed and replaced shall be five feet (5') long and for the full width of the walk. Curb and gutter shall be sawcut on a neat line at right angles to the face of the curb to the next control joint and/or gutter on either side of defective or damaged portion.

(i) Backfilling and Cleanup

(1) Backfilling to the finished surface of the newly constructed improvements must be completed prior to acceptance of the work by the City.

(2) Upon completion of the work, all earth or burlap covering shall be removed, the surface of the concrete thoroughly cleaned, and the site left in a neat and orderly condition, including disposal of excess materials and earth.

Article 05-03-060 Detectable Warnings

(a) Detectable warning mats (consisting of standardized truncated domes) shall be placed where pedestrians encounter hazards in the path of travel. Detectable warnings shall be placed at the following:

(1) At ramp landings immediately adjacent to the back of the curb at a street crossing.

(2) At on-grade railroad crossings where sidewalks are present. Placement shall be six to fifteen feet (6' – 15') from the individual rails on either side.

(3) Within median islands if the cut through section exceeds six feet (6') in width.

(b) Detectable warning mats shall be two feet (2') in depth and five feet (5') in width.

Article 05-03-070 Concrete Sampling and Testing

(a) Slump, unit weight, air content tests and compressive strength test cylinders shall be prepared with concrete obtained from the point at which the concrete is placed by certified personnel (ACI or TTCP certified as Concrete Field-Testing Technicians). All results for the tests performed in accordance with this unit will be provided to the Contractor and the concrete supplier immediately upon completion of the final compressive strength test. If a super-plasticizer is used, the slump shall be measured before and immediately after the addition of the super-plasticizer. The slump specifications defined on the approved mix design shall not be exceeded before introduction of the super-plasticizer. The slump shall not exceed eight (8) inches after the super-plasticizer has been added. Super-plasticized concrete shall be checked for segregation before being placed and during the course of the placement. Segregated concrete shall not be placed. Concrete cylinders for compressive strength tests by the Contractor's certified personnel are to be molded and cured in accordance with AASHTO T 23 "Making and Curing Concrete Test Specimens in the Field" using four-inch (4") by eight inch (8") single use plastic cylinder molds with plastic lids or six inch (6") by twelve inch (12") cylinder molds and air content tests cast from slip-form concrete shall be accomplished with a vibrator. The Contractor is responsible for providing all vibratory equipment and all equipment required to operate the vibratory equipment. Rodding of slip-form concrete will not be permitted. Responsibility for transporting the test specimens to a certified testing lab shall belong to the party who originally prepared the test specimens.

(b) Concrete Testing: At least one (1) sample shall be taken from each of the first three (3) concrete loads delivered to the Project site. Each of these loads shall be tested for slump, air content, and unit weight. Additionally, a set of compressive strength test cylinders will be cast from one of these three loads, determined on a random basis. Beginning with the fourth (4th) load of concrete delivered to the Project, one (1) randomly selected load from each sub-lot of six (6) trucks. All tests and cylinders shall be tested and handled in accordance with proper procedures.

(c) Concrete Strength: Concrete compressive strength shall be determined from the average of two (2) or more concrete cylinders made from the same sample of concrete and tested at the specified age. The cylinders will be made, handled, and stored in accordance with AASHTO T 23 "Making and Curing Concrete Test Specimens in the Field" and tested in accordance with AASHTO T 22 "Compressive Strength of Cylindrical Concrete Specimens".

(d) Individual Strength Test: Unless otherwise specified, an "individual strength test" will be determined by testing two (2) or more cylinders at twenty-eight (28) days (or at fourteen (14) days for slip-formed concrete). At least four (4) cylinders shall be made for each set. The first cylinder shall be tested at seven (7) days for use as an indicator of the early concrete compressive strength. The second and third cylinders shall be tested to determine the "Individual Strength Test" result. The fourth cylinder shall remain available for testing if the Within-Test-Coefficient-of-Variation (WTCV) exceeds five (5) percent, as determined by ACI 214.3.4.1. If the fourth cylinder is tested, the "Individual Strength Test" result will be the average of all of the cylinders tested at that age, unless one (1) or more of the following conditions exist:

(1) There is a visible defect in the cylinder or the capping, and/or orientation of the cylinder with respect to its perpendicularity or the parallelism of the ends.

(2) A significant irregularity occurred while loading the test specimen to failure, such as a sudden load burst, cyclic or pulsating loads, or a loading rate not in accordance with AASHTO T 22.

(e) Unless less stringent requirements are specified in the Contract Documents, forms may be stripped, or traffic permitted on the structure or pavement when the correlated in-place compressive strength is at least equal to the strength required for the intended application.

(f) Acceptance of Concrete Based on Cylinders: The concrete will be accepted with respect to compressive strength indicated by cylinder tests, when both of the following requirements are met:

(1) The running average of three (3) consecutive individual strength tests meets or exceeds the specified strength.

(2) No individual strength test falls below the specified strength by more than five hundred (500) psi; and,

3. When the cylinder-based acceptance requirements are not met, the City will review the strength tests and notify the Contractor in writing whether the concrete will be accepted or shall be removed and replaced by the Contractor. Only that area of concrete represented by the individual strength test failing to meet any one (1) of the cylinder based acceptance requirements, shall be subject to investigation or removal. When the cylinder-based acceptance requirements are not met, steps shall be taken by the Contractor to resolve the problem. The proposed resolution will be submitted in writing to the City. The mere addition of extra cement will normally not be considered a sufficient resolution.

ARTICLE 05-04 – SIGNAGE & STRIPING

Article 05-04-010 Permanent Signage

(a) Permanent signage shall adhere to the guidance, dimensions, and layouts presented in the Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, Latest Edition.

(b) Street name signs shall follow the guidance provided in Standard Drawing R-13.

Article 05-04-020 Striping

(a) Permanent roadway striping shall follow the guidance provided in Standard Drawing R-4.

(b) Roadway striping not covered by the Standard Drawings shall adhere to the guidance, dimensions, and layouts presented in the Manual on Uniform Traffic Control Devices (MUTCD), Latest Edition.

ARTICLE 05-05 – DRAINAGE CONSIDERATIONS

Article 05-05-010 General

(a) The designer shall be responsible for compliance with all governing agencies potentially having jurisdiction over portions of the Project, including but not limited to the following:

(1) New Mexico Environment Department
(2) New Mexico Department of Transportation
(3) Union Pacific Railroad and their lessees
(4) Otero County
(5) United States Army Corps of Engineers
(6) New Mexico Office of the State Engineer
(7) NPDES/EPA Region 6

(8) Federal Emergency Management Agency

(b) Grading, drainage facilities, channels, and other improvements to control storm water shall be designed to:

(1) Limit post-development peak discharges from a project and in impacted conveyance systems at a pre-development peak discharge rate.

(2) Minimize erosion by providing erosion and sedimentation control systems as required to prevent erosion, scour, and sedimentation.

(3) Be compatible with existing improvements and drainage patterns.

(c) Detention Design

(1) Retention ponds shall be avoided and will be authorized by the City on a case-by-case basis.

(2) The design storm for detention ponds shall be the 100-year return period rainfall event with 24-hour duration.

(3) Detention ponds shall have maximum side slopes of four to one (4:1) unless authorized by the City.

(4) Detention ponds shall have one foot of freeboard or 10% additional basin capacity.

(5) Maximum basin depth shall not exceed four feet, and minimum depth shall be eighteen inches unless otherwise approved by the City.

(6) Offsite runoff entering the development may occur in the drainage basin. If this is the case, the analysis of the detention facility must take these flows into account. Offsite flows may be routed around the detention facilities, but the entrance and exit points of the storm runoff shall not be altered nor shall the post development peak flow exceed the historic peak flow.

(7) An acceptable method of transporting water from the streets into the basin shall be provided to preserve the facility's integrity.

(8) Each facility shall be designed so that the stormwater will not stand for more than 24 hours after termination of the storm. Drainage shall be accomplished by infiltration or by controlled flow into an existing facility suitable to receive, transport, and convey the water.

(9) If infiltration is the mean method of drainage, a soils report shall be included in the construction documents. Sufficient and representative soil borings and tests shall be required to illustrate suitability for the intended purposes and percolation characteristics.

(10) Fencing/railing will be required when hazards exist to those using the property.

(d) Erosion and Sedimentation Control

(1) All projects shall be designed so that erosion is minimized during construction as well as after the construction is complete. The volume, rate, and quality of stormwater runoff originating from the development must be controlled to prevent soil erosion. Specific efforts shall be made to keep sediment out of streets and watercourses.

(2) All projects requiring grading, disturbance or clearing of more than one (1) acre must comply with the requirements of the National Pollutant Discharge Elimination System (General Permit for Discharges from Construction Activities) and submit an Erosion and Sedimentation Control Plan to the City.

ARTICLE 05-06 – DRAINAGE STUDIES & FACILITY DESIGN

Article 05-06-010 Drainage Reports & Studies

Drainage reports and/or studies shall adhere to the requirements set forth in the New Mexico Department of Transportation's Drainage Design Manual or as modified by the City.

Article 05-06-020 Facility Design

Drainage facilities, including but not limited to enclosed storm sewer systems, culverts, weirs, channels, etc., shall adhere to the requirements set forth in the New Mexico Department of Transportation's Drainage Design Manual or as modified by the City.

ARTICLE 05-07 – STREET LIGHTING

Article 05-07-010 General

(a) General – The City will preapprove and assume monthly electrical service costs of new streetlights once installed and energized as described in the Article. The installation of streetlights and service connection fees will be paid entirely by the developer or Owner. The City will agree to pay for the monthly service charge for

each light. The developer or Owner shall be responsible for coordinating and supplying any easements or right-of-way on a recorded plat or deed to the local power company or the City.

(b) Underground Feed Lighting – The developer or Owner shall provide the trench, conduit, and wiring from the location designated by the power company to the street light location approved by the City. The developer or Owner will also provide the pole foundation, pole, and luminaire. The power company will complete the connection once installation is complete. No overhead feeds will be allowed.

(c) Lighting Spacing – The developer or Owner shall be responsible for light design based on a photometric lighting analysis. The Illumination Engineering Society of North America has established acceptable illumination levels and uniformity ratios for various public street types.

Article 05-07-020 Materials

(a) Light Pole – The City's preferred street light pole shall be Hapco Pole Products - Single Davit Pole Model Number: RTA35D8B4D1A-01. Alternative street light poles require prior authorization from the City.

(b) Luminaire – The City's preferred luminaire shall be American Electric Lighting Autobahn Series ATB2 Model Number: ATB240BLEDE10MVOLTR4SH. Alternative luminaries require prior authorization from the City.

(c) Foundation – Luminaire foundations shall adhere to NMDOT Standard Specification Section 707 – Signal and Lighting Standards.

ARTICLE 05-08 – COORDINATION

Article 05-08-010 Construction Coordination, Survey, & Acceptance

(a) The Contractor shall coordinate the Work with the City before commencing work. The City shall inspect and approve all work prior to backfilling. Photos will not be accepted in lieu of a physical inspection.

(b) The Contractor shall notify the City in writing when each utility installation is complete in place per plan and ready for inspection. No utility backfill shall be placed until inspection has been satisfied by the City.

(c) Acceptance Submittal – All test reports (utility, bacteriological, concrete, compaction, etc.), signed inspection forms, field marked construction drawings reflecting as-built conditions, and delivery of post construction survey as defined below.

(d) Post Construction Survey – to be completed by a professional surveyor licensed in the State of New Mexico. The survey shall include key system components for incorporation into the City's geographic information system (GIS). All data shall be created in real world coordinate system based on the following projection: horizontal control in NAD83, vertical control in NAVD88, and based on New Mexico State Plan Coordinates System (Grid), Central Zone, US Foot. The survey shall be tied to at least two (2) City control points as included at the end of Chapter 05. The Post Construction Survey shall be completed in a City approved AutoCAD version (.dwg format) provided to the City on a mass storage drive (compact disc or usb storage device) or via secure downloadable link.

The Post Construction Survey provider shall include a table identifying the layering convention used to depict system components (i.e. Layer C-UTIL-WATR-12in represents a twelve (12") diameter C-900 PVC Water Line, etc.). This will allow the City personnel to isolate and import portions of the drawing and translate the information directly into usable data in their GIS. The user at their option can base their layering convention on the National Cad Standard (NCS) for ease of use. The City will not accept CAD files containing information drawn in paperspace.

The post construction survey shall be in conjunction with the Record Drawings noting work per plan or identifying different field installation conditions.

(1) Drainage Systems Components: drainage channel control features and flowline elevations, drainage channel structure information (culvert upstream/downstream flowline elevations), manholes, inlets, pipe outfall(s), pond top elevation, and pond bottom elevation.

(2) Sanitary Sewer System Components: standard manholes, control manholes, drop manholes, cleanouts at right-of-way or property lines, casing installations, and sewer service taps.

(3) Lift Station Components: wet wells, dry wells, vaults, cleanouts, air valves, plug valves, flow meter, bends, and manholes.

(4) Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, fire hydrants, water meters, service line taps, sampling stations, and pressure reducing stations.

(5) Reclaimed Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, hydrants, meters, service line taps, or pressure reducing stations.

(e) Substantial Completion – the Acceptance Submittal and Post Construction Survey shall be provided to the City, reviewed, and accepted by the City prior to issuance of Substantial Completion and subsequent commencement of the warranty period.

END OF CHAPTER 05

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 1 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 10/18/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum Cap in Concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Landscape **Vertical Method:** OPUS & RTK

Stamping: COA2020 1

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970345)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'53.1385"N	690590.44	690795.30
Longitude | Easting|X:	105°56'39.0832"W	1734277.87	1734792.32
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4319.32	4391.01

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 20, T16S, R10E

Note(s):

Location Map:

Vicinity Photo (Looking SOUTHWEST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 2 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 8/5/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 2

Coordinate Data

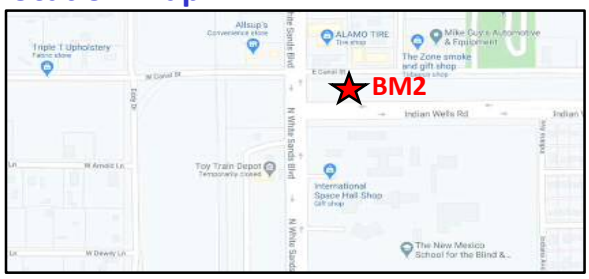
	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970364)
Horizontal Datum:			
Latitude | Northing|Y:	32°54'55.2263"N	696851.40	697057.98
Longitude | Easting|X:	105°57'35.7667"W	1729427.90	1729940.59
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4294.08	4366.06

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 18, T16S, R10E

Note(s):

Location Map:



Vicinity Photo (Looking SOUTH):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 3 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 8/8/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 3

Coordinate Data

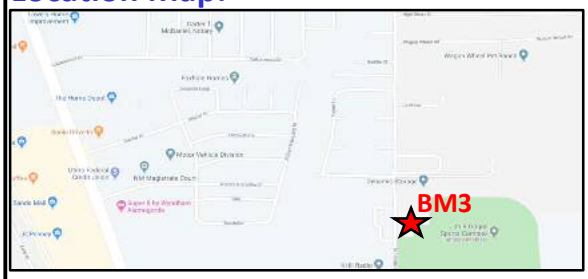
	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970047)
Horizontal Datum:			
Latitude | Northing|Y:	32°55'45.5010"N	701939.57	702149.88
Longitude | Easting|X:	105°57'04.9658"W	1732039.02	1732557.97
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4371.64	4443.23

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 8, T16S, R10E

Note(s):

Location Map:



Vicinity Photo (Looking WEST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 4 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 8/23/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 4

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970117)
Horizontal Datum:			
Latitude | Northing|Y:	32°55'55.6306"N	702942.86	703152.98
Longitude | Easting|X:	105°58'33.1403"W	1724521.53	1725037.02
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4325.36	4397.87

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 13, T16S, R9E

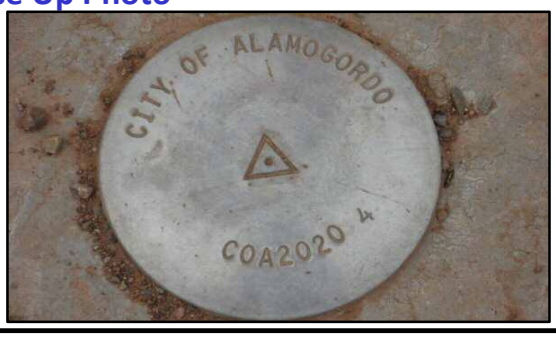
Note(s):

Location Map:

Vicinity Photo (Looking NORTH):

Vicinity Map:

Close Up Photo



Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 5 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 8/5/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 5

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970828)
Horizontal Datum:			
Latitude | Northing|Y:	32°51'58.5433"N	678980.68	679178.81
Longitude | Easting|X:	105°58'42.0549"W	1723823.37	1724326.39
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4174.10	4247.11

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 1, T17S, R9E

Note(s):

Location Map:

Vicinity Photo (Looking WEST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 6 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 10/18/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 6

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970407)
Horizontal Datum:			
Latitude | Northing|Y:	32°52'30.9599"N	682278.07	682480.04
Longitude | Easting|X:	105°57'09.3941"W	1731717.04	1732229.66
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4295.14	4367.28

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 31, T16S, R10E

Note(s):

Location Map:

Vicinity Photo (Looking SOUTH):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 7 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 8/4/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Ground **Vertical Method:** OPUS & RTK

Stamping: COA2020 7

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970264)
Horizontal Datum:			
Latitude | Northing|Y:	32°54'51.2939"N	696467.34	696674.50
Longitude | Easting|X:	105°56'39.9483"W	1734187.03	1734702.86
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4335.92	4407.62

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 17, T16S, R10E

Note(s):

Location Map:

Vicinity Photo (Looking NORTH):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 7A

Units are in US Survey Feet

Establishing Group: Construction Surveying Services

CSS Project #: 20-975

Observation Date: 8/4/2020

Project Name: City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete

Horizontal Method: OPUS & RTK

Station Height: Flush with Ground

Vertical Method: OPUS & RTK

Stamping: COA2020 7A

Coordinate Data

Horizontal Datum:	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970264)
Latitude | Northing|Y:	32°54'54.1731"N	696758.57	696965.82
Longitude | Easting|X:	105°56'39.6812"W	1734209.01	1734724.85
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4336.27	4407.97

Location

City, County & State: Alamogordo, Otero County, New Mexico

Section: Section 17, T16S, R10E

Note(s):

Location Map:

Vicinity Photo (Looking EAST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 8 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 7/22/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: Flush with Ground **Vertical Method:** OPUS & RTK
Stamping: COA2020 8

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970395)
Horizontal Datum:			
Latitude | Northing|Y:	32°54'28.5668"N	694163.70	694369.27
Longitude | Easting|X:	105°57'07.9511"W	1731806.52	1732319.37
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4297.79	4369.69

Location

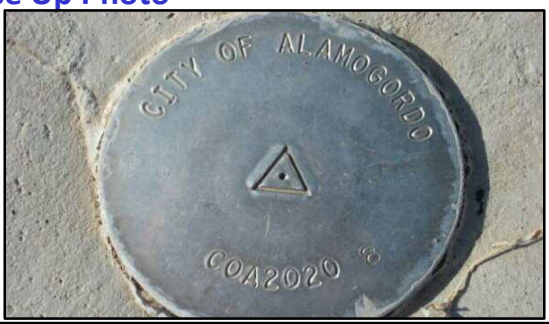
City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 17, T16S, R10E
Note(s):

Location Map:

Vicinity Photo (Looking SOUTHWEST):

Vicinity Map:

Close Up Photo



Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 9 **Units are in US Survey Feet**

Establishing Group: Construction Surveying Services **CSS Project #:** 20-975

Observation Date: 11/25/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK

Station Height: Flush with Landscape **Vertical Method:** OPUS & RTK

Stamping: COA2020 9

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970479)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'48.1821"N	690080.50	690284.28
Longitude | Easting|X:	105°57'16.2073"W	1731114.16	1731625.35
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4277.34	4349.40

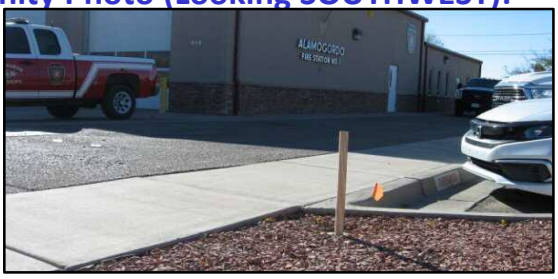
Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 19, T16S, R10E

Note(s):

Location Map:

Vicinity Photo (Looking SOUTHWEST):



Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 10 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 11/25/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: Flush with Ground **Vertical Method:** OPUS & RTK
Stamping: COA2020 10

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970588)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'23.6927"N	687599.15	687801.45
Longitude | Easting|X:	105°57'43.4359"W	1728799.42	1729308.04
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4244.79	4317.08

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 30, T16S, R10E
Note(s):

Location Map:

Vicinity Photo (Looking SOUTHEAST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 11 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 7/10/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: Flush with Ground **Vertical Method:** OPUS & RTK
Stamping: COA2020 11

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99970350)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'29.0904"N	688161.02	688365.12
Longitude | Easting|X:	105°56'35.3804"W	1734600.64	1735115.10
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4319.84	4391.56

Location

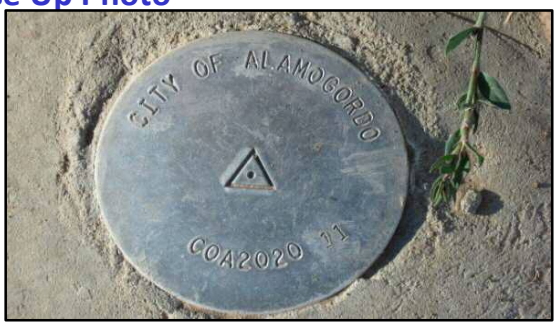
City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 20, T16S, R10E
Note(s):

Location Map:

Vicinity Photo (Looking NORTH):

Vicinity Map:

Close Up Photo



Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 12 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 8/7/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: A Few Inches Below Ground Level **Vertical Method:** OPUS & RTK
Stamping: COA2020 12

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99969835)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'26.0008"N	687864.41	688071.97
Longitude | Easting|X:	105°55'33.4150"W	1739885.11	1740410.10
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4451.85	4523.67

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 21, T16S, R10E
Note(s):

Location Map:

Vicinity Photo (Looking SOUTH):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 13 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 8/6/2020 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: Flush with Ground **Vertical Method:** OPUS & RTK
Stamping: COA2020 13

Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99969451)
Horizontal Datum:			
Latitude | Northing|Y:	32°53'49.9604"N	690293.00	690503.94
Longitude | Easting|X:	105°55'06.8766"W	1742140.17	1742672.54
Vertical Datum:	NAVD88 (GEOID18)	Ellipsoid (GRS80)	Orthometric
Elevation:		4543.00	4613.73

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 21, T16S, R10E
Note(s):

Location Map:

Vicinity Photo (Looking EAST):

Vicinity Map:

Close Up Photo

Control Station Data

Construction Surveying Services
PO Box 2295, Alamogordo, NM 88311

Name of Station: COA2020 14 **Units are in US Survey Feet**
Establishing Group: Construction Surveying Services **CSS Project #:** 20-975
Observation Date: 2/2/2021 **Project Name:** City Benchmarks 2020

Station Data

Type/Composition: Aluminum cap in concrete **Horizontal Method:** OPUS & RTK
Station Height: Flush with Ground **Vertical Method:** OPUS & RTK
Stamping: COA2020 14

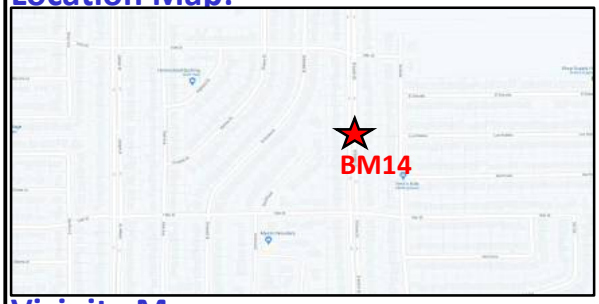
Coordinate Data

	Geodetic (NAD83)	Grid (NM C ZONE 3002)	**Ground** (Scale Factor: 0.99969702)
Horizontal Datum:			
Latitude | Northing|Y:	32°54'31.8060"N	694514.87	694304.4459
Longitude | Northing|X:	105°55'33.2504"W	1739878.58	1739351.432
Vertical Datum:	Ellipsoid (GRS80)	Ellipsoid (GRS80)	Orthometric
Elevation:		4479.62	4550.69

Location

City, County & State: Alamogordo, Otero County, New Mexico **Section:** Section 16, T16S, R10E
Note(s):

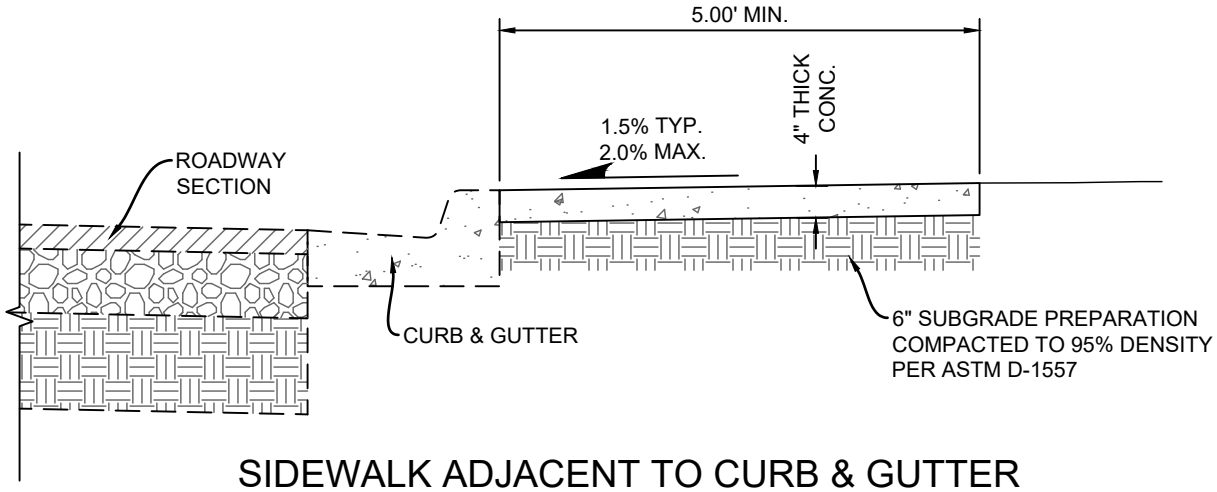
Location Map:



Vicinity Photo (Looking NORTH):

Vicinity Map:

Close Up Photo



SIDEWALK ADJACENT TO CURB & GUTTER

SIDEWALK NOTES:

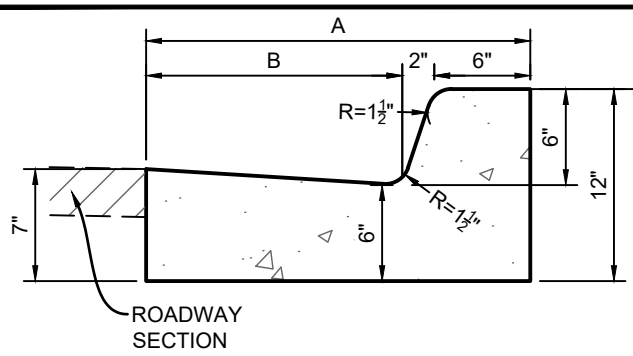
1. PROVIDE $\frac{1}{2}$" EXPANSION JOINT MATERIAL WHERE SIDEWALK ABUTS AN IMMOVABLE OBJECT (I.E. UTILITY POLE, WALL, CURB AND GUTTER, SIDEWALK, DRIVE APRON, STRUCTURES, ETC.).

2. PROVIDE CONTROL JOINTS EVERY 5'-0" FOR SIDEWALKS AND EVERY 10'-0" FOR CURBS; PROVIDE EXPANSION JOINTS EVERY 25'-0" MAX. FOR SIDEWALKS AND EVERY 50'-0" FOR CURBS.

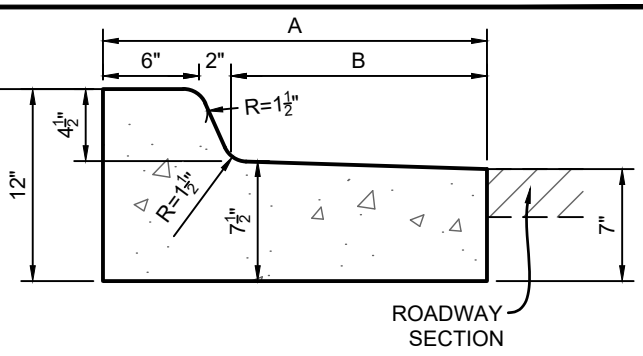
3. SUBGRADE PREPARATION SHALL BE INCIDENTAL TO SIDEWALK CONSTRUCTION.

SCALE: NOT TO SCALE

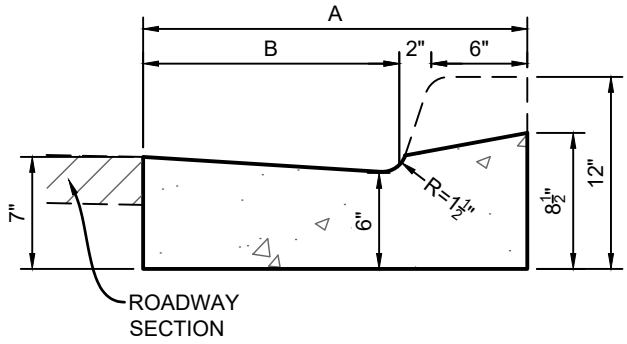
ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	SIDEWALK DETAILS	REVISION DATE: ---- SHEET NO: R-1



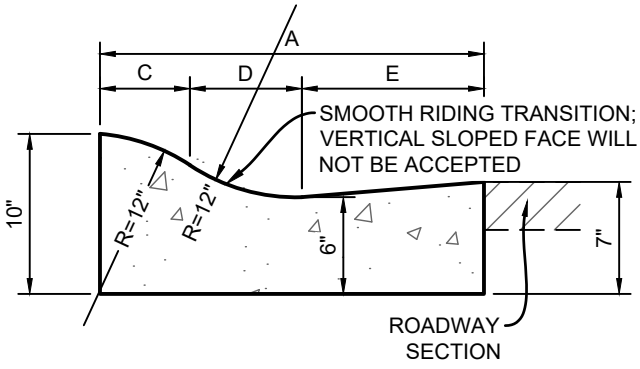
STANDARD CURB & GUTTER



REVERSE SLOPE CURB & GUTTER



LAYDOWN CURB & GUTTER



MOUNTABLE CURB & GUTTER

CURB AND GUTTER LEGEND			
TYPE	I	II	III
A	1'-6"	2'-0"	2'-6"
B	0'-10"	1'-4"	1'-10"
C	0'-5 5/8"	0'-5 5/8"	0'-5 5/8"
D	0'-5"	0'-7"	0'-7"
E	0'-7 3/8"	0'-11 3/8"	1'-5 3/8"

CURB & GUTTER NOTES:

1. NEW CURB & GUTTER PROFILE SHALL MATCH EXISTING ADJACENT CURB & GUTTER AND/OR STREET PROFILE.
2. NEW CURB & GUTTER SHALL INCLUDE EIGHT-INCH (8") SUBGRADE PREPARATION; INCIDENTAL TO CURB AND GUTTER CONSTRUCTION.
3. NEW CURB & GUTTER SHALL INCLUDE SIX-INCH (6") BASE COURSE; INCIDENTAL TO CURB AND GUTTER CONSTRUCTION.
4. EDGES OF CURB & GUTTER NOT SPECIFICALLY DIMENSIONS SHALL BE EDGED WITH A ⅜" EDGING TOOL.
5. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.
6. PROVIDE CONTROL JOINTS EVERY 5'-0". CONTROL JOINTS SHALL BE TOOL JOINTED WITH TOP ROUND EDGE OF ⅛" RADIUS, DEPTH OF ONE-INCH (1"). THE FINISHED JOINT OPENING EXCLUDING RADII SHALL NOT BE WIDER THAN ⅛".
7. PROVIDE ½" EXPANSION JOINTS EVERY 50'-0" ALONG CURB & GUTTER.
8. TACK COAT EDGE OF GUTTER PRIOR TO PLACEMENT OF NEW PAVEMENT OR PAVEMENT PATCH.
9. THE CONSTRUCTION OF CURB & GUTTER AND/OR PAVEMENT SHALL BE CONSTRUCTED SO THAT THE GUTTER FLOW WILL BE CONSTANT (NO PONDING AREAS WILL BE ACCEPTED).

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

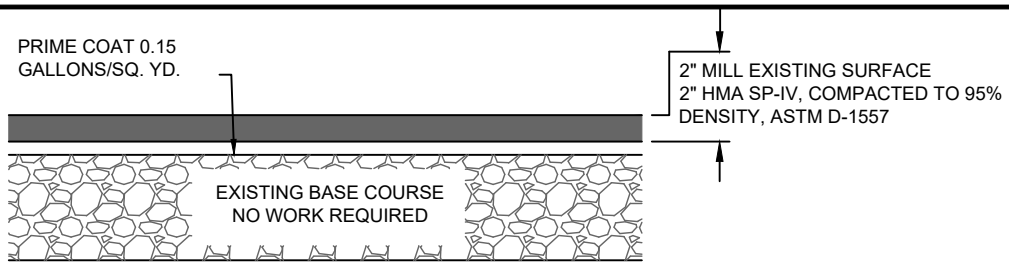
CURB AND GUTTER DETAILS

ISSUE DATE: JUNE 14, 2022

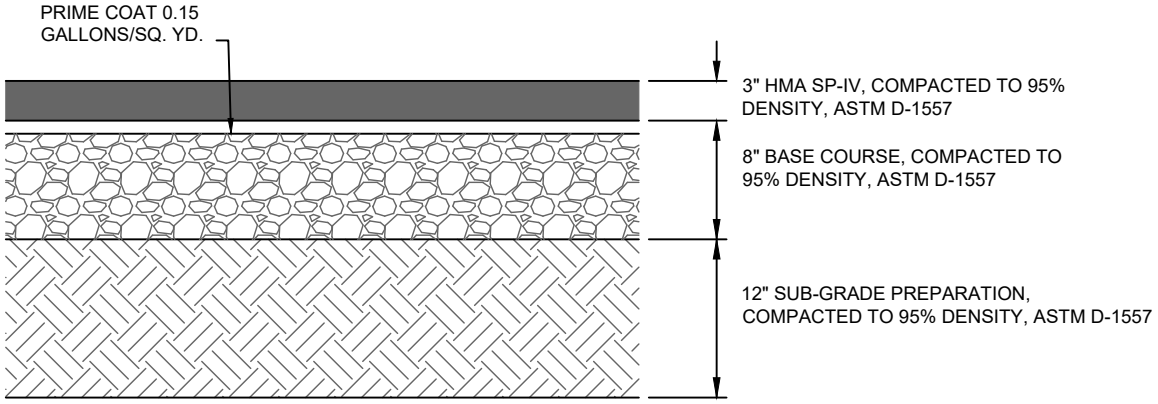
RESOLUTION NO: 2022-28

REVISION DATE: ----

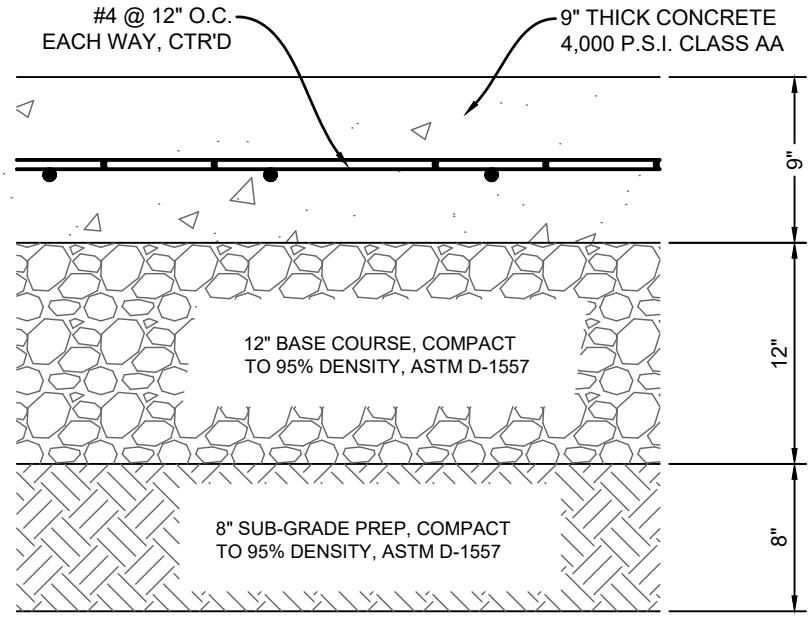
SHEET NO: R-2



2-INCH PAVEMENT MILL/OVERLAY SECTION



TYPICAL PAVEMENT SECTION



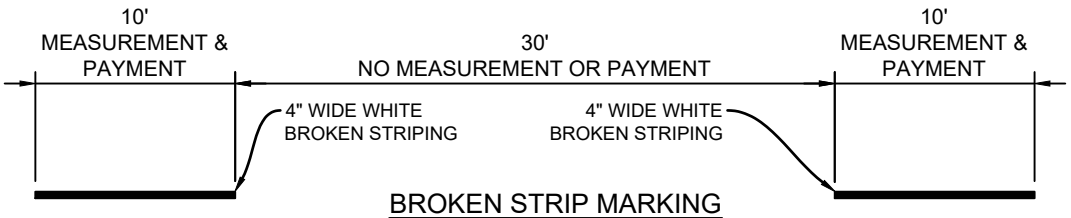
9" CONCRETE PAVEMENT SECTION

GENERAL NOTES:

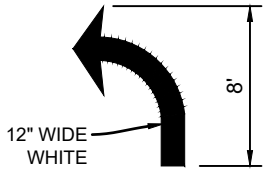
1. PROPOSED PAVEMENT SECTIONS FOR MINOR AND MAJOR ARTERIALS SHALL BE DETERMINED BASED ON SITE SPECIFIC GEOTECHNICAL INVESTIGATIONS.

SCALE: NOT TO SCALE

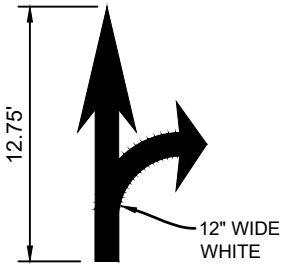
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	PAVEMENT SECTION DETAILS	REVISION DATE: ----
		SHEET NO: R-3



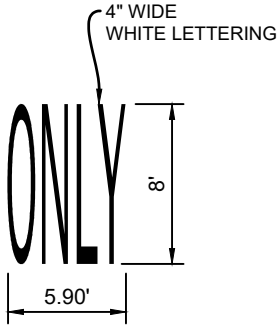
BROKEN STRIP MARKING



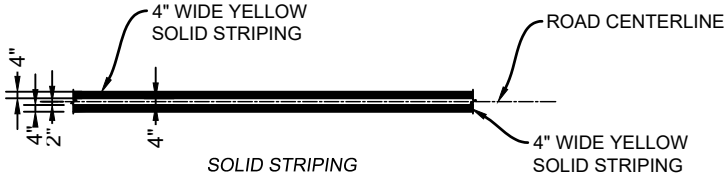
TURN ARROW



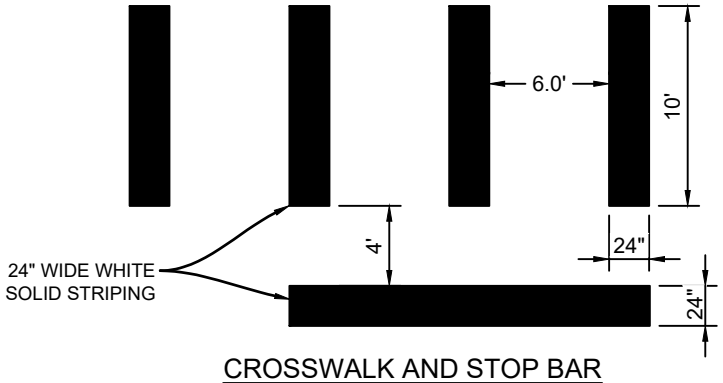
COMBO ARROW



WORD " ONLY "



DOUBLE YELLOW MARKING



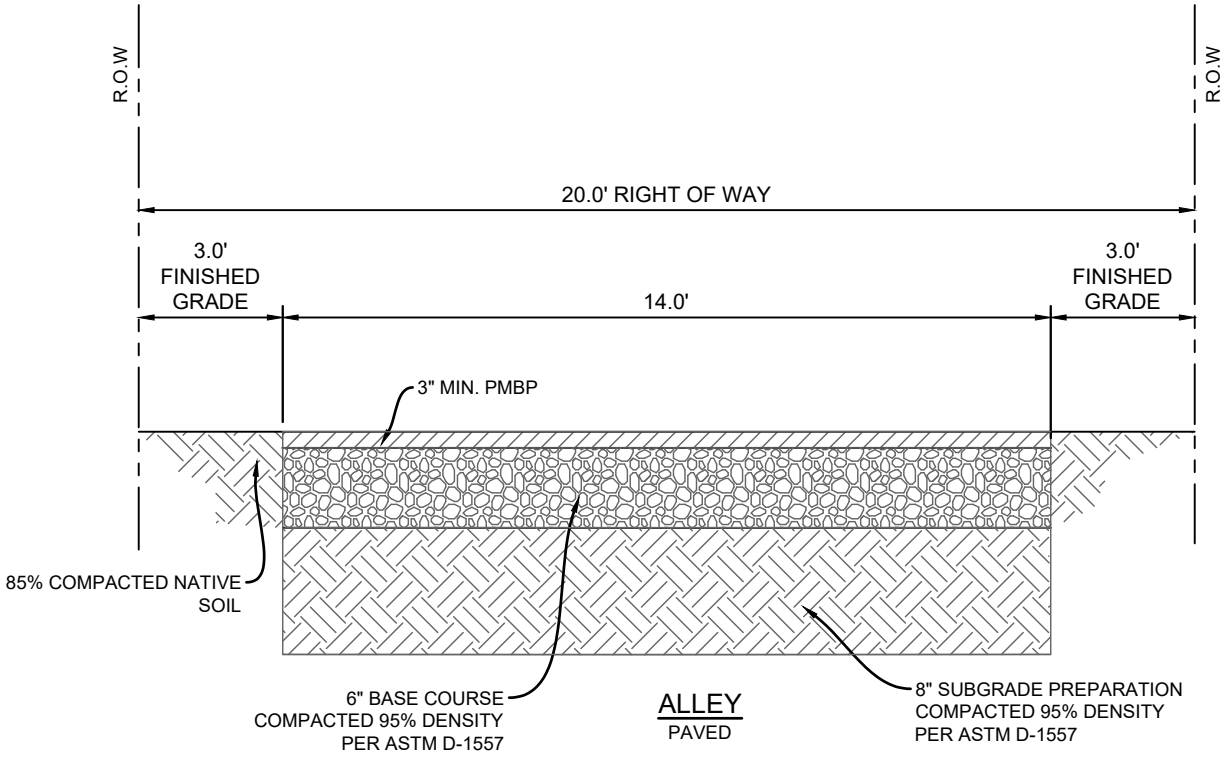
CROSSWALK AND STOP BAR

CONTRACTOR NOTE:

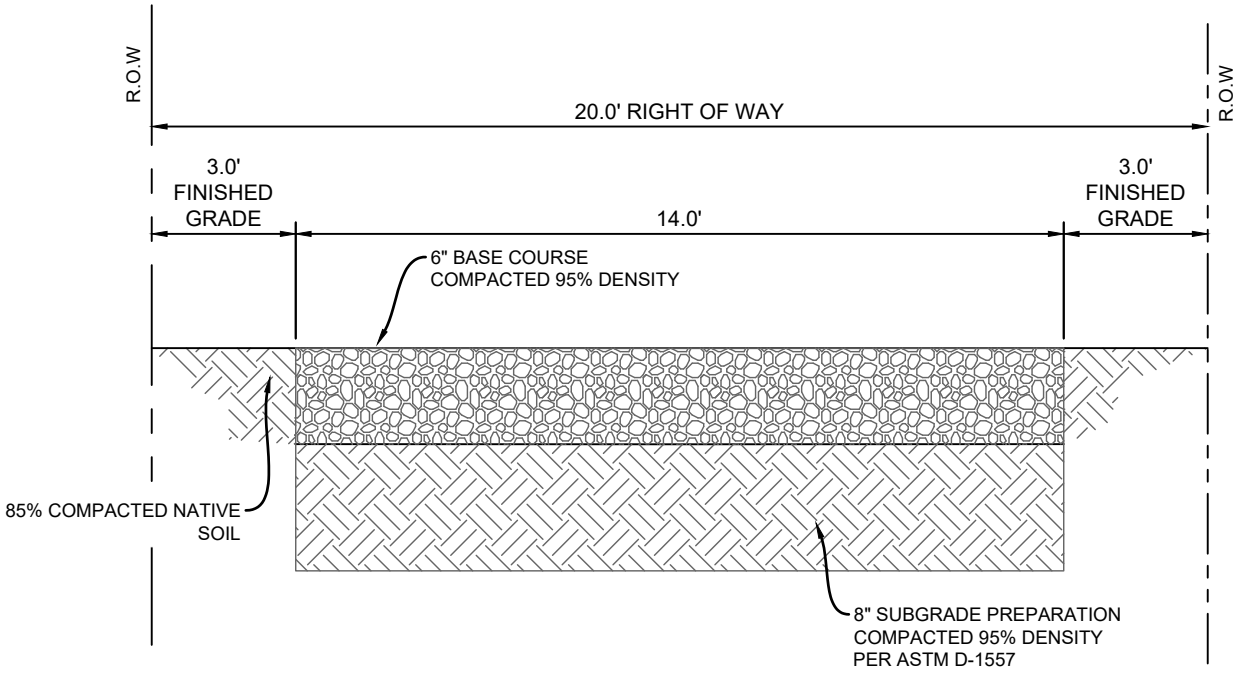
1. CROSSWALK AND STOP BARS SHALL BE 3M-N380 PREFORMED PATTERNED MARKING OR APPROVED EQUAL (O.A.E.).
2. ALIGN CROSSWALK WITH CENTERLINE OF WHEEL PATH, COORDINATE WITH OWNER PRIOR TO INSTALLATION.
3. SYMBOLS AND LEGENDS SHALL BE 3M-380IES PREFORMED PATTERNED MARKING O.A.E.
4. BROKEN STRIPING, DOUBLE STRIPING AND SINGLE STRIPING SHALL BE 90 MIL HOT THERMOPLASTIC PAVEMENT STRIPING.
5. MEASUREMENT AND PAYMENT FOR BROKEN STRIPING (10 LF) SHALL BE CALCULATED BY MATERIAL USED.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	STRIPING DETAILS	REVISION DATE: ---- SHEET NO: R-4



ALLEY
PAVED



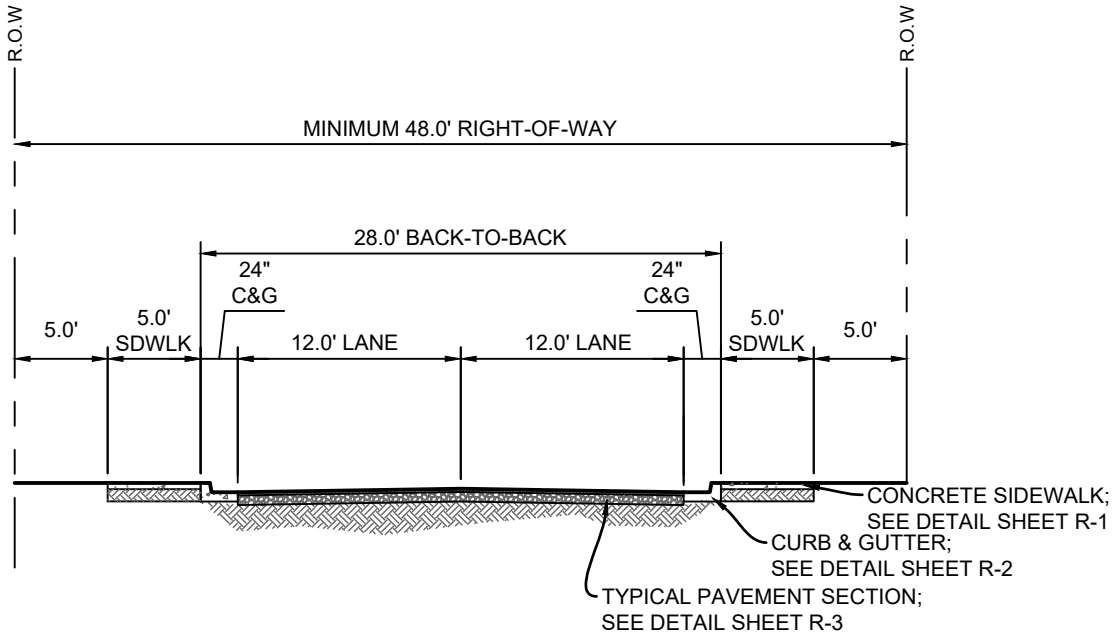
ALLEY
UNPAVED

SCALE: NOT TO SCALE

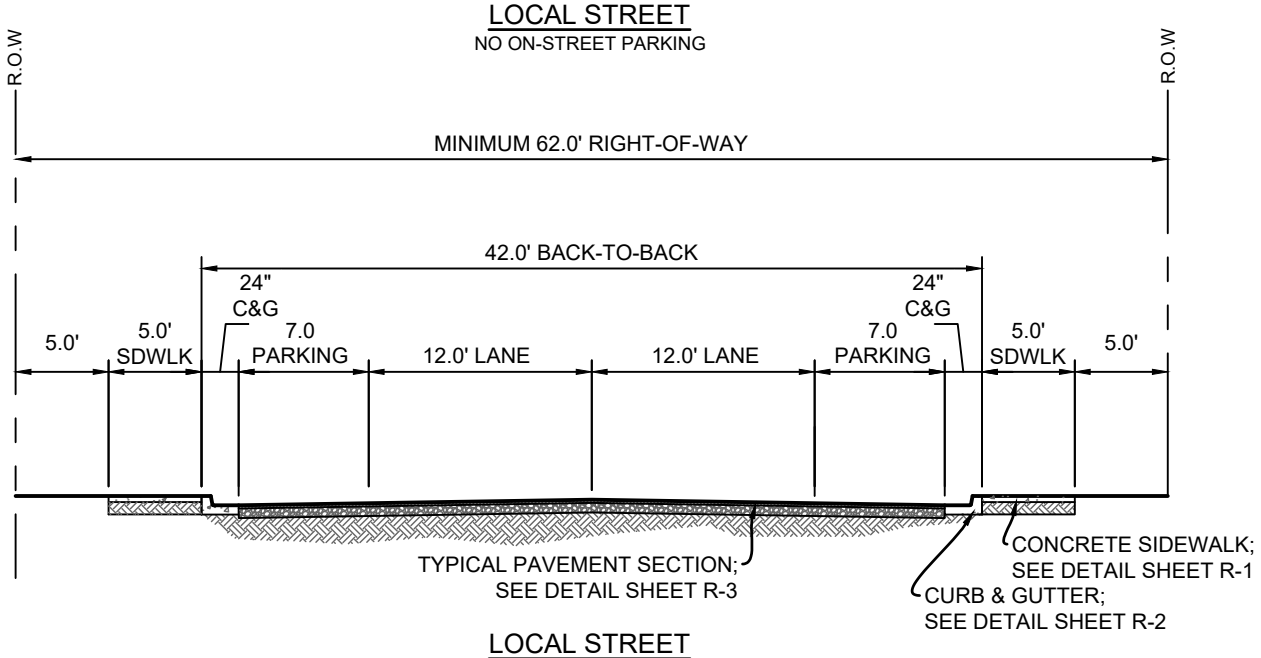
CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

ALLEY DETAILS

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: R-5



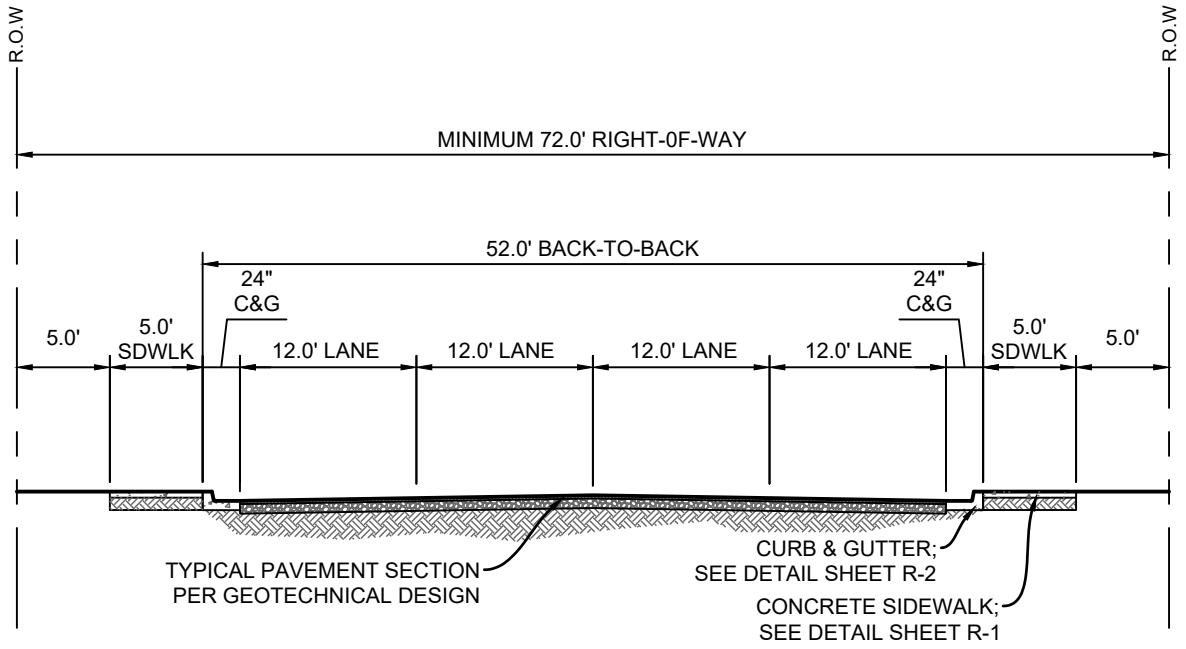
LOCAL STREET
NO ON-STREET PARKING



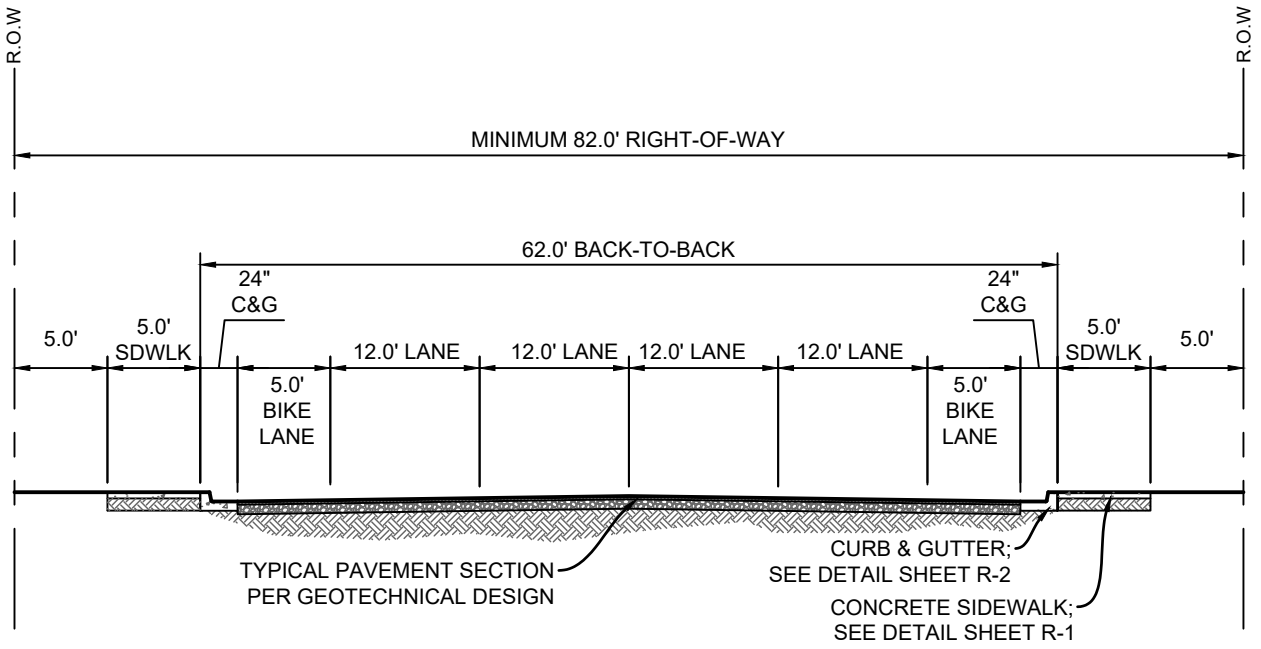
LOCAL STREET
WITH ON-STREET PARKING

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	LOCAL STREET DETAIL	REVISION DATE: ---- SHEET NO: R-6



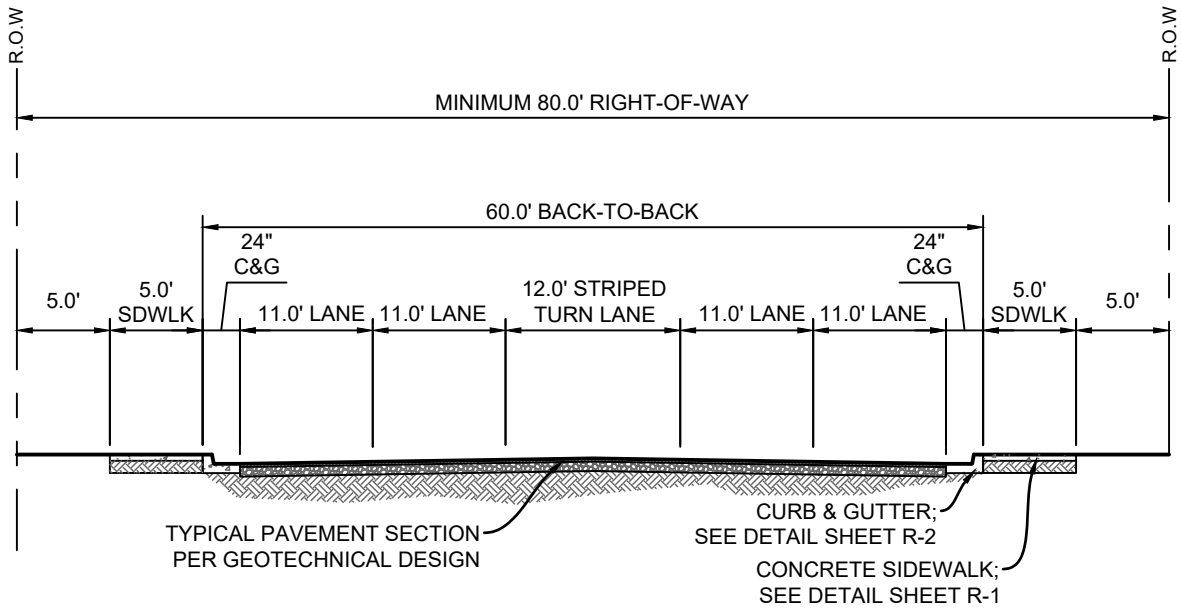
COLLECTOR STREET



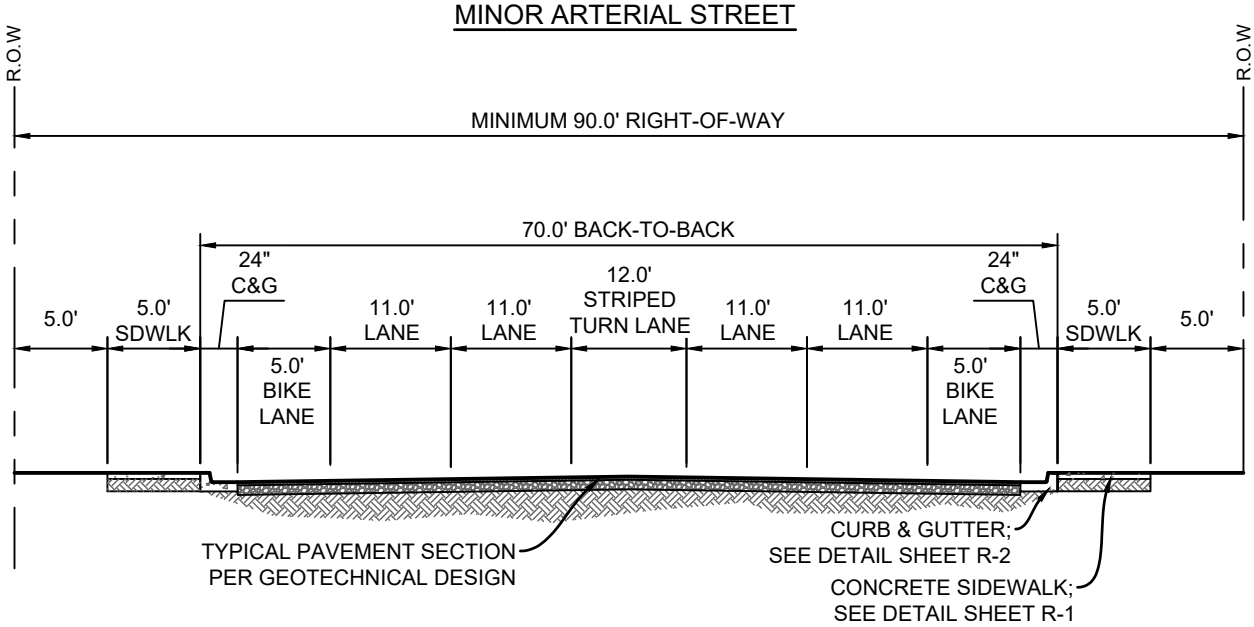
COLLECTOR STREET w/BIKE LANES

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	COLLECTOR STREET DETAIL	REVISION DATE: ---- SHEET NO: R-7



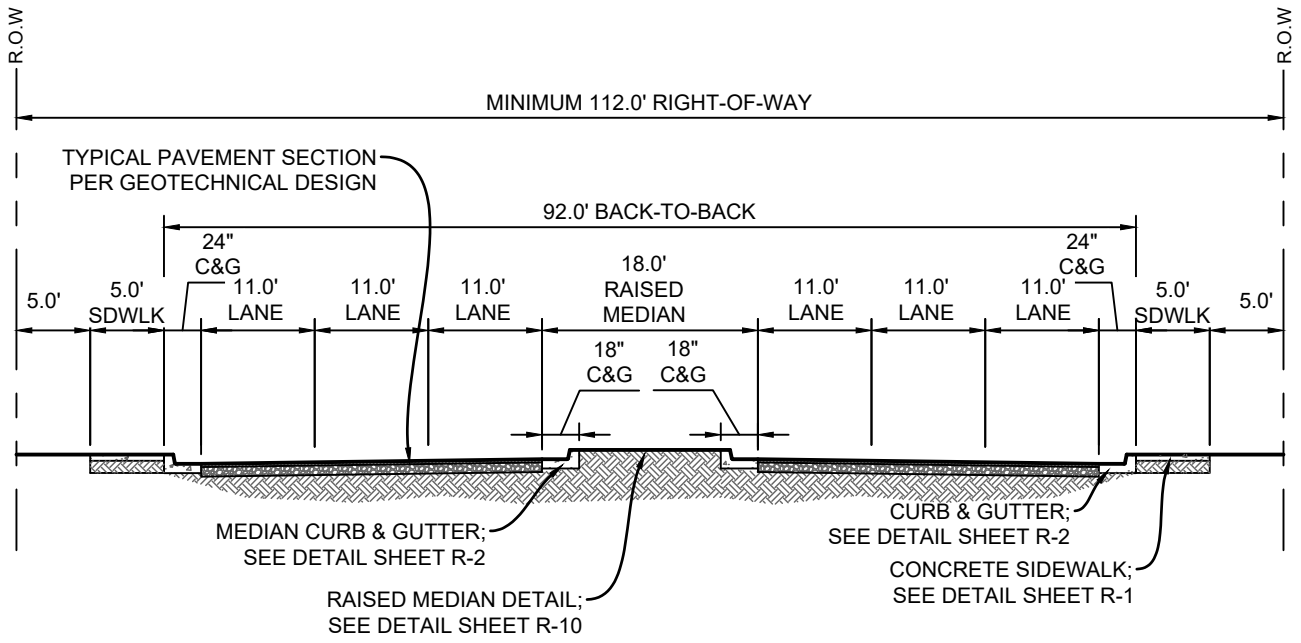
MINOR ARTERIAL STREET



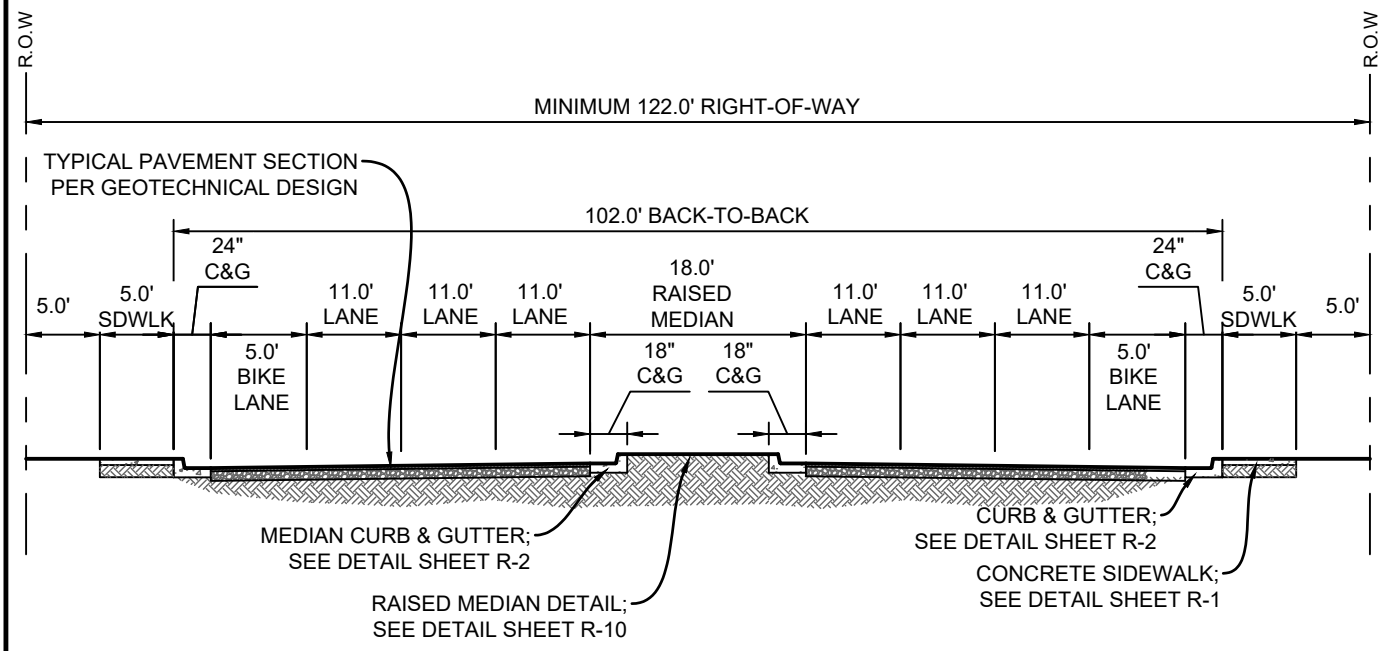
MINOR ARTERIAL STREET w/ BIKE LANES

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MINOR ARTERIAL STREET DETAIL	REVISION DATE: ---- SHEET NO: R-8



MAJOR ARTERIAL STREET



MAJOR ARTERIAL STREET w/BIKE LANES

NOTES:

1. THE MEDIAN MAY BE DESIGNED TO PERMIT A SWALE FOR DRAINAGE CONVEYANCE.

2. RAISED MEDIAN MAY CONTAIN A 12-FOOT DEDICATED LEFT TURN LANE.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

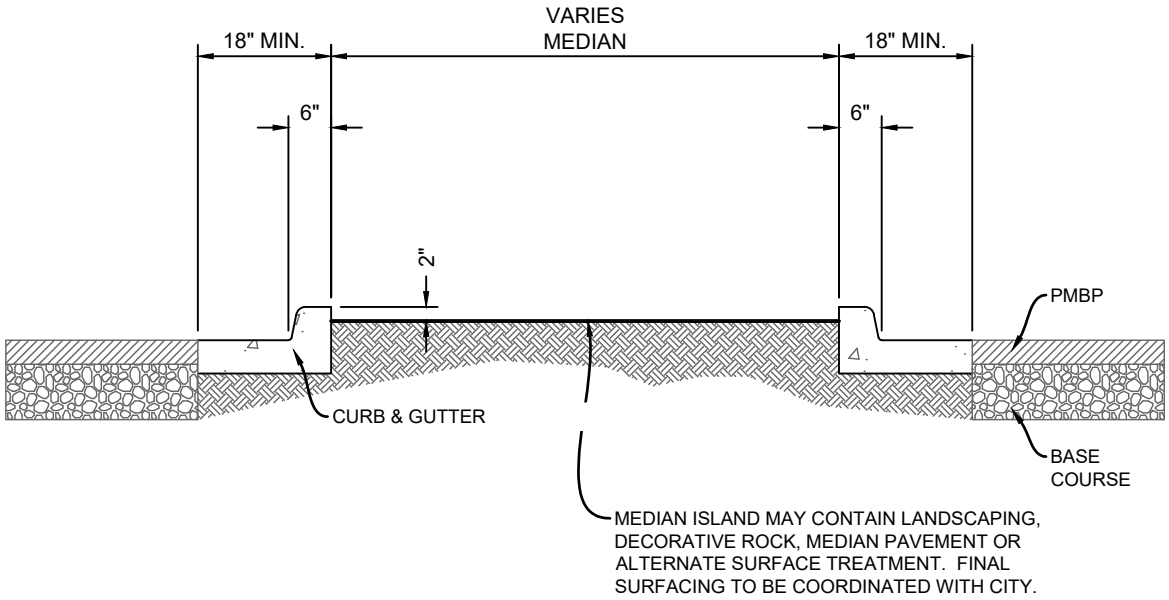
MAJOR ARTERIAL STREET DETAIL

ISSUE DATE: JUNE 14, 2022

RESOLUTION NO: 2022-28

REVISION DATE: ----

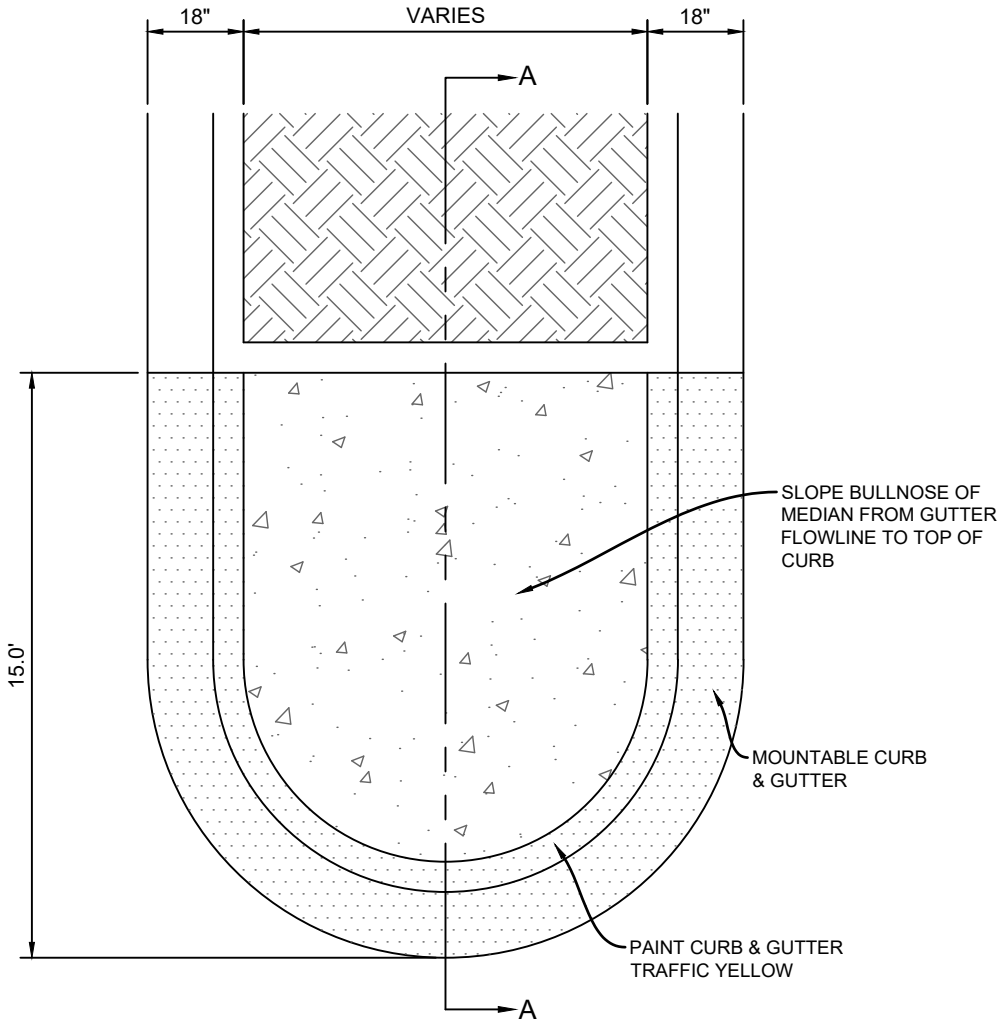
SHEET NO: R-9



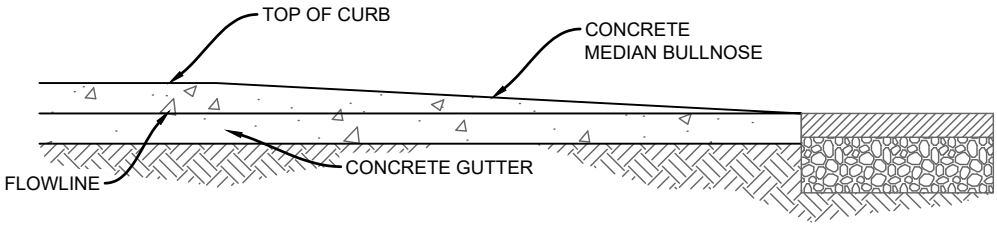
RAISED MEDIAN DETAIL

SCALE: NOT TO SCALE

ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	RAISED MEDIAN DETAIL	REVISION DATE: ----
		SHEET NO: R-10



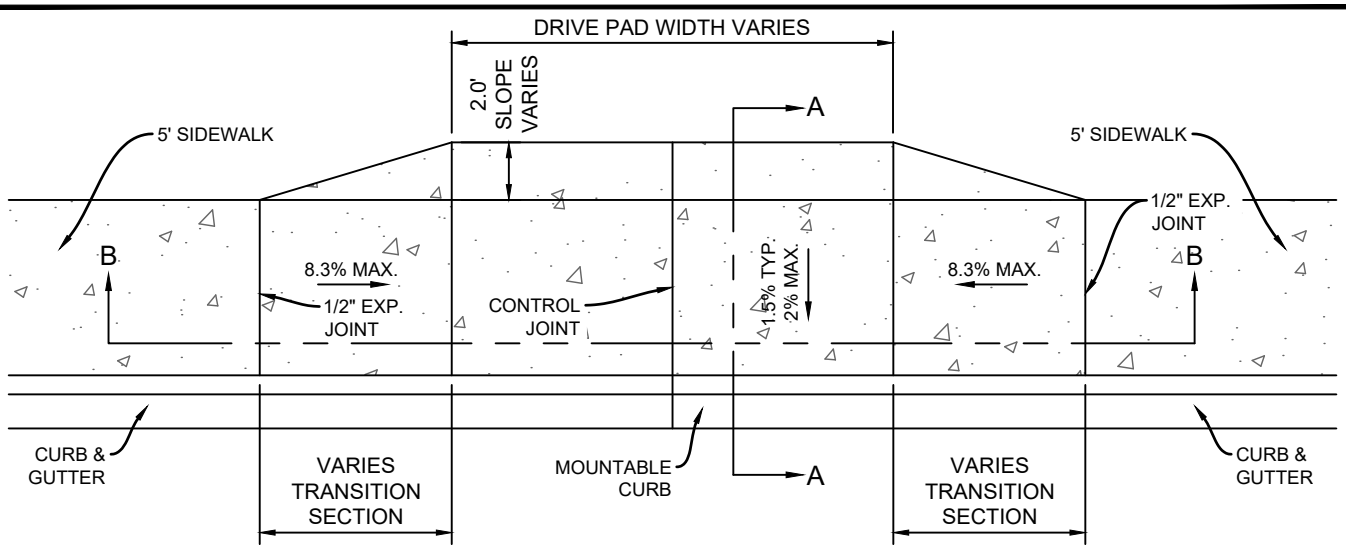
PLAN VIEW



SECTION VIEW

SCALE: NOT TO SCALE

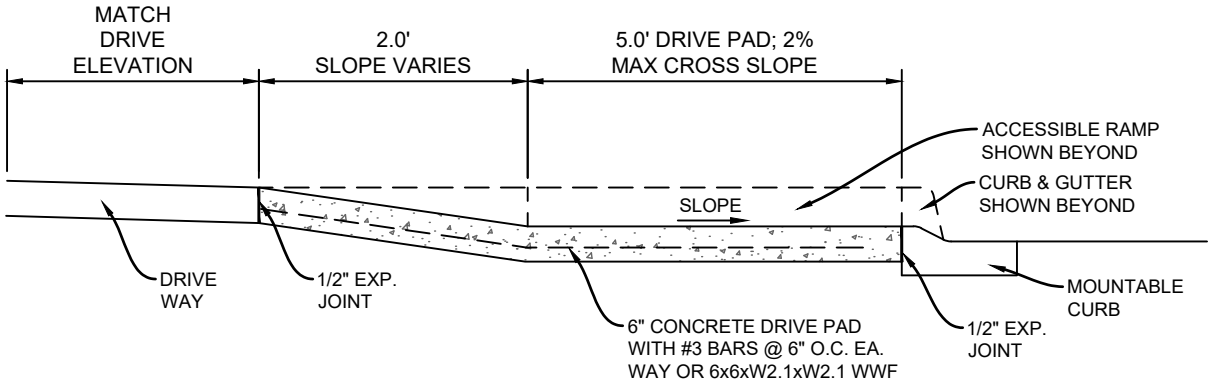
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	MEDIAN TERMINATION DETAIL	REVISION DATE: ----
		SHEET NO: R-11



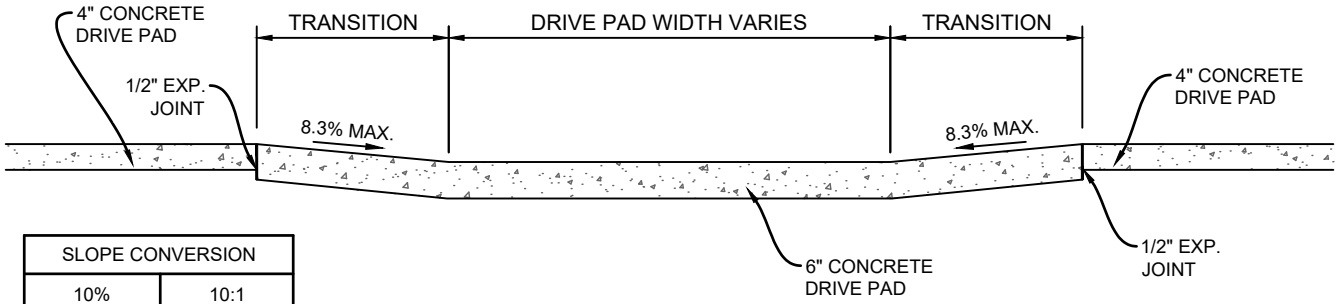
PLAN VIEW

NOTES:

PROVIDE 1/2" BITUMINOUS EXPANSION BOARD WHERE DRIVE PAD APRON ABUTS SIDEWALK, CURB AND GUTTER (TYP.)



SECTION A-A



SLOPE CONVERSION	
10%	10:1
8.3%	12:1
2%	50:1

SECTION B-B

NOTES: SUBGRADE PREPARATION AND 6" BED COURSE SHALL BE INCIDENTAL TO DRIVEPAD CONSTRUCTION.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

DRIVE PAD DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: R-12

D3-1 (DOUBLE SIDED)

DIMENSIONS VARY

GREEN

TYPE OF MOUNTING	TYPE OF STREET	SPEED LIMIT	INITIAL UPPER-CASE	LOWER-CASE
POST-MOUNTED	MULTI-LANE	MORE THAN 40 MPH	8 INCHES	6 INCHES
POST-MOUNTED	MULTI-LANE	40 MPH OR LESS	6 INCHES	4.5 INCHES
POST-MOUNTED	2-LANE	ALL SPEED LIMITS	6 INCHES	4.5 INCHES

ON LOCAL TWO-LANE STREETS WITH SPEED LIMITS OF 25 MPH OR LESS, 4-INCH INITIAL UPPER-CASE LETTERS MAY BE USED.

1. ALL REGULATORY, WARNING, SPECIAL, AND GUIDE SIGNS SHALL COMPLY WITH COLOR, LETTER SPACING, LETTER SHEETING AND BACKGROUND SHEETING REQUIREMENTS INDICATED ON THIS SHEET AND THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE STANDARD HIGHWAY SIGNS AND MARKINGS BOOK.

2. ALL NEW WARNING AND REGULATORY SIGNS SHALL BE 0.080 GAUGE ALUMINUM PANEL.

3. ANTI-GRAFFITI COATING SHALL BE APPLIED ON ALL REGULATORY, WARNING, GUIDE, AND OTHER SPECIAL SIGNS.

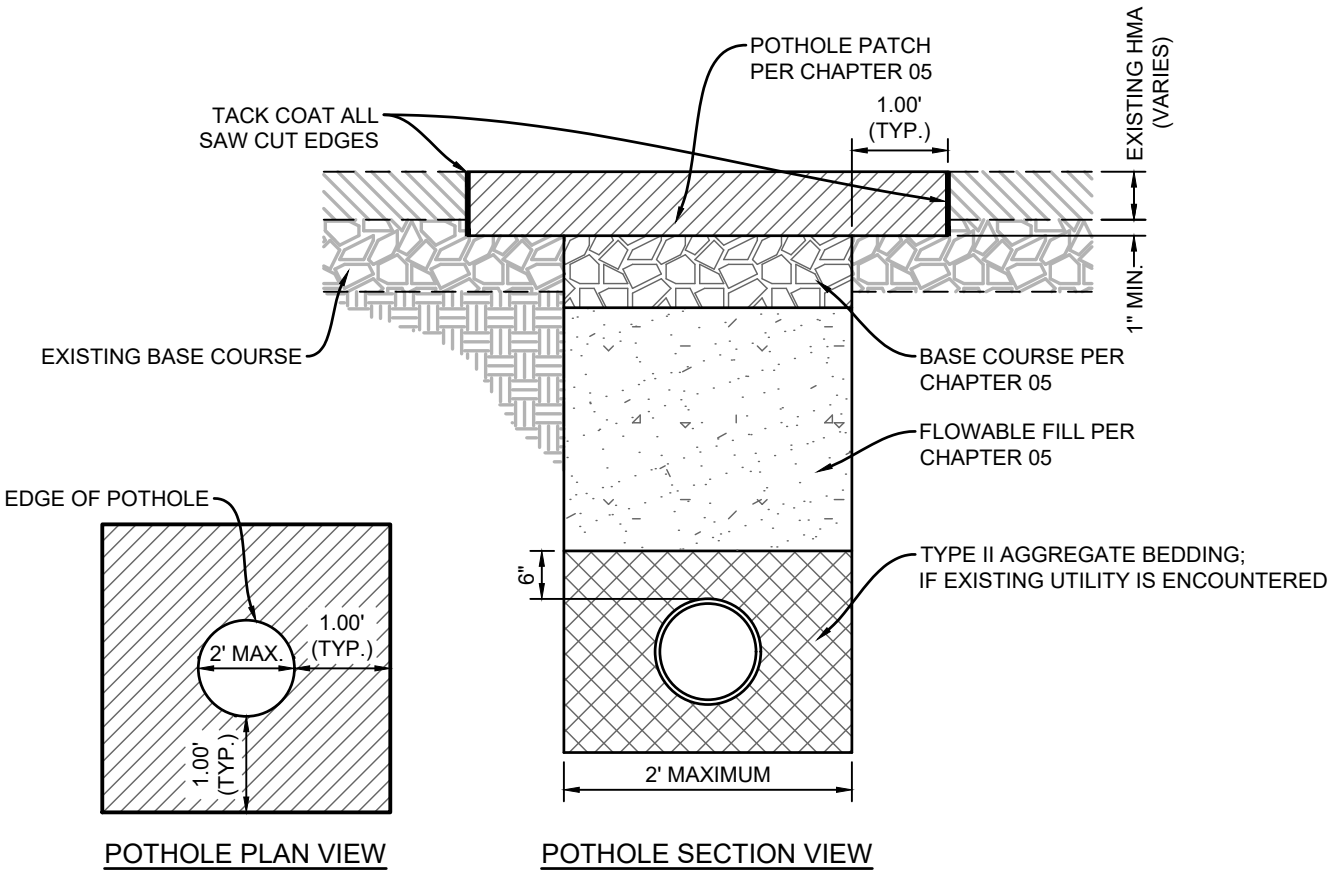
4. EACH SIGN FACE SHOWN ON THE PLANS SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION) FOR PROPER ARRANGEMENT, SPACING OF LETTERS, LETTER HEIGHT, SYMBOLS AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN PER PLANS.

5. ALL SIGNING HARDWARE, INCLUDING BRACKETS (FOR MOUNTING ALL STREET NAME SIGNS, W1-8-18 BACK-TO-BACK MOUNTING, ETC.) ARE CONSIDERED INCIDENTAL TO SIGN INSTALLATION. NO ADDITIONAL PAYMENT SHALL BE MADE THEREFORE.

6. CONTRACTOR SHALL FIELD VERIFY ALL SIGNING INFORMATION, TEXT AND LOCATIONS PRIOR TO FABRICATION AND INSTALLATION. NEW SIGN LOCATIONS SHALL BE APPROVED BY THE PROJECT MANAGER.

7. WIDTH DIMENSION ON D3-1 (STREET NAME SIGNS) VARIES BASED ON NUMBER OF LETTERS AND FONT REQUIREMENTS AS PROVIDED IN THE MUTCD-LATEST EDITION.

SCALE: NOT TO SCALE



POTHOLE PLAN VIEW

POTHOLE SECTION VIEW

GENERAL NOTES:

1. HOT MIX ASPHALT PATCH SHALL EXTEND A MINIMUM OF ONE-FOOT OUTSIDE THE POTHOLE ON ALL SIDES. HOT MIX ASPHALT PATCH SHALL SHALL EQUAL THE EXISTING HMA THICKNESS PLUS ONE-INCH (MINIMUM OF 4" THICKNESS).

2. NEW BASE COURSE SHALL BE A MINIMUM OF EIGHT-INCHES (8") IN THICKNESS.

3. FLOWABLE FILL SHALL BE PLACED FROM THE BOTTOM OF POTHOLE (IF EXISTING UTILITY IS NOT ENCOUNTERED) OR FROM SIX-INCHES (6") ABOVE THE UTILITY TO THE BOTTOM OF FLEXIBLE PAVEMENT SECTION (BOTTOM OF BASE COURSE).

4. THE WALLS OF THE POTHOLE SHALL BE COMPLETED AS VERTICAL AS POSSIBLE; SLUFFING OR CAVING OF THE WALLS SHOULD BE OVERCOME THROUGH THE USE OF THE FLOWABLE FILL AS BACKFILL.

5. TOP OF HOT MIX ASPHALT PATCH SHALL MEET AND MATCH EXISTING ADJACENT SURFACE COURSE AND PROVIDE A SMOOTH RIDING SURFACE.

6. POTHOLE(S) SHALL BE COMPLETED WITH NEAT LINE SAW CUTTING OF EXISTING ASPHALT; ALL EXPOSED EDGES SHALL RECEIVE TACK COAT PRIOR TO PATCH PLACEMENT.

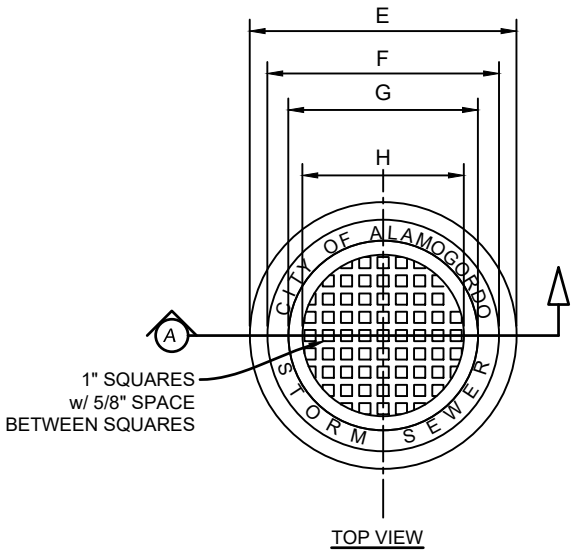
7. POTHOLES SHALL BE NO LARGER THAN TWO-FEET (2') IN DIAMETER AND SPACED NO CLOSER THAT THREE-FEET (3') FROM THE RESULTING ASPHALT PATCH.

8. IF A POTHOLE HOT MIX ASPHALT PATCH IS LESS THAN TWO-FEET (2') FROM AN EXISTING CONCRETE IMPROVEMENT (VALLEY GUTTER, CURB & GUTTER, ETC.) THAN THE ASPHALT REMOVAL AND RESULTING PATCH SHALL BE COMPLETED TO THE EXISTING CONCRETE IMPROVEMENT.

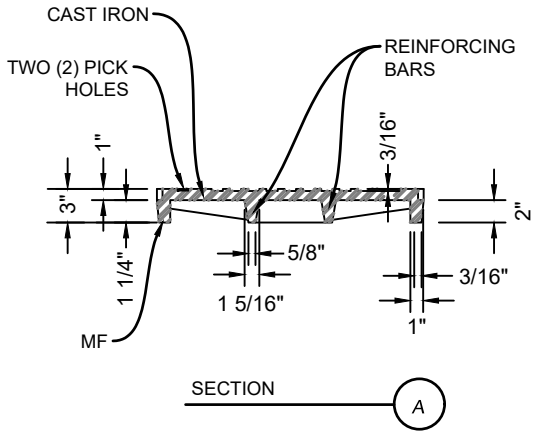
SCALE: NOT TO SCALE

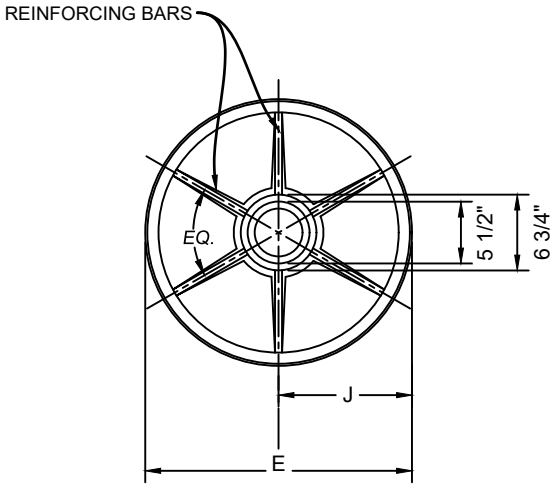
ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	TYPICAL POTHOLE PATCH DETAIL	REVISION DATE: ----
		SHEET NO: R-14

MANHOLE RING	48" MANHOLE	72" MANHOLE
WEIGHT	175 LBS.	310 LBS.
E	23 3/4"	31 1/4"
F	20 5/8"	28 1/8"
G	16 7/8"	24 3/8"
H	14 3/8"	21 7/8"
J	11 7/8"	15 5/8"



TOP VIEW





BOTTOM VIEW

NOTE:

1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.

TYPICAL MANHOLE LID DETAIL

GENERAL NOTES:

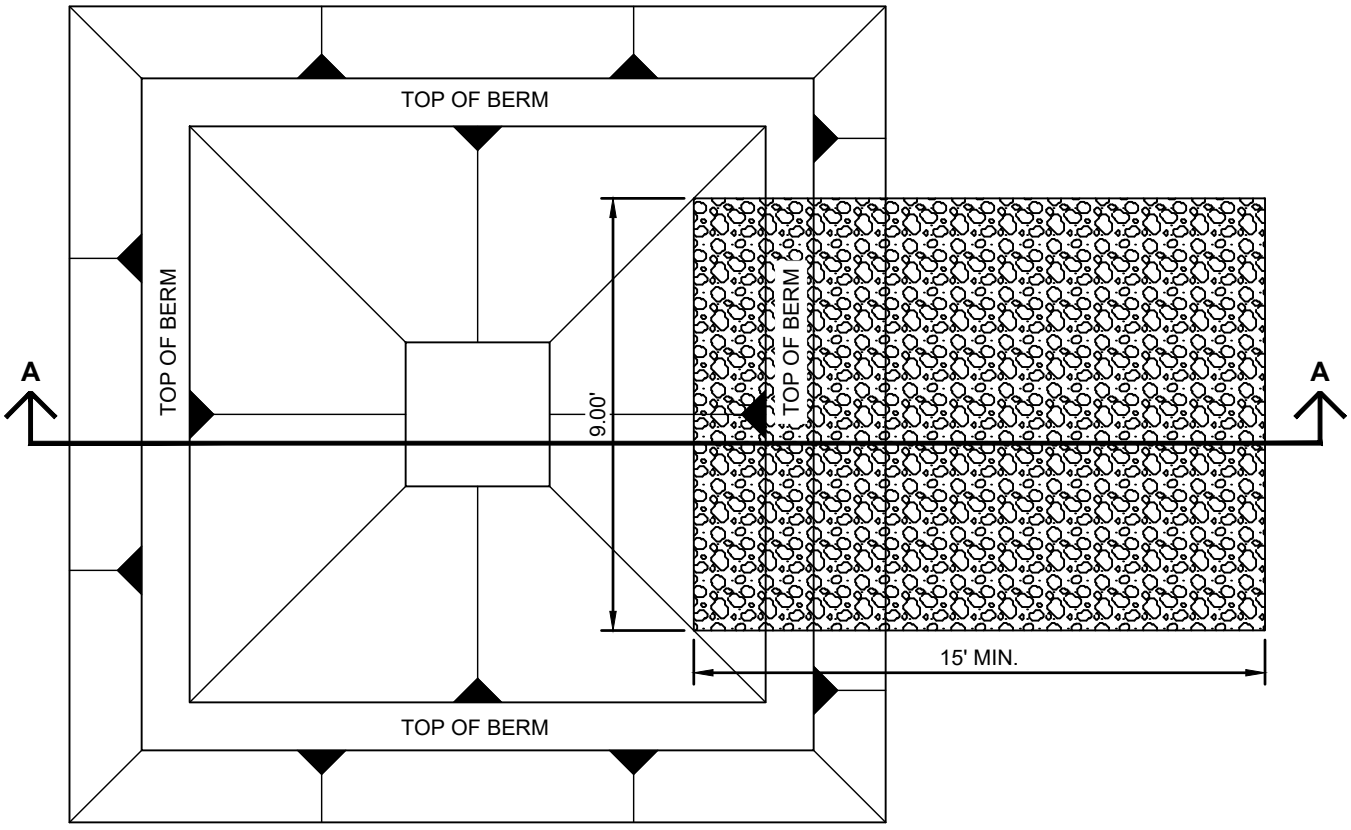
1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED AND BE FREE OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.
3. MANHOLE RING AND LID SHALL BE DESIGNED FOR H-20 WHEEL LOADING.
4. MINIMUM TOTAL WEIGHT (RING AND LID) SHALL BE 300 LBS.
5. TOP OF LID MAY VARY FROM DETAIL SHOWN. LID SHALL BE MARKED FOR APPROPRIATE UTILITY.

SCALE: NOT TO SCALE

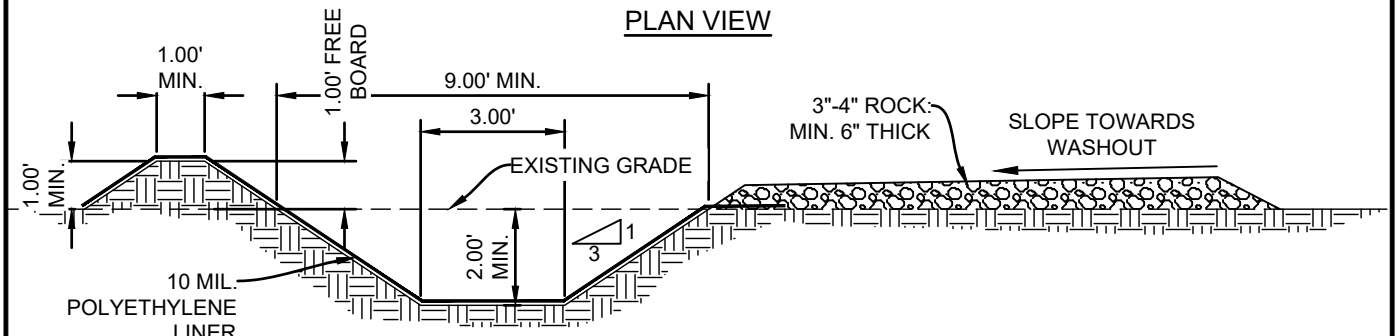
CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

STORM SEWER MANHOLE COVER DETAIL

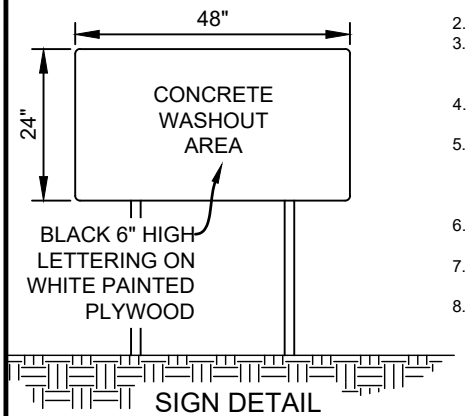
ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: R-15



PLAN VIEW



SECTION A-A



SIGN DETAIL

NOTES

1. TEMPORARY CONCRETE WASHOUT AREA(S) SHALL BE LOCATED A MINIMUM OF 50-FEET FROM SENSITIVE AREAS INCLUDING OPEN DRAINAGE FACILITIES OR WATER SOURCES.
2. INSTALL IDENTIFICATION SIGN WITHIN 30-FEET OF TEMPORARY CONCRETE WASHOUT AREA.
3. DIMENSIONS SHOWN ARE MINIMUM REQUIRED. SHOULD THE NATURE OF THE CONSTRUCTION REQUIRE A LARGER WASHOUT OR ADDITIONAL TEMPORARY CONCRETE WASHOUT AREAS THEY SHALL BE CONSTRUCTED TO THESE STANDARDS.
4. CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY & AFTER HEAVY RAIN EVENTS TO CHECK FOR DAMAGE OR CAPACITY LIMITATIONS.
5. WHEN THE TEMPORARY CONCRETE WASHOUT AREA REACHES 75% CAPACITY, THE WASH WATER SHALL BE VACUUMED OFF OR ALLOWED TO EVAPORATE. THEN WHEN THE REMAINING CEMENTITIOUS SOLIDS AREA HARDENED, THEY SHOULD BE REMOVED, RECYCLED, AND/OR DISPOSED OF AN ENVIRONMENTALLY ACCEPTABLE MANNER.
6. BEFORE ANTICIPATED RAIN EVENTS, THE WASH WATER LEVEL SHALL BE LOWERED OR THE AREA COVERED TO PREVENT OVERFLOWS/SPILLS DURING THE STORM EVENT.
7. AT THE CONTRACTOR'S OPTION; TEMPORARY WASH FACILITIES CAN BE REUSABLE PREFABRICATED FACILITIES THAT ARE MAINTAINED AS DESCRIBED HERE.
8. AT THE COMPLETION OF ALL CONCRETE CONSTRUCTION, THE CONTRACTOR SHALL REMOVE & DISPOSE OF THE REMAINING MATERIALS & WASH WATER WITHIN THE TEMPORARY CONCRETE WASHOUT AREA. THE LINER SHALL BE REMOVED & DISPOSED OR REUSED AT THE CONTRACTOR'S DISCRETION. SHOULD THE UNDERLYING SOIL BE FREE FROM WASH WATER LEACHING, THE PERIMETER BERMS SHALL BE USED TO BACKFILL THE TEMPORARY FACILITY AND RETURN THE AREA TO ITS PRECONSTRUCTION CONDITION.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

TEMORARY CONCRETE WASHOUT AREA DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: R-16

CHAPTER 06 - SANITARY SEWER SYSTEM

ARTICLE 06-01 – GENERAL

Article 06-01-010 Sanitary Sewer Materials

Item Description	Size or Drawing	Reference Standard	Manufacturer
Schedule 40 PVC Pipe (Sanitary Service Line)	4" & 6"	ASTM D1785 – PVC Standard for Schedule 40, 80, and 120 ASTM D2564 – Solvent Weld PVC ASTM D2235 – Solvent Weld for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe	--
SDR 35 PVC Pipe (PS 46 PSI)	8" – 15"	ASTM D3034 – Pipe Standard ASTM D1784 – Pipe Compound ASTM F477 – Gasket Standard ASTM D2321 - Installation	--
SDR 26 PVC Pipe (PS 115 PSI)	8"-15"	ASTM D3034 – Pipe Standard ASTM D1784 – Pipe Compound ASTM F477 – Gasket Standard ASTM D2321 - Installation	--
PS46 PVC Pipe	18"-36"	ASTM F679 – Pipe Standard ASTM D1784 – Pipe Compound ASTM F477 – Gasket Standard ASTM D2321 - Installation	--
PS115 PVC Pipe	18"-36"	ASTM F679 – Pipe Standard ASTM D1784 – Pipe Compound ASTM F477 – Gasket Standard ASTM D2321 - Installation	--
Manhole Frames and Covers (H-20 Load Rated)	S-2 S-3	AASHTO Designation M306 ASTM A48 – Cl 30 or Stronger	--
Precast Manholes	S-6 S-11	ASTM C478 AASHTO M199 NMDOT Section 517 and 662	Western Precast Concrete, Inc. or Approved Equal
Mastic Gasket for Precast Sections	S-6 S-11	AASHTO M198 ASTM C990	Ram-Nek Hamilton Kent or Approved Equal
Concrete Coating	S-6 S-11	ASTM D7234	Raven 175 Raven 405 or Approved Equal
Glass Fiber Reinforced Polyester (FRP) Manholes	S-17	ASTM D3753	LFM Fiberglass Structures or Approved Equal

Detectable Warning Tape	S-1	ASTM D2103	--
Trace Wire Open Trench Installation	#12 AWG	ASTM B1010 ASTM D1248	Copperhead Industries or Approved Equal
Trace Wire Directional Drilling	#12 AWG	ASTM B1010 ASTM D1248	Copperhead Industries or Approved Equal
Trace Wire Slip Lining/Bursting	7x7 Strand	ASTM B1010 ASTM D1248	Copperhead Industries or Approved Equal
Trace Wire Termination/Access Boxes	S-4 S-6 S-18	Per Manufacturer Instructions	Copperhead Industries or Approved Equal
Trace Wire Connectors	S-18	Per Manufacturer Instructions	Copperhead Industries or Approved Equal
Trace Wire Grounding	S-4 S-6	Per Manufacturer Instructions	Copperhead Industries or Approved Equal
Inserta Tee	S-14 S-15	--	Inserta Tee or Approved Equal
Repair Couplings	--	--	Fernco or Approved Equal
Inflow Protectors	S-13	--	LFM Fiberglass Structures or Approved Equal
Casing Pipe	S-16	ASTM A139 Grade B Cooper E-80	--
Casing End Seals	S-16	--	T.D. Williamson, Inc Z-Seals or Approved Equal
Casing Spacers	S-16	--	Advance Products & Systems or Approved Equal

Article 06-01-020 Work Description

(a) The Work covered by this specification consists of furnishing and installing all of the sanitary sewer pipe, fittings, and appurtenances required to tie into the existing sanitary sewer system.

(b) The Contractor shall have the responsibility for furnishing the exact lengths of pipe, fittings, adapters, and couplings for proper "make-up" and connections of the pipes.

Article 06-01-030 Location

Sanitary sewer main lines may be placed either in the streets or alleys. In either case the sanitary sewer line shall be located on the south side of East-West streets or alleys, and on the east side of North-South streets or alleys, at approximately five-feet (5') from the centerline of the street or alley.

Article 06-01-040 Depth of Sanitary Sewer Main Lines

Sanitary sewer main lines shall be a minimum of three-feet (3') below the finish surface of the street or alley. The depth shall be measured from the top of the pipe to the finish surface of the street or alley.

Article 06-01-050 Sanitary Sewer Line Sizes

(a) Gravity sanitary sewer mains shall be eight inches (8") in diameter minimum. The City should be consulted for area flow conditions and volumes for final determination of required main sizes.

(b) Sanitary sewer service lines shall be four inches (4") in diameter minimum. Actual sewer line size shall be based on actual flow conditions.

Article 06-01-060 Manholes

(a) Manholes shall be required as follows:

(1) At a maximum horizontal spacing of five-hundred feet (500').

(2) Where two or more sanitary sewer mains converge.

(3) Where the sanitary sewer alignment changes bearing direction.

(4) Minimum inner diameter of four feet (4').

(b) Grade differentials of more than twenty-four inches (24") between the highest incoming and outgoing sanitary sewer main lines require construction of a drop manhole; Standard Detail S-11.

(c) Where a sanitary sewer main line passes through a manhole in a straight line, a drop between incoming and outgoing inverts will not be required. If a horizontal deflection in the sanitary sewer alignment is proposed at the manhole, a minimum of one-tenth of a foot (0.10') between inverts will be required when the angle is between 0 and 45-degree (0° - 45°). If the angle of deflection is greater than 45-

degree (45°) a minimum of two-tenths of a foot (0.20') shall be held between incoming and outgoing inverts, such as a 90-degree (90°) bend. Where more than two pipes enter a common manhole, all incoming lines shall be a minimum of two-tenths of a foot (0.20') above the outgoing lines.

(d) All manholes, regardless of type, shall have inflow protectors, LFM Fiberglass Structures or City approved equivalent complete with lift strap and gas relief valve.

Article 06-01-070 Water and Sanitary Sewer

Sanitary sewer main lines and potable water transmission/distribution main lines shall be laid parallel to each other and parallel to the street centerline when both are installed in the same street. Sanitary sewer main lines shall be placed within permitted streets only. If both are laid in the street, a minimum distance between the lines shall be ten-feet (10') horizontally, and the water transmission/distribution main line shall be at least two-feet (2') higher than the sanitary sewer main line. Where the water and sanitary sewer main lines cross each other, the water main line shall be a minimum of two-feet (2') higher than the sanitary sewer main line or the sanitary sewer line shall be concrete encased a minimum of ten-feet (10') on each side of the water line, per the detail W-11. If the water transmission/distribution main line crossing occurs below the sanitary/storm drain sewer the sewer main line shall be encased per detail W-11.

ARTICLE 06-02 – SANITARY SEWER PIPE

Article 06-02-010 Materials

(a) PVC sewer pipe and fittings shall be gravity sewer pipe, ASTM D 3034, SDR 35. All elastomeric gaskets for PVC pipe shall comply with ASTM F 477. PVC sewer pipe and fittings shall meet the requirements of ASTM 3034, ASTM D 3212, and Uni-Bell UNI-B-4.

(b) A certification from the manufacturer shall be furnished to the City attesting compliance with appropriate ASTM Standards.

(c) All PVC pipes shall be coded to eliminate future confusion and prevent accidental damage to or interruption of the water and sanitary sewer facilities. Detectable marking tape shall be installed as prescribed in these standards.

(d) All pipes shall have a home mark on the spigot end to indicate proper penetration when joint is completed. The sockets and/or spigot configurations for the fittings and couplings shall be compatible to the pipe.

(e) Pipe with gasketed joints shall be manufactured with a socket configuration that will prevent improper installation of the gasket and will ensure that the gasket

remains in place during joining operations. The gasket shall be manufactured from a synthetic elastomer material and shall conform to the requirements of ASTM F 477.

(f) Solvent cement joints shall be limited to four (4) inch diameter or six (6) inch diameter plastic pipe, which will be used exclusively for sanitary sewer service lines. The solvent cement shall be compatible to the pipe manufacturer's product and shall conform to the requirements of ASTM D 2564 for PVC pipe and ASTM D 2235 for ABS pipe.

(g) When PVC pipe is stored outside and exposed to prolonged periods of sunlight, an obvious discoloration of the pipe can occur. This is an indication of reduced pipe impact strength, and any particular length of pipe that is discolored will be rejected. All pipe rejected by the City will be removed from the job site by the Contractor.

(h) The materials in plastic pipe shall comply with ASTM D 1784.

(i) All plastic pipes shall be push-on, flexible elastomeric gasketed, except plastic pipe used for sanitary sewer service lines, which will be joined per manufacturer's recommendations.

(j) Polyvinyl chloride (PVC) pipe shall meet the requirements of ASTM D 3034 for pipe sizes eight (8) inch in diameter through fifteen (15) inches in diameter. Minimum wall classification shall be SDR 35 or SDR 26, as required. Only solid wall pipe will be acceptable.

(k) PVC pipe used for sanitary sewer service lines shall conform to ASTM D 2665 for Schedule 40 pipe, or ASTM 3034 for SDR 35 or SDR 26.

(l) Pipe for this purpose shall be solvent welded joined, per manufacturer's recommendations, or gasketed joints conforming to ASTM F 477.

ARTICLE 06-03 – SANITARY SEWER APPURTENANCES

Article 06-03-010 Manhole Bases

Manhole Bases: Manhole bases poured-in-place shall be Class A concrete, 3,000 psi, and reinforced per the Standard Detail S-6.

Article 06-03-020 Precast Manholes

(a) Manhole Sections: Manhole riser sections shall be precast concrete sections, precast concentric cone sections and precast concrete grade rings, in conformance

with ASTM Designation C 478, latest revision. All joints of the manhole sections shall be sealed with Ram-Nek or approved equal. See Standard Detail: S-6.

(b) The entirety of manholes exposed surfaces shall be coated, prior to placement into service, to aide in corrosion and impact resistance. Manholes shall be coated with Raven 175 (prime coat) and Raven 405 (2^{nd} coat) to 100 mil total dry thickness; alternate coating systems shall be pre-approved by the City.

(c) Manhole Covers: Manhole covers shall be cast iron frame and solid lid, ASTM Designation A 48, Class 30 or stronger. The frames and lids shall be machined to provide a non-rocking bearing surface and uniform clearance around the edge of the lid. The lids shall have the word "SANITARY SEWER" embossed on them, and each lid shall have two (2) lifting lugs or pick holes. See Standard Details: S-2 and S-3.

(d) Manhole Collars: Manhole collars shall be poured-in-place with Class A concrete, 3,000 psi, and reinforced per the detail S-4. Trace wire test stations shall be placed integral with manhole collars. See Standard Detail S-4.

Article 06-03-030 Glass Fiber Reinforced Polyester (FRP) Manholes

(a) Fiberglass reinforced manholes used for sanitary sewer systems shall consist of commercial grade polyester resin and meet or exceed the requirements of ASTM D3753. Manholes shall be manufactured by LFM Fiberglass Structures or City approved equivalent. The inner surface shall consist of a resin layer capable of resisting corrosive conditions, such as exposure to hydrogen sulfides. Each manhole shall be designed for an H-2) load rating, being water-tight and including a solid FRP anti-flotation bottom and fully enclosed fiberglass bench and invert area.

(b) Concrete bench and invert shall be coated, prior to placement into service, to aide in corrosion and impact resistance. The coating shall consist of Raven 175 (prime coat) and Raven 405 (2^{nd} coat) to 100 mil total dry thickness; alternate coating systems shall be pre-approved by the City.

(c) Manhole Covers: Manhole covers shall be cast iron frame and solid lid, ASTM Designation A 48, Class 30 or stronger. The frames and lids shall be machined to provide a non-rocking bearing surface and uniform clearance around the edge of the lid. The lids shall have the word "SEWER" embossed on them, and each lid shall have two (2) lifting lugs or pick holes. See Standard Details: S-2 and S-3.

(d) Manhole Collars: Manhole collars shall be poured-in-place with Class A concrete, 3,000 psi, and reinforced per the detail S-4. Trace wire test stations shall be placed integral with manhole collars. See Standard Detail S-4.

Article 06-03-040 Cleanouts

(a) Cleanouts shall consist of a cast-iron frame and cover and boot. After installation of the boot, a square concrete block twenty-four by twenty-four inches (24”x24”) by six-inches (6”) thick shall be placed level with the top of the boot, reinforced with #3 bars on ten-inches (10”) center each way and 3,000 PSI concrete. Cleanouts shall be located so that two hundred fifty (250) feet of sanitary sewer rod can reach any point in the line. Dead end main lines shall be terminated with a manhole.

(b) A cleanout should be placed on all sanitary sewer service lines where they leave public right-of-way or easement on all new developments. The trace wire on sanitary sewer service lines shall be terminated above ground at this cleanout.

Article 06-03-050 Flexible Markers

Where sanitary sewer main lines travel across open country and not under pavement, marking posts shall be placed at two hundred- and fifty-foot (250’) intervals, including every change in alignment direction. Marking posts shall be a minimum of four inches (4”) wide by sixty inches (60”) high, APWA green in color. Each marking post shall read “Warning Sewer Pipeline”.

Article 06-03-060 Fats, Oils, Grease (FOG) Prevention Program

In accordance with City Ordinance Number 1619: The purpose of this article is to protect the health, safety, and welfare of the Citizens of Alamogordo through setting forth uniform requirements of the Publicly Owned Wastewater Treatment System to capture and dispose of (FOG) and enables the City to comply with all applicable State and Federal Laws, including the Clean Water Act, 33 U.S.C. & 1251, et seq.; and General Pretreatment Regulations, Title 40 C.F.R. Part 403.

(a) Applicability: All Commercial Businesses in the City of Alamogordo, whose business involves preparation and sale of any product that has the potential to introduce FOG into the City’s Publicly Owned Wastewater Treatment System (POWTS).

(1) Shall apply to all non-domestic users of the POWTS.

(2) Grease interceptors shall not be required for residential users.

(3) Shall apply to both new and existing facilities generating fats, oils, and grease as a result of food manufacturing, processing, preparation, or food service shall install, use, and maintain appropriate grease interceptors as

required. These facilities include, but are not limited to, restaurants, food manufacturers, food processors, hospitals, hotels and motels, nursing homes, and any other facility preparing, serving, or otherwise making any food available for consumption.

(4) No user may intentionally or unintentionally allow the direct or indirect discharge of fats, oils, or greases of animal or vegetable origin into the POWTS in such amounts as to cause interference with the collection and treatment system, or as to cause pollutants to pass through the treatment works into the environment.

(5) All Commercial Businesses shall be registered on the City Registry for tracking FOG areas and pumping companies.

(b) Sizing, Installation, and Maintenance Requirements

(1) All grease interceptors shall be properly sized. Hydromechanical grease interceptors shall be sized in accordance with Standard PDI-G 101 *Testing and Rating Procedure for Hydromechanical Grease Interceptors with Appendix of Installation and Maintenance* (Latest Edition) as developed by the Plumbing and Drainage Institute (PDI). Gravity interceptors shall be sized by a professional engineer licensed in the State of New Mexico to allow the minimum retention time of 30 minutes. In new businesses that will have a minimum impact on the City's sewer infrastructure a minimum of a 50-gallon grease interceptor shall be required.

(2) Installation, maintenance, monitoring, and recording shall meet the requirements outlined in City Ordinance Number 1619.

Article 06-03-070 Control Manholes

(a) The Owner of any private property serviced by a building sewer carrying industrial liquid wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of wastes.

(b) Such manhole, when required, shall be accessibly and safely located, constructed in such a manner as to prevent infiltration of ground and surface waters, and should be constructed in accordance with plans approved by the City. The manhole shall be installed by the Owner at their expense, and shall be maintained, by Owner, so as to be safe and accessible at all times.

ARTICLE 06-04 – CONSTRUCTION REQUIREMENTS

Article 06-04-010 Trench Excavation

(a) Pipe trenches shall be excavated along straight lines to the dimensions as required in the Contract Documents.

(b) All trenching work shall be done in a safe manner, trenches shall be rendered safe for the workmen by complying with the applicable safety standards, and by practicing safety measures consistent with current OSHA Trenching and Excavation Safety Standards and good construction methods.

(c) All excavations shall be adequately barricaded and secured in accordance with the current New Mexico Department of Transportation Standard Specifications. Flashing lights and barricades shall be employed along open excavations and trenches to protect the public from potential hazards; barricades and advance warning devices shall comply with MUTCD Standards as well as any special direction required by the City.

(d) Unless trench banks are cut back on a stable slope, the trenches shall be braced as necessary to prevent caving or sliding, to provide protection for the workmen and the pipe. All trenching shall comply with OSHA Trenching and Excavation Safety Standards.

(e) When over-excavation occurs beyond the limits indicated by the trench details, the over-excavated area shall be refilled with suitable material at optimum moisture and compacted to ninety-five (95) percent density per ASTM D 1557.

(f) The maximum amount of open trench permitted in any one location shall be 100-feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater, unless otherwise approved by the City. A trench shall be considered open until backfilled to the top of subgrade.

(g) Excavation of pipe trenches for flexible and rigid pipe is as required in the table below. In all cases, the trench shall be wide enough to allow for the compaction equipment.

Table 4: Minimum Trench Widths

Flexible Pipe	Minimum shall be not less than 1.5 times the pipe outer diameter plus twelve inches (12”)
Rigid Pipe	Minimum shall be not less than the outside pipe diameter times 0.33

(h) When trench is to be backfilled with flowable fill, the minimum trench width may be reduced to the pipe diameter plus twelve inches (12") and enough room needed to allow for the proper placement of the flowable fill using tools to "spade" the material under the pipe haunches.

(i) Maximum Trench Width: the maximum width of the trench shall be determined by the Contractor based on the method and means for the installation. However, trench width shall not exceed the width of a ride-along compactor plus two feet (2') when working alongside the pipe or culvert.

(j) Street Crossings

(1) Trenches crossing streets shall be completely backfilled immediately after pipe, wire, or conduit installation and a temporary or permanent asphalt patch or flowable fill cap shall be installed as directed by the City to protect the integrity of the trenches within the roadway limits from excessive moisture. Under no circumstance shall a trench remain un-backfilled for longer than 30 calendar days.

(2) Substantial bridging, properly anchored, capable of carrying the vehicle loading, in addition to adequate trench bracing, shall be used to bridge across trenches at street crossings where trench backfill, and temporary patches have not been completed during regular working hours as directed and approved by the City. Safe and convenient passage for pedestrians and access to all properties shall be provided.

(k) Disposal of Unsuitable Excavated Materials

(1) Excess material and excavated material unsuitable for backfill shall be removed from the Project by the end of each working day unless otherwise approved by the City and disposed of by the Contractor in an environmentally responsible manner at no cost to the Project.

(2) When unsuitable material is encountered that is not shown in the Contract Documents, the City shall order the removal of the material by the Contractor and issue a field order to change the contract price due to the Contractor for removal of the materials.

(l) Portable trench shields or boxes that provide a movable safe working area for installing pipe may be used for the installation of the pipe. After placing the pipe in the trench, backfill material shall be placed in lifts and the shield shall be lifted to allow for the backfill material to be placed for each lift, trench wall to trench wall.

(m) Transition Installations: When differential conditions of pipe support might occur, such as transitions from manholes to trench, a transition support region shall be provided to ensure uniform pipe support and preclude the development of shear, or other concentrated loading on the pipe.

Article 06-04-020 Bedding

(a) The bottom of the trenches shall be smooth, and hand graded uniformly throughout. If rock or other unyielding material is encountered or if the trench is over-excavated, pipe bedding material shall be added, compacted, and graded to a smooth uniform surface. The compacted bedding shall support the pipe throughout its entire length, except at bells or couplings which shall not rest on the bedding.

(b) After the bell or coupling holes are excavated and after the pipe pieces are connected and properly aligned and graded, successive layers of select material shall be placed and compacted, until the pipe is covered, as required in the Contract Documents. The Contractor shall maintain proper alignment and grade during the bedding process. Any bent, cracked, chipped, or damaged pieces of pipe shall be removed and replaced at Contractor's expense.

Article 06-04-030 Pipe Laying

(a) The pipe shall be laid true to the line(s) and grade(s) indicated in the Contract Documents or as established by the City. Pipe shall be laid such that pipe size markings are facing up within the trench.

(b) The pipe shall be protected during handling against impact shocks and free fall. Do not permit hooks, chains, cables, or handling equipment to come in contact with the pre-molded or pre-formed end surfaces.

(c) Handle the pipe having pre-molded end surfaces or pre-formed end surfaces so that no weight, including the weight of the pipe itself, will bear on or be supported by the jointing material or surfaces. Do not drag the end of the pipe on the ground or allow pipes to be damaged by contact with gravel, crushed stone, or any other hard objects. No damaged or deformed pipe will be incorporated into the Project.

(d) The interior of the pipelines shall be kept free from dirt and other foreign material as the work progresses and shall be clean upon completion of the pipe installation. Tight stoppers or bulkheads shall be securely placed in the ends of all pipelines when the work is stopped temporarily, or at the end of a workday.

(e) Immediately prior to jointing, both pipe ends shall be thoroughly cleaned, and a lubricant shall be applied according to the manufacturer's recommendations. For push-on type joints, sufficient pressure shall be applied in making up joints to insure proper seating of the joints.

(f) All pipe shall be laid straight between ends, fittings or bends, and on uniform grade. Excavate bell holes for each pipe joint. After the pipe is jointed in the trench, the pipeline shall form a true line and consistent grade.

(g) The City may select to check the pipe for line and grade by any method after the pipe is laid and before backfilling begins. The City shall also have the right of checking each pipe joint with a gauge or by any means necessary in order to be assured that the gaskets are in place and properly seated. Any run of pipe that is found to be appreciably offline or grade shall be removed from the trench, the trench bedding shall be re-graded and compacted, and the pipe shall then be laid accurately online and grade. Any joint that is found to be improperly gasketed and/or seated shall be un-jointed and correctly reassembled. If any gasket is found to be damaged, the entire pipe section containing the damaged gasket shall be replaced with a new section of pipe.

(h) Contractor shall furnish any tools, gauges, and all items required for the checking of the gaskets and joints and shall check every joint to be sure that the gaskets are seated and located in the correct place to avoid leakage at the joints.

(i) Pipe and appurtenances shall be new and unused. The type of pipe to be installed shall be as approved by these Technical Standards. Pipe and appurtenances shall be handled to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken to prevent damage to any pipe coating.

(j) The interior of pipe shall be thoroughly cleaned of foreign material before being lowered into the trench and shall be kept clean during construction operations. When work is not in progress, the open ends of pipe shall be securely closed so that no foreign materials will enter the pipe. Any section of pipe found to be defective before or after laying shall be replaced with sound pipe or repaired in a manner satisfactory to the City without additional expense.

(k) The Contractor shall install a plug in the new sewer at any point of connection to an existing system. The plug shall remain in place until the Project has been completed and all work approved. The Contractor shall not flush or otherwise discharge any flow into an existing system unless approved in writing by the City.

(l) Pipe shall be laid to line and grade as shown on the plans and as staked in the field. The bedding of the trench shall be graded and prepared to provide a firm and

uniform bearing throughout the entire length of the pipe barrel. Suitable excavation shall be made to receive the bell of the pipe and the joint shall not bear upon the bottom of the trench. All adjustments to the line and grade shall be made by scraping away or filling in with pipe zone material under the body of the pipe, and not by wedging or blocking. When connections are to be made to any existing manhole, pipe, or other improvement, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate for and expose the existing improvement before laying the connecting pipe or conduit. When existing underground improvements may reasonably be expected to conflict with the line or grade established for the new sewer line, the Contractor shall excavate as necessary to expose and locate such potentially conflicting underground improvements prior to laying the new pipe. Any adjustment in line or grade which may be necessary to accomplish the intent of the plans will be made.

(m) Trenches shall be kept free from water during pipe installation until suitable backfill has been placed and compacted to prevent pipe flotation. Any standing water within the trench shall be evacuated and the trench bottom or bedding be restored per the standards contained herein.

(n) Field cuts shall be completed with a hacksaw, handsaw, or a power saw with a steel blade or an abrasive disc. Field cuts shall be square to the pipe's flow area. The newly cut pipe end shall be beveled to the factory pipe chamfer. Completed field cuts shall be smooth and blunt free from shavings and rough edges.

(o) Connections to existing manholes shall be made by core drilling through the manhole wall using concrete saw or other cutting device approved by the City. Sledgehammers are not acceptable. The Contractor shall take care to avoid unnecessary damage to the existing manhole. Manholes broken by the Contractor shall be replaced by the Contractor without additional expense to the City.

(p) Pipe shall be laid up-grade in a continuous operation from structure to structure, with the socket or collar ends of the pipe up-grade, unless otherwise permitted by the City.

(q) Sanitary sewer mains shall not be constructed under walkways, sidewalks, curbs and gutters, drivepads, or similar concrete structures by tunneling underneath. The Contractor will cut these concrete structures by using a concrete saw. At the Contractor's option, he may remove the section of the concrete structure to the nearest full expansion joint or edge without addition expense to City.

(r) Plastic sewer pipe shall be connected and placed in the trench in accordance with the manufacturer's recommendations.

(s) The reference mark (a distinct circumferential line) is placed on the pipe's spigot end by the manufacturer to indicate the correct depth of spigot penetration into the pipe gasket joint. If the pipe is seated too deep or too shallow the pipe may buckle or separate due to thermal expansion/contraction. Spigot penetration shall be within one quarter (1/4) inch of the manufacturer's recommended mark.

(t) For plastic pipe connection to manholes, the Contractor shall install an appropriately sized press seal gasket, such as PS-10 by Press Seal Gasket Corporation, Large Diameter Waterstops for Concrete Manhole Adapters by Fernco, or approved equal. The gasket shall be installed per manufacturer's directions. See Standard Detail: S-7.

Article 06-04-040 Sewer Service Taps

(a) Sewer service line taps shall be completed by qualified and appropriately licensed Utility Contractors. Sewer service line(s) shall be installed perpendicular to the collection main, for that portion of the service line that is located within the public right-of-way or easement. Where this is not possible, the sewer service alignment shall be subject to determination by the City.

(b) All single family private residential, small single office, or small single store service lines (four-inches in diameter) must be connected by a tap into the sewer main; no private service connection will be allowed to connect directly into a manhole. Maximum angle for sewer service tap into main shall be 45 degrees. See detail S-9 and S-10 for Sewer Service Detail or S-15 for Service Line Inserta Tee Connection.

(c) All public service buildings, hotels, schools, public schools, laundry, or other kind of public/commercial service establishment with a service line of six-inches or larger shall connect with the public sewer system at a manhole. If no standard manhole is available, the applicant shall be responsible for design, construction, and costs associated there with for a manhole at a location designated by the City.

(d) The City will evaluate the condition of the existing sanitary sewer main line to be connected to; if the pipe is determined to be in good condition the pipe may be tapped. If the existing pipe is not in ample condition to facilitate tapping, the Contractor shall remove a minimum five-foot (5') pipe segment and install SDR-35 PVC pipe of appropriate diameter coupled to existing sanitary sewer line, on either side, with leak-proof couplings (Fernco or approved equal). The sewer service line tap can be completed upon the PVC main line segment. The completed segment and tap shall be inspected by the City.

Article 06-04-050 Existing Manholes

(a) Where the Contractor is required to connect to the existing manholes, the manholes shall be handled to avoid damage. Any damage to the existing manholes resulting from the Contractor's activities shall be corrected to the satisfaction of the City, at the Contractor's expense.

(b) Each manhole penetration shall be sawcut along pre-marked lines to form a uniform opening. The existing manhole invert shall be removed as required to build the new sewer line through the manhole at the alignment and grade called for in the Contract Documents.

(c) Prior to grouting the openings and manhole invert, the walls and floor of the manhole shall be clean and free of all foreign matter or other condition that would affect the bonding of the new grout. Additionally, a rubber manhole gasket shall be installed around the new sewer line where it will be in contact with the new grout. All voids shall be filled, and the invert shall be grouted to form a smooth sloping surface toward the opening in the new pipe.

(d) Existing sanitary sewer manholes designated for removal shall be demolished and disposed of at an appropriate site. The resulting excavation shall be properly refilled with compacted backfill.

Article 06-04-060 Temporary Bypasses

(a) The Contractor will be required to control the sewage in the existing sewer lines and service lines.

(b) The sewage shall be pumped, diverted, or otherwise accommodated to facilitate construction of the new sewer line.

(c) The Contractor shall conduct sewer line construction so that fittings, couplings, and all required materials are on hand to quickly complete each section of sewer line, minimizing the timeframe that the bypass is in place. The Contractor shall present to the City a bypass proposal that accurately details operations, for approval by the City prior to beginning work on the sewer line.

(d) Refer to Chapter 07 Temporary Bypass Pumping System for additional detail.

Article 06-04-070 Backfilling Trenches

(a) Definitions

(1) Foundation: Over-excavation and backfill of the foundation only when the native trench bottom does not provide a firm-working platform for placement of the pipe bedding material.

(2) Bedding: In addition to bringing the trench bottom to required grade, the bedding levels out any irregularities and ensures uniform support along the length of the pipe.

(3) Haunch Zone: The backfill under the lower half of the pipe (haunches) distributes superimposed loadings.

(4) Initial Zone: The backfill from the pipe midline to the top of the pipe zone provides the primary support against lateral pipe deformation for flexible pipe.

(5) Final Zone: Backfill above the pipe zone to the top of the subgrade.

(b) Materials for trench backfill may include flowable fill, Type I aggregate base course, Type II aggregate base course, and native materials. Individual pipe zone backfill requirements are presented below. The Contractor shall submit the material types to the City for approval prior to construction.

Native backfill shall only be utilized within the Final backfill zone. Native materials shall be free from sod, frozen earth, organic materials, rubbish, and debris. The material should be free of large stones (maximum clod size shall be < 3") that may cause damage to the pipe, such as concentrated pipe loading.

Table 5: Type I Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
2-Inch	100
1-1/2-Inch	90-100
1-Inch	70-90
No. 4	30-65
No. 10	30-10
No. 16	15-20
No. 200	10-20
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 6: Type II Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
1-Inch	100
¾-Inch	85-95
No. 4	40-70
No. 10	35-45
No. 16	25-35
No. 200	6-18
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 7: Native Backfill Requirements

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
0-20.0	12
20.1 – 50.0	10
50.1 – 80.0	8
80.1 – 100	6
Liquid Limit	50 Maximum

(1) Foundation: Trench foundations shall be stable prior to placing bedding material. If the City determines that unsuitable materials exist at the trench foundations, the Contractor shall remove and replace the material as directed by the City.

(2) Pipe Bedding: The trench shall be excavated to a depth of four- to six-inches (4”-6”) below the bottom of the pipe barrel and to a depth that will be sufficient to provide two- to four-inches (2”-4”) of clearance under the pipe bell (where applicable).

Uniform and stable bedding shall be provided for the pipe and any protruding features of its joints and/or fittings. The middle of the bedding equal to one-third (1/3) the pipe outside diameter may be loosely placed to allow for the pipe bell and other protruding features. Alternatively, the compacted bedding material may be excavated slightly to allow for continuous lines and grades of the pipe structure.

Pipe bedding shall consist of Type II aggregate base course or flowable fill. Bedding shall be backfilled to the required grade of the bottom of the pipe. The compaction shall provide a density, at minimum, equal to 95 percent of

the maximum dry density in accordance with ASTM D 1557 with the exception of the middle-uncompacted area.

(3) Haunch Zone Backfill: After the pipe or conduit is laid, the haunch areas shall be backfilled with Type II aggregate base course or flowable fill.

Compaction of the haunching material can be best accomplished by hand with tampers or suitable power compactors for maximum compacted lift thickness of six inches (6”). The Contractor shall take care to not disturb the pipe from its line and grade while compacting the backfill. Material suitably distant from the pipe shall be compacted to 95 percent of the maximum dry density in accordance with ASTM D 1557.

While compacting the embedment near the pipe with impact-type tampers, caution shall be taken to not allow direct contact of the equipment with the pipe.

(4) Initial Backfill Zone: After the pipe or conduit is laid, the initial backfill area shall be backfilled with Type II aggregate base course or flowable fill. Avoid usage of impact tampers directly above the pipe until the full loose layer backfill depth above the pipe is obtained.

Table 8: Initial Backfill Zone Material Depths

Pipe or Conduit	Initial Zone
2-Inch or less diameter	6-Inches above the top of pipe
Greater than 2-Inch diameter	12-Inches above the top of pipe

(5) Final Backfill Zone: The remaining backfill, to the top of subgrade, shall consist of Type I or Type II aggregate basecourse, native material, or flowable fill. The material shall be compacted to a minimum of 95 percent of the maximum dry density in accordance with ASTM D 1557.

A. If flowable fill is used, flowable fill shall be placed from the top of the initial backfill zone to the bottom of the flexible pavement (replaces aggregate road base in the pavement section over the trench).

B. Flowable fill cap may be required in the upper portion of the Final Backfill Zone for all non-residential roadways with a minimum thickness of twelve inches (12”) for minor collectors and eighteen inches (18”) for all major collectors and arterials.

(c) Compaction

(1) Compaction shall be performed by mechanical means except in the haunch zone where compaction may be required by hand tamping. Mechanically compacted backfill shall be placed in layers of thickness compatible with the characteristics of the backfill and the type of equipment being used and shall have a maximum lift thickness as shown in the table below. The lifts shall be placed on both sides of the pipe at the same time to reduce pipe movement.

Table 9: Backfill Lift Thickness

Location	Maximum Compacted Lift Thickness (inches)	Maximum Loose Lift Thickness (inches)
Bedding, Haunch, and Initial Zones	6	8
Final Zone	8	12

(2) Each layer shall be evenly spread, moistened, and tamped or rolled until the specified relative compaction has been attained.

(3) Compaction minimum shall be 95 percent of the maximum dry density in accordance with ASTM D 1557 for trenches within the roadway prism. Compaction requirements for the final zone of trenches outside the roadway may be reduced to 90 percent of maximum dry density in accordance with ASTM D 1557.

(4) Density testing shall be completed every 200-feet on mains or any part thereof per day, one per every three services or any part thereof per day.

(5) Density testing per depth: Less than or equal to four feet (4') shall require one at depth and one at subgrade per horizontal length above. Greater than four feet (4') depths shall require one per six-inch (6") or larger pipe, then one every three (3) vertical feet, and one at subgrade per horizontal length above.

(6) Where test results reveal non-compliance with the requirements of the Contract, the Contractor shall bear the costs of subsequent rework and retesting until the required specification compliance is obtained to the satisfaction of the City.

(d) Minimum Pipe Spacing: If the pipe space between parallel pipes in a single trench is not conducive to mechanical backfill, then flowable fill shall be used.

Article 06-04-080 Manhole Construction

(a) Manholes shall be pre-cast reinforced concrete units or glass fiber reinforced polyester (FRP) in accordance with the detail drawings and as shown on the Contract Documents.

(b) Soil foundations for manhole base shall be compacted to a density of ninety-five (95%) percent of the maximum density per ASTM D 1557.

(c) Invert elevation of the pipes entering or exiting the manhole and interior inverts shall not vary more than 0.05 foot from the elevations indicated in the Contract Documents.

(d) All cement used for poured foundations, mortar, fillets, grout, and concrete shelf construction shall be Type II or approved equal.

(e) All concrete for formed-in-place foundations or bases shall be 3,000 psi compressive strength concrete.

(f) Concrete, used for precast bases, vertical sections, and eccentric cones, shall be 4,000 psi compressive strength concrete.

(g) Manhole risers should be constructed using the tallest barrels possible from the pre-cast manufacturer. The base barrel shall be a minimum of four (4) feet, but not less than two (2) times the size of the sewer pipe penetrating the manhole.

(h) All precast sections of the manholes shall conform to the requirements of ASTM C 478, latest revision.

(i) Circular pre-cast manhole sections shall be provided with mastic gasket to seal joints between sections, such as Ram-Nek, Kent Seal, or approved equal.

(j) Precast concrete manhole bases may be used; however, the Contractor shall be responsible for placing the bases at the specified elevation, location, and alignment.

(k) All lifting holes and gaps at joints shall be filled with a non-shrink grout.

(l) Removable inflow protectors shall be required in all new sanitary sewer manholes.

Article 06-04-090 Pavement Patching

After all trenching and backfilling is complete, the pavement shall be marked and sawcut to form a smooth, uniform edge. The resulting cut face shall be coated with tack coat and

new plant mix bituminous pavement shall be placed and densified as specified. The resulting pavement patch shall have a smooth riding surface in any direction. The patch section shall at minimum match the existing section.

Article 06-04-100 Cased Sewer Lines

(a) Where encasements or carrier pipe is required to be installed under railroad embankments or under highways, streets, or other facilities by jacking or boring methods, construction shall be made in a manner that will not interfere with the operation of the railroad, highway, or other facility, and will not weaken or damage any embankment or structure. During construction operations, barricades and lights to safeguard traffic and pedestrians shall be furnished and maintained, as directed by the City.

(b) Entry and exit pits shall be excavated for the purpose of conducting the boring/jacking operations and for placing end joints of the pipe. This excavation shall not be carried to a greater depth than is required for placing of the guide and boring/jacking machine. All open trenches and pits shall be braced and shored in such a manner as will adequately prevent caving or sliding of the walls into the open trench or pit.

(c) Minimum casing specifications can be found on Standard Drawing S-16. Facility operator beneath which the casing is being installed to determine if more stringent requirements shall govern the installation.

(d) Lateral or vertical variation in the final position of the pipe from the line and grade established by the Contract Documents will be permitted only to the extent of one-sixteenth inch (1/16") per ten feet (10'), however, final approval will be required by the City.

(e) Entry and exit pits shall be backfilled, in compliance with the Contract Documents, immediately upon installation of the carrier pipe and approval by the City.

(f) Casing installation shall include vents. Vents shall be placed on each end of the casing to facilitate inspection, sampling, exhaustion, or evacuation of fluids or gases accumulated between the carrier and casing pipes. Vent pipes shall be of sufficient diameter, but not less than two inches (2"). The vent pipe shall extend a minimum of three feet (3') above the existing ground surface and fall at the right-of-way line or outside the clear zone.

(g) Cathodic protection shall be designed and installed should soil conditions warrant.

Article 06-04-110 Testing

(a) Testing for Tightness: After the pipe has been laid and backfilled, the line shall be tested between manholes by low-pressure air testing and shall be conducted in accordance with the Uni-Bell PVC Pipe Association recommended practices.

(b) Exfiltration Test: The maximum water exfiltration for a given pipe shall be at a rate of fifty (50) gallons per inch of internal pipe diameter per mile per day. During the ex-filtration testing, the maximum internal pressure at the lowest end may not exceed twenty-five (25) feet or 10.8 psi. The internal water head must be a minimum of two (2) feet higher than the top of the pipe.

(c) Mandrel Deflection Testing: Long term pipe deflection shall not exceed seven and a half (7½) percent. When required, the Contractor shall perform mandrel deflection test(s) between successive manholes using appropriate instruments. The City will designate when the test is to be performed. If it is determined that the pipe has exceeded deflection requirements, the pipe shall be removed and replaced at the Contractor's expense.

(d) Manhole Testing: Manholes shall be filled with water to a minimum of one (1) section above the highest pipe penetration. Water level shall remain for a minimum of six (6) hours.

At the Contractor's option, negative air pressure (vacuum) testing may be utilized on precast manholes prior to backfilling in accordance with ASTM C1244.

(e) All sanitary sewer pipeline and manhole testing equipment shall be furnished, maintained, and implemented by the Contractor. The Contractor shall provide written notification twenty-four (24) hours in advance of testing so that the City may have a representative onsite for observation.

Article 06-04-120 Flushing Sewer lines

All completed sewer lines shall be flushed with water to remove any dirt or foreign matter from the line. The flushing shall be done in the presence of the City.

Article 06-04-130 Detectable (Underground) Warning Tape

(a) Detectable warning tape shall be 6" wide, 5 mil overall thickness, with a .35 mil solid foil coil. APWA color coded with imprint of underground utility installed.

(b) Detectable warning tape shall be laid in continuous manner and be placed above all sewer mains, sewer force mains, sewer service lines, and other sewer

appurtenances. The detectable warning tape shall be placed eighteen inches (18") below the final surface elevation.

Article 06-04-140 Trace Wire

(a) All trace wire shall have HDPE insultation intended for direct bury service. HDPE insulation shall be color coated per APWA Standard for respective utility being installed.

(b) Trace wire shall be taped to the top of all sewer mains, sewer force mains, and sewer service lines at maximum 10-foot interval. Trace wire along sanitary sewer service lines entering private property shall be terminated above ground at the cleanout adjacent to the developed structure.

(c) Trace wire shall be as following based on installation method:

(1) Open Trench Installation: #12 AWG copper clad steel, high strength with minimum 450-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries High Strength – 1230 CCS Trace Wire or City approved equal.

(2) Directional Drilling/Boring: #12 AWG copper clad steel, high strength with minimum 1,150-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries Extra-High Strength – 1245 CCS Trace Wire or City approved equal.

(3) Pipe Bursting/Slip Lining: 7 x 7 stranded copper clad steel, extreme strength with minimum 4,700-pound break load and minimum 50 mil HDPE insulation thickness. Copperhead Industries SoloShot Xtreme – PBX-50 CCS Trace Wire or Engineer Approved Equal.

(4) When a new trace wire is to be tied to an existing trace wire the connection shall be made with an approved splice connector and shall be properly grounded at the splice connection.

(d) Connectors

(1) All main line trace wires shall be interconnected at intersections (tees and crosses). Connectors shall be lockable and manufactured specifically for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion and shall be installed in a manner as to prevent any uninsulated wire exposure.

(2) Tee Connectors (service lines, main line tees, and fire hydrants) shall include a 3-way lockable connector main line to lateral lug connector. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(3) Cross Connectors (main line crosses) shall include two (2) 3-way lockable main line to lateral lug connectors. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(4) Main line trace wire splices shall be completed utilizing twist-lock connectors. Copperhead Industries Locking Connector Part Number LSC1230C or City approved equal.

(5) Do not cut and splice main line trace wire.

(6) Non-locking friction fit, twist on, or taped connectors shall not be used.

(e) Termination/Access Boxes

(1) All trace wire termination points must utilize an approved trace wire access box, specifically manufactured for this purpose. Except as noted previously for termination on the upstream end of sewer service lines.

(2) All access boxes shall be identified with “sewer” or “water” cast into the cap and be APWA color coded according to the utility.

(3) A minimum of two-feet (2’) of slack is required in all trace wire boxes upon installation at final grade.

(4) All trace wire access boxes must include a manually interruptible conductive/connective link between the terminals for the trace wire connection and the terminal for the ground anode wire connection.

(5) Ground anode wire shall be connected to the identified terminal on all access boxes.

(6) Manholes must terminate at an in-ground trace wire access box positioned within the manhole concrete collar. Copperhead Industries SnakePit Roadway with Two-Terminal Switchable Lid Access Point Part Number RB14*2T-SW or City approved equal.

(f) Grounding

(1) Trace wire must be properly grounded at all dead ends and stubouts.

(2) Grounding of trace wire shall be accomplished through the use of a drive-in magnesium grounding anode rod with a minimum of 20-feet of #12 AWG red HDPE insulated copper clad steel wire connected to the anode (minimum of 1.5-pound) specifically manufactured for the intended purposed. The ground anode shall be landed at the same elevation as the utility. Ground anode shall be Copperhead Industries Ground Rod with Twist-On Connector Part Number ANO-12 or City approved equal.

(3) When grounding the trace wire at dead ends or stubouts, the grounding anode shall be installed perpendicular to the trace wire at a maximum possible distance.

(4) When grounding the trace wire in long continuous runs, the grounding anode shall be installed directly beneath and in-line with trace wire. The grounding anode wire shall be trimmed to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.

(g) Testing

(1) All new trace wire installations shall be located using typical low frequency line trace equipment. The City shall conduct a test trace witnessed by the Contractor prior to final acceptance. The test trace shall be conducted using City equipment prior to final surface (asphalt/concrete) placement.

(2) Continuity testing in lieu of actual line trace will not be accepted.

ARTICLE 06-05 - COORDINATION

Article 06-05-010 Construction Coordination, Survey, & Acceptance

(a) The Contractor shall coordinate the Work with the City before commencing work. The City shall inspect and approve all work prior to backfilling. Photos will not be accepted in lieu of a physical inspection.

(b) The Contractor shall notify the City in writing when each utility installation is complete in place per plan and ready for inspection. No utility backfill shall be placed until inspection has been satisfied by the City.

(c) Acceptance Submittal – All test reports (utility, bacteriological, concrete, compaction, etc.), signed inspection forms, field marked construction drawings reflecting as-built conditions, and delivery of post construction survey as defined below.

(d) Post Construction Survey – to be completed by a professional surveyor licensed in the State of New Mexico. The survey shall include key system components for incorporation into the City's geographic information system (GIS). All data shall be created in real world coordinate system based on the following projection: horizontal control in NAD83, vertical control in NAVD88, and based on New Mexico State Plan Coordinates System (Grid), Central Zone, US Foot. The survey shall be tied to at least two (2) City control points as included at the end of Chapter 05. The Post Construction Survey shall be completed in a City approved AutoCAD version (.dwg format) provided to the City on a mass storage drive (compact disc or usb storage device) or via secure downloadable link.

The Post Construction Survey provider shall include a table identifying the layering convention used to depict system components (i.e. Layer C-UTIL-WATR-12in represents a twelve (12") diameter C-900 PVC Water Line, etc.). This will allow the City personnel to isolate and import portions of the drawing and translate the information directly into usable data in their GIS. The user at their option can base their layering convention on the National Cad Standard (NCS) for ease of use. The City will not accept CAD files containing information drawn in paperspace.

The post construction survey shall be in conjunction with the Record Drawings noting work per plan or identifying different field installation conditions.

(1) Drainage Systems Components: drainage channel control features and flowline elevations, drainage channel structure information (culvert upstream/downstream flowline elevations), manholes, inlets, pipe outfall(s), pond top elevation, and pond bottom elevation.

(2) Sanitary Sewer System Components: standard manholes, control manholes, drop manholes, cleanouts at right-of-way or property lines, casing installations, and sewer service taps.

(3) Lift Station Components: wet wells, dry wells, vaults, cleanouts, air valves, plug valves, flow meter, bends, and manholes.

(4) Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, fire hydrants, water meters, service line taps, sampling stations, and pressure reducing stations.

(5) Reclaimed Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, hydrants, meters, service line taps, or pressure reducing stations.

(e) Substantial Completion – the Acceptance Submittal and Post Construction Survey shall be provided to the City, reviewed, and accepted by the City prior to issuance of Substantial Completion and subsequent commencement of the warranty period.

END OF CHAPTER 06

CHAPTER 07 – TEMPORARY BYPASS PUMPING SYSTEM

ARTICLE 07-01 - GENERAL

Article 07-01-010 Description

This section includes requirements for implementing a temporary pumping system for the purpose of diverting existing sewage flow around work area for the duration of the Project.

Article 07-01-020 Quality Assurance

(a) Follow national standards and as specified herein.

(b) Perform leakage and pressure tests on discharge piping using clean water, before operation. Notify City 24 hours prior to testing.

(c) Maintain and inspect temporary pumping system every two hours. Maintain a log of flows every two hours for each system. Responsible operator on site at all times when pumps are operating.

(d) Keep and maintain spare parts for pumps and piping on site, as required.

(e) Maintain adequate hoisting equipment and accessories on site for each pump, as necessary.

(f) Bypassing Contractor (subcontractor) shall have no less than 2 years' experience in bypassing a system of similar characteristics. City may request a list of similar projects with references to be delivered to the City at the preconstruction conference.

Article 07-01-030 Submittals

Submit the following at Pre-Construction Conference:

(a) Detailed plan and description of proposed pumping system at each location. Indicate the number, size, material, location, and method of installation of suction and discharge piping, size of pipeline or conveyance system to be bypassed, staging area for pumps, site access point, and expected flow. The plan shall, at a minimum, indicate the following information:

(1) Size and location of manhole or access points for suction and discharge hose or piping.

(2) Sections showing suction and discharge pipe depth, embedment, select fill, and special backfill for existing vehicular accesses or roadways.

(3) Temporary pipe supports, and anchoring required.

(4) Thrust restraint block sizes and locations.

(5) Sewer plugging methods and types or plugs.

(6) Bypass pump sizes, capacity, number of each size to be on site, and power requirements.

(7) Back up pump, power and piping equipment for each setup as indicated on plans.

(8) Calculations on static lift, friction losses, and flow velocity. Pump curves showing pump operating range.

(9) Design plans and computation for access to bypass pumping locations indicated on plans.

(10) Calculations for selection of bypass pumping pipe size.

(11) Method of noise control for each pump and /or generator.

(12) Method for protecting discharge manholes or structures from erosion or damage.

(13) Schedule for installation and maintenance of bypass pumping lines.

(14) Procedures to monitor upstream mains for backup impacts.

(15) Procedures for setup and breakdown of pumping operations.

(16) Emergency plan detailing procedures to be followed in event of pump failures, power failures, generator failures, sewer overflows, rain events, service backups, and sewage spillage. A copy of this plan must be kept on site for the duration of the project.

(17) Odor Control abatement measures at suction and discharge locations.

Article 07-01-040 Contractor's Responsibility for Overflows and Spills

(a) Schedule and perform work in a manner that does not cause or contribute to incidence of overflows, release of spills of sewage from sanitary sewer system or bypass operation.

(b) The Contractor shall be responsible for any damage to property, private or public, caused from bypass operations.

(c) The Contractor shall be responsible for cleaning and disinfecting any spills caused by the bypass operations.

(d) The Contractor shall be responsible for any fines from regulatory agencies for spills caused by the bypass operations.

(e) The Contractor shall not surcharge any existing sewer mains. The water surface elevation shall not exceed the top of pipe at any suction location.

Article 07-01-050 Delivery and Storage

(a) Transport, deliver, handle, and store pipe, fittings, pumps, ancillary equipment, and materials to prevent damage and following manufacturer's recommendations. Inspect all material and equipment for proper operation before initiating work.

(b) Material found to be defective or damaged due to manufacturer or shipment.

(1) When City deems repairable: Repair as recommended by manufacturer.

(2) When City deems not repairable: Replace as directed before initiating work.

(3) Repair or replacement of defective or damaged material and equipment shall be at no additional cost to the City.

ARTICLE 07-02 - PRODUCTS

Article 07-02-010 Materials

(a) Discharge and Suction Pipes: Approved by the City

(1) Discharge piping: Determined according to flow calculations and system operating calculations.

(2) Suction piping: Determined according to pump size, flow calculations, and manhole depth following manufacturer's specifications and recommendations.

(b) Polyethylene Plastic Pipe:

(1) High density solid wall and following ASTM F714 Polyethylene (PE) Plastic Pipe (SDR DR) based on outside diameter, ASTM D1248 and ASTM D3550.

(2) Homogeneous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

(c) High-Density Polyethylene (HDPE)

(1) Homogeneous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

(2) Assembled and joined at site using couplings, flanges, or butt-fusion method to provide leak proof joint. Follow manufacturer's instructions and ASTM D 2657. Threaded or solvent joints and connections are not permitted.

(3) Fusing: By personnel certified as fusion technicians by manufacturer of HDPE pipe and/or fusing equipment.

(4) Butt fused joint: True alignment and uniform roll-back beads resulting from use of proper temperature and pressure.

A. Allow adequate cooling time before removal of pressure.
B. Watertight and have tensile strength equal to that of pipe.
C. Acceptance by City before insertion.

(d) Grooved End Industrial Aluminum Pipe

(1) Each joint pressure tested to 300 psi.

(2) Compatible with Victaulic style fittings.

(3) Pipe constructed with 3004-H26 Alloy.

(4) Aluminum A-356 welded couplers.

(e) Flexible Hoses and Associated Couplings and Connectors

(1) Abrasion resistant.

(2) Suitable for intended service.

(3) Rated for external and internal loads anticipated, including test pressure.

(4) External Loading Design: Incorporate anticipated traffic loadings, including traffic impact loading.

(5) When subject to traffic loading, compose system, such as traffic ramps or covers.

(6) Install system and maintain H-20 loading requirements while in use or as directed by the City.

(f) Valves and fittings: Determined according to flow calculations, pump sizes previously determined, and system operating pressures.

(g) Plugs: Selected and installed according to size of line plugged, pipe and manhole configurations, and based on specific site.

(1) Additional plugs: One available for each phase in the event a plug fails. Plugs will be inspected before use for defects which may lead to failure.

(h) Glued PVC piping will not be permitted.

(i) Discharge hose will only be allowed in short sections when approved by the City.

Article 07-02-020 Equipment

(a) Pumps

(1) Fully automatic self-priming units that do not require the use of foot valves or vacuum pumps in priming system.

(2) Electric or diesel powered. Contractor shall provide necessary power.

(3) Constructed to allow dry running for long periods of time to accommodate cyclical nature of effluent flows.

(b) Provide

(1) Necessary stop/start controls for each pump.

(2) Two pumps for each bypass location (primary and backup) for all bypass locations with average flow greater than 500 gpm.

(3) Each pump to be capable of estimated peak flow.

(4) Primary and backup pumps shall be capable of running simultaneously for wet flow conditions.

Article 07-02-030 Design Requirements

(a) Bypass pumping systems:

(1) Wet flow conditions are estimated at twice the average flow. The online back pump may be used during wet flow conditions.

(2) No surcharging of existing incoming lines at bypass locations.

(3) In the event of a pump failure, the Contractor shall immediately replace primary or backup pump to avoid surcharging of manholes, overflowing of manholes, spills, and damage to property.

(4) Operate 24 hours per day for the duration of each phase.

(5) Bypass pumping systems shall have sufficient capacity to pump peak flows included with the plans.

(6) All pumping equipment shall be provided with spill containment provisions for fuels, oils, and sewage.

ARTICLE 07-03 – EQUIPMENT

Article 07-03-010 Preparation

(a) Determining location of bypass pipelines.

(1) Minimal disturbance to existing utilities. Field locate existing utilities in proposed bypass area.

(2) Obtain approvals for placement within public or private property.

(3) Obtain City's approval of location.

(4) Costs associated with relocation of utilities and obtaining approvals at no additional cost to the City.

Article 07-03-020 Installation and Removal

(a) Provisions and requirements must be reviewed by the City before starting construction.

(b) Remove manhole sections or make connections to existing sewer and construct temporary bypass pumping structures at access locations indicated on Contract Documents and as required to provide adequate suction conduit.

(c) Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device for each bypass location. When plugging or blocking is no longer needed for performance and acceptance of work, remove in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

(d) When working inside manhole or junction box, exercise caution. Follow OSHA, Local, State and Federal requirements. Take required measures to protect workforce against sewer gases and/or combustible or oxygen-deficient atmosphere.

(e) Installation of Bypass Pipelines:

(1) Pipeline may be placed along gutter of streets. Do not place in sidewalks.

(2) When bypass pipeline crosses streets and private driveways, place in roadway ramps. When roadway ramps cannot be used, place bypass in trenches and cover with temporary pavement as approved by the City.

(3) Include provisions for Traffic Control including signs and barricades as applicable. The Contractor shall submit a traffic control plan for review prior to commencing this work.

(f) During bypass operation, protect sewer lines from damage inflicted by equipment.

(g) Upon completion of bypass pumping operations, and after the receipt of written permission from the City, remove piping, restore property to preconstruction condition, and restore pavement.

END OF CHAPTER 07

CHAPTER 08 – LIFT STATION SYSTEM

ARTICLE 08-01 - GENERAL

Article 08-01-010 Lift Station System Materials

Item Description	Size or Reference	Specification	Manufacturer
Submersible Grinder Pumps	--	--	Xylem/Flygt or Approved Equal
Flow Meter	≤ 12”	--	Greyline Flow Meter (Pulsar) or Approved Equal
Access Hatch	--	AASHTO H-20	Bilco Access Hatch or Approved Equal
Odor Control System	Case-by-Case Determination		
Wet Well, Valve Vault, Manhole Coating System	N/A	--	Raven or Approved Equal
Force Mains	≤ 12”	AWWA C900 ANSI C151	Various
D.I. Force Main Lining	≤ 12”	--	Induron Coatings – Protecto 401 Permite Corp. – Permox CTF Tnemec Company – Perma-Shield PL Series 431 or Approved Equal
Force Main Air Release Valves	--	AWWA C-512	Val-Matic or Approved Equal
Swing Check Valves	≤ 12”	AWWA C-508	Flomatic or Approved Equal
Plug Valves	≤ 12”	AWWA C-517	Val-Matic or Approved Equal

Article 08-01-020 General

Lift stations will only be allowed for developments greater than or equal to 150 units, which cannot be served by a gravity sanitary sewer system. Developers shall consult with the City to confirm the applicability of gravity sewer system and/or the need for a sanitary sewer lift station and associated force main piping. All lift station design shall include a completed Design Analysis Report.

Article 08-01-030 Wastewater Characteristics

Lift station(s) shall be designed to handle and convey raw unscreened sewage containing solid material. All specified pumps shall be capable of passing solids a minimum of three inches (3”) in diameter regardless of the means utilized in solids reduction. Pumps shall be non-clogging, continuous duty rated, and manufactured to process the aforementioned materials.

Article 08-01-040 Lift Station Pump Types

Only electric motor driven duplex submersible grinder pumps stations within precast concrete wet well or fabricated fiberglass wet well are acceptable. A separate below grade valve vault shall accompany new duplex installations. All lift stations shall be provided with 480V three-phase (3Ø) power. Overhead power poles/lines will not be permitted within the fenced enclosed lift station yard. The main power feed shall be equipped with an above-grade, fused disconnect switch.

Article 08-01-050 Site Development Criteria

The Developer is responsible for all site plans, permits, inspections, and their associated fees from the City and/or County as applicable. Lifts stations shall not create nuisance conditions to adjacent properties. The lift station shall be planned and constructed to allow for all-weather access and/or maintenance and by equipped with security fencing and lockout capabilities.

(a) Floodplain

All lift stations and their appurtenances shall be located outside of the 100-year floodplain. All above ground equipment shall be located two-feet (2') above the 100-year base flood elevation.

(b) Access Requirements

All lift stations shall be constructed with a suitable all-weather access roadway capable of accommodating large utility trucks, boom/crane trucks, vactor truck, and water trucks. The access road shall connect to a public hard surface roadway and shall serve the sole purpose of lift station access.

(c) Stormwater Management

Stormwater detention shall adhere to the requirements of these City Technical Standards as presented. At a minimum, the lift station and associated site improvements shall maintain positive drainage away from wet well(s), valve vaults, electrical, and mechanical equipment.

(d) Potable Water Service

The developer shall be responsible for a metered potable water service to serve the lift station facilities. The water service will be utilized for area washdown, equipment maintenance, other functions as necessary. A frost proof yard hydrant shall be provided within the fenced yard.

(e) Site Lighting and Security

(1) Perimeter Fencing – shall be provided at all lift stations; fencing shall consist of concrete masonry unit (CMU) construction to a final height of nine feet (9').

(2) Vehicular/Pedestrian Access – the fence enclosed lift station yard shall be equipped with a minimum 12-foot vehicular access gate. A four-foot (4') pedestrian access gate shall also be provided. All access points shall be secured with a lock and chain.

(3) Lighting – the lift station shall be provided with adequate lighting (outdoor and/or indoor) to accommodate normal and emergency operations during daylight and nighttime operations.

(4) Other Considerations – all lift station appurtenances (wet well, vaults, panels, etc.) shall be lockable. Safety placards for all lift station structures and equipment shall be provided and readily visible to operation and maintenance personnel.

Article 08-01-060 Wet Wells

Wet wells shall be circular precast concrete structures or premanufactured fiberglass structures within conical bottoms that surround the pump volutes or suction piping closely. This configuration will aide the lift station in settling of solids and debris evacuation with each complete pump cycle. All precast concrete structures shall be in compliance with ASTM C-478 and be subject to the same vacuum testing for leakage as standard sanitary sewer manholes. Inner diameters for wet wells shall be six- to twelve-feet (6'-12') and be sized to provide appropriate pump spacing and maintenance access. Wet wells shall be completed with a gooseneck type vent with a stainless steel bug/insect screen.

Article 08-01-070 Precast Concrete Wet Well Coating System

The entirety of the precast wet well's exposed surfaces shall be coated, prior to placement into service, to aide in corrosion and impact resistance. Precast structures shall be coated with Raven 175 (prime coat) and Raven 405 (2^{nd} coat) to 100 mil total dry thickness: in accordance with the manufacturer's recommendations. Alternate coating systems shall be pre-approved by the City.

The epoxy coating system shall be solvent free, and 100% solids specifically manufactured for use in severe wastewater environments with the following minimum characteristics:

(a) Hardness, Shore D (ASTM D-2240) of 70

(b) Tensile Strength (ASTM D-638) > 7,000 PSI

(c) Flexural Strength (ASTM D-790) > 10,000 PSI

Article 08-01-080 Valve Vault

The valve vault shall be precast or cast in place concrete vault with double traffic rated access doors (minimum four-feet [4'] square double leaf). The access hatch shall have recessed lifting handle, security locking pin, factory installed safety opening bars, and be of the anti-slam design. The concrete valve vault shall be epoxy coated to the same requirements as the wet well. The valve vault shall house the check valves and full closing plug valves details below as well as transition manifold pipe to the exiting force main; refer to Detail S-22. The minimum allowable interior size for valve vaults shall be six-feet by six-feet (6' x 6') for force mains six-inches (6") and smaller. This minimum dimension shall allow for a minimum of 12-inches of clear space between valves and the interior vault walls. The vault floor shall be tapered to a sump drain returning any discharge during maintenance activities back to the wet well; this return line shall enter the wet well above the "Alarm" level sensor and be equipped with a duckbill valve to prevent backflow and/or gases from entering the vault. All pipe penetrations through the vault wall shall be completed with watertight flexible boots.

Article 08-01-090 Valve Requirements

(a) Check Valves – an outside level, swing check valve shall be provided on the discharge piping of each pump on the upstream side of the shutoff valve. The check valves shall be located within the valve vault and shall be installed in the horizontal position to prevent accumulation of debris on the backside of the flap.

(b) Shutoff Valves – a full-closing eccentric plug valve shall be installed on each pump's discharge pipe. The shutoff valves shall be installed downstream of the check valve.

(c) Valve Support – each valve shall be individually supported from below within the valve vault.

Article 08-01-100 Submersible Pumps and Grinders Requirements

The wet well shall be completed with a system to allow for removal and installation of pumps and grinders without requiring into the wet well. At a minimum the following shall be provided as part of this system:

(a) Stainless steel guide bars and lifting/guide chains.

(b) The guide bars and lifting devices shall be capable of disengagement and lifting of each piece of equipment.

Article 08-01-110 Odor Control

The type of odor control facilities at a lift station will be determined on a case-by-case basis. The criteria for such determination will include, but not be limited to, service area characteristics, current nuisance odor conditions, and other factors deemed necessary. Odor control facilities may include chemical dosing stations or nuisance odor treatment systems. The odor control approach is chemical feed of Bioxide. Accordingly, at a minimum, the applicant's basis of design shall include a chemical dosing station. The location of the chemical dosing station and associated appurtenances shall be shown on the applicant's plan submittal for the lift station. Provide the following:

(a) 1,000-gallon odor control storage tank, minimum.

(b) Pumping/doing system.

(c) Automated Dosing Controller.

Article 08-01-120 Flow Metering

Permanent flow metering shall be required at all lift stations. Flow monitoring and run time reporting software and hardware will be required at all proposed lift stations. All stations shall be provided with flow meters in accordance with the following requirements:

(a) Flow meters shall be electromagnetic type with 316 stainless steel metering tube sized to maintain velocities within the recommended range provided by the manufacturer over the full range of anticipated station flows.

(b) Flow meters shall be installed in an accessible location in the lift station dry well or outside, within the fenced area, within an epoxy coated vault or manhole with adequate clearance for removal of flow meter.

(c) The piping installation shall provide five (5) diameters of straight pipe runs upstream and two (2) diameters downstream from the meter, or additional lengths if required by the meter manufacturer.

(d) Bypass piping shall be provided of equal or greater size than the flow meter piping with sufficient valving to allow the flow meter to be removed for maintenance without taking the station out of service.

(e) Flow meter shall be equipped with a microprocessor based "smart" transmitter that is capable of converting and transmitting a signal from the flow tube with a 4-20 mA DC signal.

(f) The flow meter shall have an integrated LCD readout capable of displaying flow rate and totalized flow.

ARTICLE 08-02 – FORCE MAINS

Article 08-02-010 General

Force main pipes shall remain constant diameter from the lift station to their final discharge point into the gravity sanitary sewer system. The diameter shall be designed to maintain a velocity greater than two-feet-per-second (2 ft/sec) but not to exceed eight-feet-per-second (8 ft/sec). Minimum cover for all force main pipe shall be four feet (4'), and maximum cover should not exceed ten feet (10'). Additional criteria as stated below:

(a) Manifold force mains shall not be permitted.

(b) No tee connections are permitted.

(c) Force main bends shall be forty-five degrees or less (≤45°).

(d) Force main alignment shall consider the rising and falling of grade in efforts to minimize the number of air/vacuum relief valves.

(e) Force main line valves shall be full port plug valves.

(f) Force main valves boxes shall have valve box covers marked "Sewer".

Article 08-02-020 Force Main Pipe Materials & Appurtenances

(a) Ductile iron pipe and fittings for use in force mains shall be self-restrained in accordance with AWWA C151.

(1) Internal lining: all ductile iron force main piping shall be installed with a corrosion resistant internal lining. Acceptable manufacturers can be found at the beginning of this Article.

(2) External coating: all ductile iron force main pipe shall be asphaltic coated in accordance with AWWA C151.

(A) Should corrosive soils be encountered along the proposed force main alignment; the pipe shall be externally wrapped with

polyethylene encasement as detailed in the *Ductile Iron Pipe Research Association (DIPRA) Installation Guide for Ductile Iron Pipe.*

(b) Polyvinyl chloride pipe (PVC) force mains shall adhere to AWWA C900 and shall be a minimum dimension ratio of DR-14 for line sizes four- to twelve inches (4" – 12"). Pipe shall be standard plain end and elastomeric-gasket bell end pipe. Outside pipe diameter shall conform to ductile iron pipe. Fittings shall adhere to Article 08-02-020(a) and shall be restrained through the use of mechanical joints.

(c) Combination air release valves (CAV), designed for wastewater use, shall be quick opening/slow closing valves and shall be installed at all force main high points and other locations where air admittance/exhaustion to prevent vacuum or surge conditions are necessary based on the transient analysis of the force main pipe. CAV installations may require an offset to locate the valve outside of a paved roadway to accommodate easy access and maintenance of the valve in place. All CAV valves shall be manufactured with a test port and equipped with a ball valve for testing purposes. Reference Detail S-19 for CAV installation.

(d) Force main termination into gravity sewer system shall be completed at a manhole. The discharge shall be designed to minimize turbulence.

ARTICLE 08-03 – ELECTRICAL, INSTRUMENTATION, AND CONTROL

Electrical and instrumentation design shall be accomplished in compliance with the National Electrical Code (NEC), National Fire Protection Association (NFPA), and National Electrical Equipment Manufacturers (NEMA) standards. Additionally, the specified pump and appurtenance manufacturers requirements shall be met for power requirements, wiring, grounding, etc.

All lift stations shall be controlled on-site through a hard-wired control interface. Remote monitoring of the station shall be provided through the City's supervisory control and date acquisition (SCADA) system. SCADA control and monitoring will be required and supplied by the developer of the station with integration into the existing system.

ARTICLE 08-04 – CONSTRUCTION REQUIREMENTS

Article 08-04-010 Trench Excavation

(a) Pipe trenches shall be excavated along straight lines to the dimensions as required in the Contract Documents.

(b) All trenching work shall be done in a safe manner, trenches shall be rendered safe for the workmen by complying with the applicable safety standards, and by

practicing safety measures consistent with current OSHA Trenching and Excavation Safety Standards and good construction methods.

(c) All excavations shall be adequately barricaded and secured in accordance with the current New Mexico Department of Transportation Standard Specifications. Flashing lights and barricades shall be employed along open excavations and trenches to protect the public from potential hazards; barricades and advance warning devices shall comply with MUTCD Standards as well as any special direction required by the City.

(d) Unless trench banks are cut back on a stable slope, the trenches shall be braced as necessary to prevent caving or sliding, to provide protection for the workmen and the pipe. All trenching shall comply with OSHA Trenching and Excavation Safety Standards.

(e) When over-excavation occurs beyond the limits indicated by the trench details, the over-excavated area shall be refilled with suitable material at optimum moisture and compacted to ninety-five (95) percent density per ASTM D 1557.

(f) The maximum amount of open trench permitted in any one location shall be 100-feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater, unless otherwise approved by the City. A trench shall be considered open until backfilled to the top of subgrade.

(g) Excavation of pipe trenches for flexible and rigid pipe is as required in the table below. In all cases, the trench shall be wide enough to allow for the compaction equipment.

Table 10: Minimum Trench Widths

Flexible Pipe	Minimum shall be not less than 1.5 times the pipe outer diameter plus twelve inches (12”)
Rigid Pipe	Minimum shall be not less than the outside pipe diameter times 0.33

(h) When trench is to be backfilled with flowable fill, the minimum trench width may be reduced to the pipe diameter plus twelve inches (12”) and enough room needed to allow for the proper placement of the flowable fill using tools to “spade” the material under the pipe haunches.

(i) Maximum Trench Width: the maximum width of the trench shall be determined by the Contractor based on the method and means for the installation. However, trench width shall not exceed the width of a ride-along compactor plus two feet (2’) when working alongside the pipe or culvert.

(j) Street Crossings

(1) Trenches crossing streets shall be completely backfilled immediately after pipe, wire, or conduit installation and a temporary or permanent asphalt patch or flowable fill cap shall be installed as directed by the City to protect the integrity of the trenches within the roadway limits from excessive moisture. Under no circumstance shall a trench remain un-backfilled for longer than 30 calendar days.

(2) Substantial bridging, properly anchored, capable of carrying the vehicle loading, in addition to adequate trench bracing, shall be used to bridge across trenches at street crossings where trench backfill, and temporary patches have not been completed during regular working hours as directed and approved by the City. Safe and convenient passage for pedestrians and access to all properties shall be provided.

(k) Disposal of Unsuitable Excavated Materials

(1) Excess material and excavated material unsuitable for backfill shall be removed from the Project by the end of each working day unless otherwise approved by the City and disposed of by the Contractor in an environmentally responsible manner at no cost to the Project.

(2) When unsuitable material is encountered that is not shown in the Contract Documents, the City shall order the removal of the material by the Contractor and issue a field order to change the contract price due to the Contractor for removal of the materials.

(l) Portable trench shields or boxes that provide a movable safe working area for installing pipe may be used for the installation of the pipe. After placing the pipe in the trench, backfill material shall be placed in lifts and the shield shall be lifted to allow for the backfill material to be placed for each lift, trench wall to trench wall.

(m) Transition Installations: When differential conditions of pipe support might occur, such as transitions from manholes to trench, a transition support region shall be provided to ensure uniform pipe support and preclude the development of shear, or other concentrated loading on the pipe.

Article 08-04-020 Bedding

(a) The bottom of the trenches shall be smooth, and hand graded uniformly throughout. If rock or other unyielding material is encountered or if the trench is over-excavated, pipe bedding material shall be added, compacted, and graded to a smooth uniform surface. The compacted bedding shall support the pipe throughout its entire length, except at bells or couplings which shall not rest on the bedding.

(b) After the bell or coupling holes are excavated and after the pipe pieces are connected and properly aligned and graded, successive layers of select material shall be placed and compacted, until the pipe is covered, as required in the Contract Documents. The Contractor shall maintain proper alignment and grade during the bedding process. Any bent, cracked, chipped, or damaged pieces of pipe shall be removed and replaced at Contractor's expense.

Article 08-04-030 Pipe Laying

(a) The pipe shall be laid true to the line(s) and grade(s) indicated in the Contract Documents or as established by the City. Pipe shall be laid such that pipe size markings are facing up within the trench.

(b) The pipe shall be protected during handling against impact shocks and free fall. Do not permit hooks, chains, cables, or handling equipment to come in contact with the pre-molded or pre-formed end surfaces.

(c) Handle the pipe having pre-molded end surfaces or pre-formed end surfaces so that no weight, including the weight of the pipe itself, will bear on or be supported by the jointing material or surfaces. Do not drag the end of the pipe on the ground or allow pipes to be damaged by contact with gravel, crushed stone, or any other hard objects. No damaged or deformed pipe will be incorporated into the Project.

(d) The interior of the pipelines shall be kept free from dirt and other foreign material as the work progresses and shall be clean upon completion of the pipe installation. Tight stoppers or bulkheads shall be securely placed in the ends of all pipelines when the work is stopped temporarily, or at the end of a workday.

(e) Immediately prior to jointing, both pipe ends shall be thoroughly cleaned, and a lubricant shall be applied according to the manufacturer's recommendations. For push-on type joints, sufficient pressure shall be applied in making up joints to insure proper seating of the joints.

(f) All pipe shall be laid straight between ends, fittings or bends, and on uniform grade. Excavate bell holes for each pipe joint. After the pipe is jointed in the trench, the pipeline shall form a true line and consistent grade.

(g) The City may select to check the pipe for line and grade by any method after the pipe is laid and before backfilling begins. The City shall also have the right of checking each pipe joint with a gauge or by any means necessary in order to be assured that the gaskets are in place and properly seated. Any run of pipe that is found to be appreciably offline or grade shall be removed from the trench, the trench bedding shall be re-graded and compacted, and the pipe shall then be laid accurately online and grade. Any joint that is found to be improperly gasketed and/or seated shall be un-jointed and correctly reassembled. If any gasket is found to be damaged, the entire pipe section containing the damaged gasket shall be replaced with a new section of pipe.

(h) Contractor shall furnish any tools, gauges, and all items required for the checking of the gaskets and joints and shall check every joint to be sure that the gaskets are seated and located in the correct place to avoid leakage at the joints.

(i) Pipe and appurtenances shall be new and unused. The type of pipe to be installed shall be as approved by these Technical Standards. Pipe and appurtenances shall be handled to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken to prevent damage to any pipe coating.

(j) The interior of pipe shall be thoroughly cleaned of foreign material before being lowered into the trench and shall be kept clean during construction operations. When work is not in progress, the open ends of pipe shall be securely closed so that no foreign materials will enter the pipe. Any section of pipe found to be defective before or after laying shall be replaced with sound pipe or repaired in a manner satisfactory to the City without additional expense.

(k) The Contractor shall install a plug in the new sewer at any point of connection to an existing system. The plug shall remain in place until the Project has been completed and all work approved. The Contractor shall not flush or otherwise discharge any flow into an existing system unless approved in writing by the City.

(l) Pipe shall be laid to line and grade as shown on the plans and as staked in the field. The bedding of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the pipe barrel. Suitable excavation shall be made to receive the bell of the pipe and the joint shall not bear upon the bottom of the trench. All adjustments to the line and grade shall be made by scraping away or filling in with pipe zone material under the body of the pipe, and not by wedging or blocking. When connections are to be made to any existing

manhole, pipe, or other improvement, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate for and expose the existing improvement before laying the connecting pipe or conduit. When existing underground improvements may reasonably be expected to conflict with the line or grade established for the new sewer line, the Contractor shall excavate as necessary to expose and locate such potentially conflicting underground improvements prior to laying the new pipe. Any adjustment in line or grade which may be necessary to accomplish the intent of the plans will be made.

(m) Trenches shall be kept free from water during pipe installation until suitable backfill has been placed and compacted to prevent pipe flotation. Any standing water within the trench shall be evacuated and the trench bottom or bedding be restored per the standards contained herein.

(n) Field cuts shall be completed with a hacksaw, handsaw, or a power saw with a steel blade or an abrasive disc. Field cuts shall be square to the pipe's flow area. The newly cut pipe end shall be beveled to the factory pipe chamfer. Completed field cuts shall be smooth and blunt free from shavings and rough edges.

(o) Connections to existing manholes shall be made by core drilling through the manhole wall using concrete saw or other cutting device approved by the City. Sledgehammers are not acceptable. The Contractor shall take care to avoid unnecessary damage to the existing manhole. Manholes broken by the Contractor shall be replaced by the Contractor without additional expense to the City.

(p) Sanitary sewer mains shall not be constructed under walkways, sidewalks, curbs and gutters, drivepads, or similar concrete structures by tunneling underneath. The Contractor will cut these concrete structures by using a concrete saw. At the Contractor's option, he may remove the section of the concrete structure to the nearest full expansion joint or edge without addition expense to City.

(q) Plastic sewer pipe shall be connected and placed in the trench in accordance with the manufacturer's recommendations.

(r) The reference mark (a distinct circumferential line) is placed on the pipe's spigot end by the manufacturer to indicate the correct depth of spigot penetration into the pipe gasket joint. If the pipe is seated too deep or too shallow the pipe may buckle or separate due to thermal expansion/contraction. Spigot penetration shall be within one quarter (1/4) inch of the manufacturer's recommended mark.

(s) The full length of each section of pipe shall rest solidly upon the bed, with recesses excavated to accommodate bells and joints. Any pipe that has the grade or joint disturbed after laying shall be taken up and re-laid. Pipe shall not be laid in water

or when trench or weather conditions are unsuitable for the Work except by permission of the City. Minimum depth of cover over top of pipe shall be three feet, unless otherwise approved by the City.

(t) All nuts, and bolts utilized in underground pipe connections shall be stainless steel, high strength cast iron or high strength wrought iron. Carbon steel nuts and bolts may be used except that they shall be protected by "cocoon" type protective coating of coal-tar and felt in accordance with AWWA Standard C 203.

(u) Where connections are made between new work and existing lines, the connections shall be made using all required fittings as recommended by pipe manufacturer and approved by the City. Couplings may be either cast iron or steel with bolts as stated above. If steel couplings are used, they will be cocoon wrapped as specified herein.

(v) Encasement shall be performed as shown in the Contract Documents at shallow crossings or other instances in which piping may be exposed or susceptible to excessive surface loading. DIP shall be used for these crossings with push-on or M.J. type connections, blocked with curved / conforming cinder blocks underneath, installed in prepared trench of adequate width to house pipe diameter and encasement. Trench excavation shall have ninety-five (95) percent relative compaction or shall be in freshly excavated native material, and as approved by the City may suffice with adequate dimensions to omit use of formwork for encasement concrete placement. Encasement concrete shall be aggregate and Type II cement meeting or exceeding 3,000 psi compressive strength. Rebar shall be placed as shown in the Contract Documents, shall be new and unused, and tied with minimum six-inch (6") lap distances, with minimum two inches (2") of concrete cover on outside dimensions.

(w) All valves shall be set true, level, vertical and plumb. All valves shall have and be supported by a concrete thrust block, have retainer rods, and shall comply with the details shown in the Contract Documents. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM D 1557.

(x) Cast iron valve boxes shall be set vertical and plumb centered over the operating nut. All valve boxes shall be adjusted to proper elevation, providing the minimum overlap of six inches (6") of the two (2) pieces, and a concrete collar shall be built around the top of each valve box. The concrete collar shall be of the size, shape, and dimensions shown in the Detail Drawings. The concrete shall be 3,000 psi at twenty-eight (28) days with one (1) inch aggregate and finished with a light broom finish. All concrete shall be removed from the top of the valve box and lid while it is still wet, and they shall be left clean. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM

D 1557. Valve stem extensions shall be required and installed on all valves for which the valve operator is more than four feet (4') below the finished surface.

(y) Adapters and couplings shall be installed in strict compliance with the manufacturer's recommendations. Contractor shall provide, in place, all additional straps, rods, and harness required to make a secure water-tight connection.

Article 08-04-040 Utility Restraint Systems

(a) Utility system piping thrust is to be restrained through the use of restrained joint fittings. Refer to Standard Details W-15 through W-18.

(b) Bell joint restraints shall be utilized.

(c) Where site conditions preclude the use of pipe restraints concrete thrust blocks may be utilized as follows. Thrust blocks shall be poured at all bends, valves, tees, reducers, and fittings, where changes in pipe diameter, alignment or grade occur, and as indicated in the Contract Documents or as required by City. Thrust blocks are only necessary where mechanical restraint joints are not being utilized. The minimum size of concrete thrust blocks shall be as shown in the Contract Documents or as directed by the City. The material of thrust blocks shall be concrete composed of concrete aggregates and shall have a compressive strength of no less than two thousand five hundred (2,500) psi in twenty-eight (28) days for standard cement Type II and shall be placed between solid, undisturbed ground and the fitting to be anchored. The area of bearing on the fitting and on the ground shall in each instance be that required by the City. Unless otherwise directed by the City the thrust blocks shall be placed so that the pipe and fitting joints will be accessible for repair. Metal harness or tie rods, of the size and type shown in the Contract Documents, shall be used. Refer to Standard Details: W-3 and W-4.

Article 08-04-050 Backfilling Trenches

(a) Definitions

(1) Foundation: Over-excavation and backfill of the foundation only when the native trench bottom does not provide a firm-working platform for placement of the pipe bedding material.

(2) Bedding: In addition to bringing the trench bottom to required grade, the bedding levels out any irregularities and ensures uniform support along the length of the pipe.

(3) Haunch Zone: The backfill under the lower half of the pipe (haunches) distributes superimposed loadings.

(4) Initial Zone: The backfill from the pipe midline to the top of the pipe zone provides the primary support against lateral pipe deformation for flexible pipe.

(5) Final Zone: Backfill above the pipe zone to the top of the subgrade.

(b) Materials for trench backfill may include flowable fill, Type I aggregate base course, Type II aggregate base course, and native materials. Individual pipe zone backfill requirements are presented below. The Contractor shall submit the material types to the City for approval prior to construction.

Native backfill shall only be utilized within the Final backfill zone. Native materials shall be free from sod, frozen earth, organic materials, rubbish, and debris. The material should be free of large stones (maximum clod size shall be < 3") that may cause damage to the pipe, such as concentrated pipe loading.

Table 11: Type I Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
2-Inch	100
1-1/2-Inch	90-100
1-Inch	70-90
No. 4	30-65
No. 10	30-10
No. 16	15-20
No. 200	10-20
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 12: Type II Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
1-Inch	100
¾-Inch	85-95
No. 4	40-70
No. 10	35-45
No. 16	25-35
No. 200	6-18
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 13: Native Backfill Requirements

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
0-20.0	12
20.1 – 50.0	10
50.1 – 80.0	8
80.1 – 100	6
Liquid Limit	50 Maximum

(1) Foundation: Trench foundations shall be stable prior to placing bedding material. If the City determines that unsuitable materials exist at the trench foundations, the Contractor shall remove and replace the material as directed by the City.

(2) Pipe Bedding: The trench shall be excavated to a depth of four- to six-inches (4”-6”) below the bottom of the pipe barrel and to a depth that will be sufficient to provide two- to four-inches (2”-4”) of clearance under the pipe bell (where applicable).

Uniform and stable bedding shall be provided for the pipe and any protruding features of its joints and/or fittings. The middle of the bedding equal to one-third (1/3) the pipe outside diameter may be loosely placed to allow for the pipe bell and other protruding features. Alternatively, the compacted bedding material may be excavated slightly to allow for continuous lines and grades of the pipe structure.

Pipe bedding shall consist of Type II aggregate base course or flowable fill. Bedding shall be backfilled to the required grade of the bottom of the pipe. The compaction shall provide a density, at minimum, equal to 95 percent of the maximum dry density in accordance with ASTM D 1557 with the exception of the middle-uncompacted area.

(3) Haunch Zone Backfill: After the pipe or conduit is laid, the haunch areas shall be backfilled with Type II aggregate base course or flowable fill.

Compaction of the haunching material can be best accomplished by hand with tampers or suitable power compactors for maximum compacted lift thickness of six inches (6”). The Contractor shall take care to not disturb the pipe from its line and grade while compacting the backfill. Material suitably distant from the pipe shall be compacted to 95 percent of the maximum dry density in accordance with ASTM D 1557.

While compacting the embedment near the pipe with impact-type tampers, caution shall be taken to not allow direct contact of the equipment with the pipe.

(4) Initial Backfill Zone: After the pipe or conduit is laid, the initial backfill area shall be backfilled with Type II aggregate base course or flowable fill. Avoid usage of impact tampers directly above the pipe until the full loose layer backfill depth above the pipe is obtained.

Table 14: Initial Backfill Zone Material Depths

Pipe or Conduit	Initial Zone
2-Inch or less diameter	6-Inches above the top of pipe
Greater than 2-Inch diameter	12-Inches above the top of pipe

(5) Final Backfill Zone: The remaining backfill, to the top of subgrade, shall consist of Type I or Type II aggregate basecourse, native material, or flowable fill. The material shall be compacted to a minimum of 95 percent of the maximum dry density in accordance with ASTM D 1557.

A. If flowable fill is used, flowable fill shall be placed from the top of the initial backfill zone to the bottom of the flexible pavement (replaces aggregate road base in the pavement section over the trench).

B. Flowable fill cap may be required in the upper portion of the Final Backfill Zone for all non-residential roadways with a minimum thickness of twelve inches (12”) for minor collectors and eighteen inches (18”) for all major collectors and arterials.

(c) Compaction

(1) Compaction shall be performed by mechanical means except in the haunch zone where compaction may be required by hand tamping. Mechanically compacted backfill shall be placed in layers of thickness compatible with the characteristics of the backfill and the type of equipment being used and shall have a maximum lift thickness as shown in the table below. The lifts shall be placed on both sides of the pipe at the same time to reduce pipe movement.

Table 15: Backfill Lift Thickness

Location	Maximum Compacted Lift Thickness (inches)	Maximum Loose Lift Thickness (inches)
Bedding, Haunch, and Initial Zones	6	8
Final Zone	8	12

(2) Each layer shall be evenly spread, moistened, and tamped or rolled until the specified relative compaction has been attained.

(3) Compaction minimum shall be 95 percent of the maximum dry density in accordance with ASTM D 1557 for trenches within the roadway prism. Compaction requirements for the final zone of trenches outside the roadway may be reduced to 90 percent of maximum dry density in accordance with ASTM D 1557.

(4) Density testing shall be completed every 200-feet on mains or any part thereof per day.

(5) Density testing per depth: Less than or equal to four-feet (4') shall require one at depth and one at subgrade per horizontal length above. Greater than four-feet (4') depths shall require one per six-inch (6") or larger pipe, then one every three (3) vertical feet, and one at subgrade per horizontal length above.

(6) Where test results reveal non-compliance with the requirements of the Contract, the Contractor shall bear the costs of subsequent rework and retesting until the required specification compliance is obtained to the satisfaction of the City.

(d) Minimum Pipe Spacing: If the pipe space between parallel pipes in a single trench is not conducive to mechanical backfill, then flowable fill shall be used.

Article 08-04-060 Pavement Patching

After all trenching and backfilling is complete, the pavement shall be marked and sawcut to form a smooth, uniform edge. The resulting cut face shall be coated with tack coat and new plant mix bituminous pavement shall be placed and densified as specified. The resulting pavement patch shall have a smooth riding surface in any direction. The patch section shall at minimum match the existing section.

Article 08-04-070 Cased Sewer Lines

(a) Where encasements or carrier pipe is required to be installed under railroad embankments or under highways, streets, or other facilities by jacking or boring methods, construction shall be made in a manner that will not interfere with the operation of the railroad, highway, or other facility, and will not weaken or damage any embankment or structure. During construction operations, barricades and lights to safeguard traffic and pedestrians shall be furnished and maintained, as directed by the City.

(b) Entry and exit pits shall be excavated for the purpose of conducting the boring/jacking operations and for placing end joints of the pipe. This excavation shall not be carried to a greater depth than is required for placing of the guide and boring/jacking machine. All open trenches and pits shall be braced and shored in such a manner as will adequately prevent caving or sliding of the walls into the open trench or pit.

(c) Minimum casing specifications can be found on Standard Drawing S-16. Facility operator beneath which the casing is being installed to determine if more stringent requirements shall govern the installation.

(d) Lateral or vertical variation in the final position of the pipe from the line and grade established by the Contract Documents will be permitted only to the extent of one-sixteenth inch (1/16") per ten feet (10'), however, final approval will be required by the City.

(e) Entry and exit pits shall be backfilled, in compliance with the Contract Documents, immediately upon installation of the carrier pipe and approval by the City.

Article 08-04-080 Testing

(a) The Contractor shall be required to test all piping and other lines and appurtenances in the presence of the City. Test reports shall be required for each test and submitted to the City. Testing of lines shall be done without being connected to existing lines. If such connections are allowed it is with the understanding that the Contractor assumes any and all responsibility in case of damage, failure and/or contamination to the existing system. The new water pipe will be tested before the backfilling is done. After the pipe is laid, earth cover shall be placed over the middle of the pipe joints, leaving the corp. stops, valves, service taps and laterals uncovered. The pipe will be filled with water, and the pressure in the pipeline shall be raised by means of a motor-driven water pump to a hydrostatic pressure of one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater, at the lower end of the pipe section. Applicable AWWA C-600 standards

and procedures shall be adhered to for determination of losses on pipes up to thirty-inches (30") in diameter. If any leaks appear in the pipe, they shall be repaired to the satisfaction of the City, and the test shall be performed until the pipe holds the prescribed pressure. As an alternative, the Contract may opt to test the pipeline in sections between mainline valves or as approved by the City.

(b) All testing shall be conducted in accordance with AWWA Standard C600 for ductile iron mains and AWWA Standard C605 for PVC mains and those portions of the above standard related to hydrostatic tests shall apply to any type of water main construction. Test pressure shall be one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater. Waterline shall be placed in its final position for hydrostatic testing. If the waterline is moved, all testing shall be performed again.

(c) All taps, gauges and necessary equipment shall be provided by the Contractor; however, the City may utilize gauges provided by the City at their discretion.

(d) Leakage Defined: Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within five (5) psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. If the pressure drops more than five (5) pounds in thirty (30) minutes, the pipe has failed to pass the test. If the pressure drop is less than five (5) pounds in thirty (30) minutes, water shall be added to the pipe section to maintain the one hundred fifty (150) psi test pressure and the volume of water added shall be duly recorded. This procedure shall be repeated at each thirty (30) minute intervals for the test period. The total volume of water added to the pipe section to maintain the one hundred fifty (150) psi test pressure shall represent the total leakage during the test.

(e) Allowable leakage: No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$\underline{\text{DIP}} \qquad\qquad \underline{\text{PVC}}$$
$$L = \frac{SD\sqrt{P}}{133{,}200} \quad \text{or} \quad L = \frac{ND\sqrt{P}}{7{,}400}$$

where L is the allowable leakage, in gallons per hour, S is the length of pipe tested, in feet; N is the number of joints in the length of pipeline tested, D is the nominal diameter of the pipe, in inches, and P is the average test pressure during the leakage test, in pounds per square inch gauge.

The tables below present the allowable leakage per various pipe diameters per 1,000 feet of pipeline.

Table 16: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (DIP)

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
350	0.84	1.12	1.40	1.69	1.97	2.25	2.53	3.37	4.21
300	0.78	1.04	1.30	1.56	1.82	2.08	2.34	3.12	3.90
275	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.99	3.73
250	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.85	3.56
225	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.70	3.38
200	0.64	0.85	1.06	1.27	1.49	1.70	1.91	2.55	3.19
175	0.60	0.79	0.99	1.19	1.39	1.59	1.79	2.38	2.98
150	0.55	0.74	0.92	1.10	1.29	1.47	1.66	2.21	2.76

Table 17: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (PVC)

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
300	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.81	3.51
275	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.69	3.36
250	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.56	3.21
225	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.43	3.04
200	0.57	0.76	0.96	1.15	1.34	1.53	1.72	2.29	2.87
175	0.54	0.72	0.89	1.07	1.25	1.43	1.61	2.15	2.68
150	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.99	2.48

(f) When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/h/in. (0.0012 L/h/mm) of nominal valve size shall be allowed.

(g) Acceptance of Installations: Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid disclosed leakage greater than specified the Contractor shall, at the Contractor's expense, locate and make repairs as necessary until the leakage is within the specified allowance.

(h) All visible leaks are to be repaired regardless of the amount of leakage.

(i) The Contractor shall be notified of any leaks that may occur during the one (1) year warranty period and shall make immediate arrangements after he is notified to return to the job site and repair any leaks that may develop in the pipeline.

Article 08-04-090 Detectable (Underground) Warning Tape

(a) Detectable warning tape shall be 6" wide, 5 mil overall thickness, with a .35 mil solid foil coil. APWA color coded with imprint of underground utility installed.

(b) Detectable warning tape shall be laid in continuous manner and be placed above all sewer mains, sewer force mains, sewer service lines, and other sewer appurtenances. The detectable warning tape shall be placed eighteen inches (18") below the final surface elevation.

Article 08-04-100 Trace Wire

(a) All trace wire shall have HDPE insultation intended for direct bury service. HDPE insulation shall be color coated per APWA Standard for respective utility being installed.

(b) Trace wire shall be taped to the top of all sewer mains, sewer force mains, and sewer service lines at maximum 10-foot interval. Trace wire along sanitary sewer service lines entering private property shall be terminated above ground at the cleanout adjacent to the developed structure.

(c) Trace wire shall be as following based on installation method:

(1) Open Trench Installation: #12 AWG copper clad steel, high strength with minimum 450-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries High Strength – 1230 CCS Trace Wire or City approved equal.

(2) Directional Drilling/Boring: #12 AWG copper clad steel, high strength with minimum 1,150-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries Extra-High Strength – 1245 CCS Trace Wire or City approved equal.

(3) Pipe Bursting/Slip Lining: 7 x 7 stranded copper clad steel, extreme strength with minimum 4,700-pound break load and minimum 50 mil HDPE insulation thickness. Copperhead Industries SoloShot Xtreme – PBX-50 CCS Trace Wire or Engineer Approved Equal.

(4) When a new trace wire is to be tied to an existing trace wire the connection shall be made with an approved splice connector and shall be properly grounded at the splice connection.

(d) Connectors

(1) All main line trace wires shall be interconnected at intersections (tees and crosses). Connectors shall be lockable and manufactured specifically for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion and shall be installed in a manner as to prevent any uninsulated wire exposure.

(2) Tee Connectors (service lines, main line tees, and fire hydrants) shall include a 3-way lockable connector main line to lateral lug connector. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(3) Cross Connectors (main line crosses) shall include two (2) 3-way lockable main line to lateral lug connectors. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(4) Main line trace wire splices shall be completed utilizing twist-lock connectors. Copperhead Industries Locking Connector Part Number LSC1230C or City approved equal.

(5) Do not cut and splice main line trace wire.

(6) Non-locking friction fit, twist on, or taped connectors shall not be used.

(e) Termination/Access Boxes

(1) All trace wire termination points must utilize an approved trace wire access box, specifically manufactured for this purpose. Except as noted previously for termination on the upstream end of sewer service lines.

(2) All access boxes shall be identified with “sewer” or “water” cast into the cap and be APWA color coded according to the utility.

(3) A minimum of two-feet (2’) of slack is required in all trace wire boxes upon installation at final grade.

(4) All trace wire access boxes must include a manually interruptible conductive/connective link between the terminals for the trace wire connection and the terminal for the ground anode wire connection.

(5) Ground anode wire shall be connected to the identified terminal on all access boxes.

(6) Manholes must terminate at an in-ground trace wire access box positioned within the manhole concrete collar. Copperhead Industries SnakePit Roadway with Two-Terminal Switchable Lid Access Point Part Number RB14*2T-SW or City approved equal.

(f) Grounding

(1) Trace wire must be properly grounded at all dead ends and stubouts.

(2) Grounding of trace wire shall be accomplished through the use of a drive-in magnesium grounding anode rod with a minimum of 20-feet of #12 AWG red HDPE insulated copper clad steel wire connected to the anode (minimum of 1.5-pound) specifically manufactured for the intended purposed. The ground anode shall be landed at the same elevation as the utility. Ground anode shall be Copperhead Industries Ground Rod with Twist-On Connector Part Number ANO-12 or City approved equal.

(3) When grounding the trace wire at dead ends or stubouts, the grounding anode shall be installed perpendicular to the trace wire at a maximum possible distance.

(4) When grounding the trace wire in long continuous runs, the grounding anode shall be installed directly beneath and in-line with trace wire. The grounding anode wire shall be trimmed to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.

(g) Testing

(1) All new trace wire installations shall be located using typical low frequency line trace equipment. The City shall conduct a test trace witnessed by the Contractor prior to final acceptance. The test trace shall be conducted using City equipment prior to final surface (asphalt/concrete) placement.

(2) Continuity testing in lieu of actual line trace will not be accepted.

ARTICLE 08-05 – COORDINATION

Article 08-05-010 Construction Coordination, Survey, & Acceptance

(a) The Contractor shall coordinate the Work with the City before commencing work. The City shall inspect and approve all work prior to backfilling. Photos will not be accepted in lieu of a physical inspection.

(b) The Contractor shall notify the City in writing when each utility installation is complete in place per plan and ready for inspection. No utility backfill shall be placed until inspection has been satisfied by the City.

(c) Acceptance Submittal – All test reports (utility, bacteriological, concrete, compaction, etc.), signed inspection forms, field marked construction drawings reflecting as-built conditions, and delivery of post construction survey as defined below.

(d) Post Construction Survey – to be completed by a professional surveyor licensed in the State of New Mexico. The survey shall include key system components for incorporation into the City's geographic information system (GIS). All data shall be created in real world coordinate system based on the following projection: horizontal control in NAD83, vertical control in NAVD88, and based on New Mexico State Plan Coordinates System (Grid), Central Zone, US Foot. The survey shall be tied to at least two (2) City control points as included at the end of Chapter 05. The Post Construction Survey shall be completed in a City approved AutoCAD version (.dwg format) provided to the City on a mass storage drive (compact disc or usb storage device) or via secure downloadable link.

The Post Construction Survey provider shall include a table identifying the layering convention used to depict system components (i.e. Layer C-UTIL-WATR-12in represents a twelve (12") diameter C-900 PVC Water Line, etc.). This will allow the City personnel to isolate and import portions of the drawing and translate the information directly into usable data in their GIS. The user at their option can base their layering convention on the National Cad Standard (NCS) for ease of use. The City will not accept CAD files containing information drawn in paperspace.

The post construction survey shall be in conjunction with the Record Drawings noting work per plan or identifying different field installation conditions.

(1) Drainage Systems Components: drainage channel control features and flowline elevations, drainage channel structure information (culvert upstream/downstream flowline elevations), manholes, inlets, pipe outfall(s), pond top elevation, and pond bottom elevation.

(2) Sanitary Sewer System Components: standard manholes, control manholes, drop manholes, cleanouts at right-of-way or property lines, casing installations, and sewer service taps.

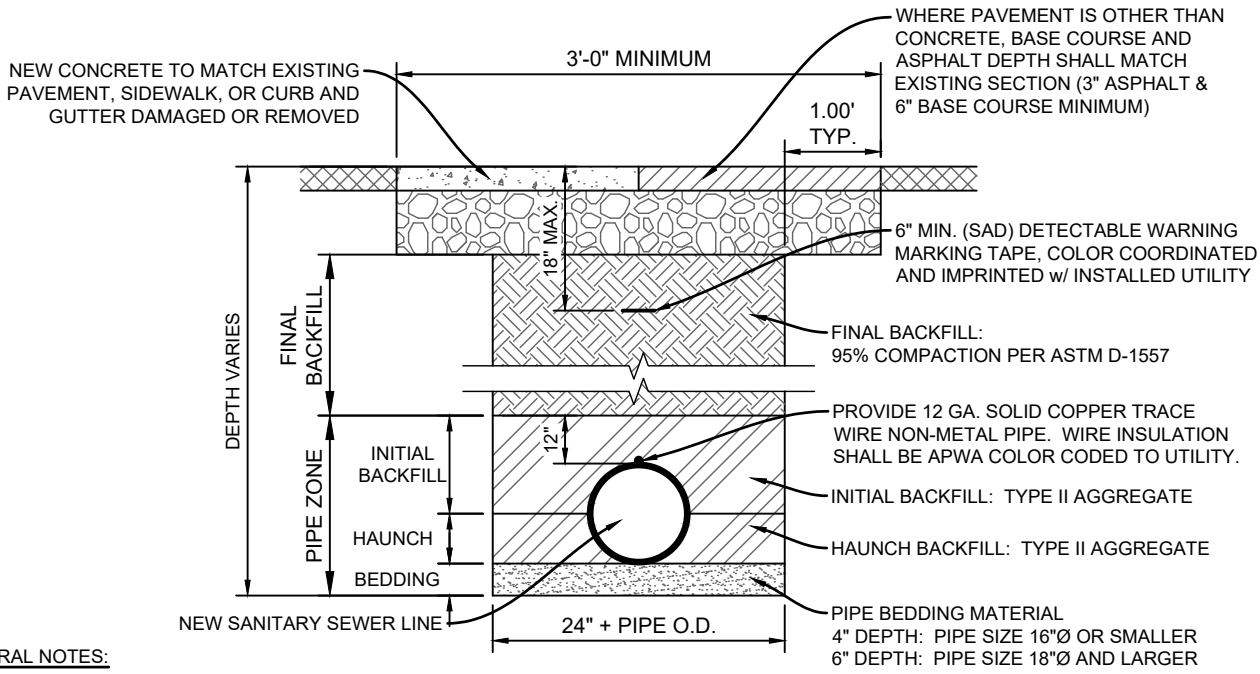
(3) Lift Station Components: wet wells, dry wells, vaults, cleanouts, air valves, plug valves, flow meter, bends, and manholes.

(4) Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, fire hydrants, water meters, service line taps, sampling stations, and pressure reducing stations.

(5) Reclaimed Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, hydrants, meters, service line taps, or pressure reducing stations.

(e) Substantial Completion – the Acceptance Submittal and Post Construction Survey shall be provided to the City, reviewed, and accepted by the City prior to issuance of Substantial Completion and subsequent commencement of the warranty period.

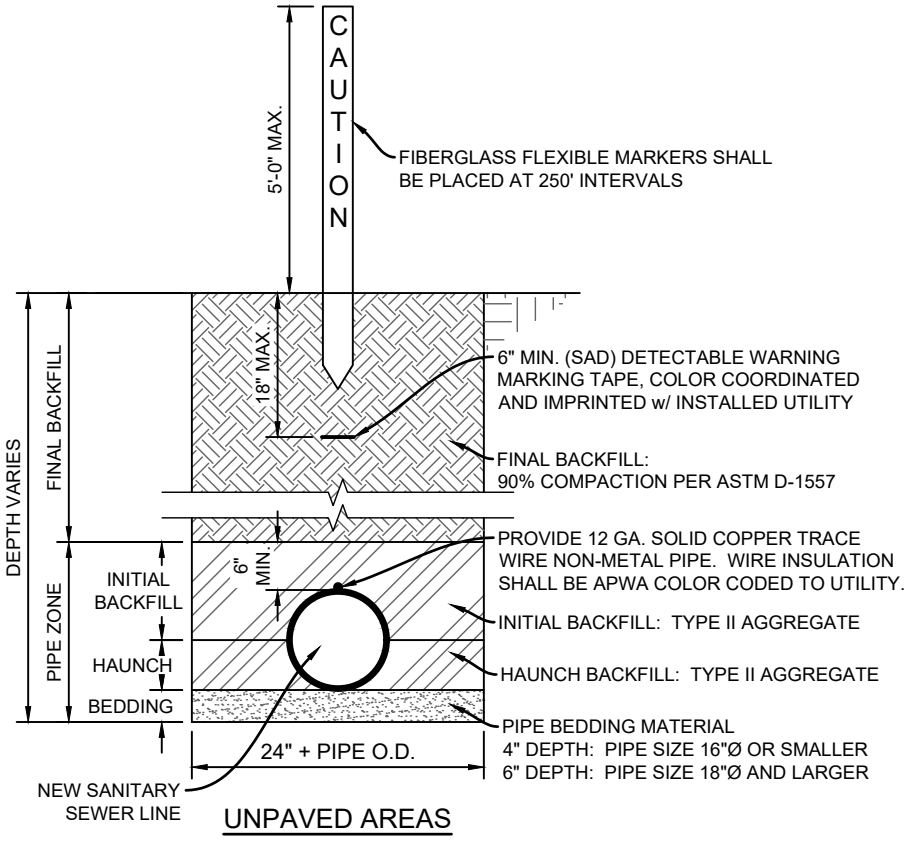
END OF ARTICLE CHAPTER 08



PAVED AREAS

GENERAL NOTES:

1. TRENCH WIDTHS AND CROSS SECTIONS SHALL BE IN COMPLIANCE WITH APPLICABLE SAFETY STANDARDS AND REGULATIONS.
2. TESTING REQUIREMENTS INCLUDE VISUAL TESTING OF ALL MAIN LINES LAID AT OR FLATTER THAN MINIMUM SLOPES.
3. MECHANICAL TAMPERS SHALL NOT BE USED IN THE INITIAL BACKFILL SECTION FOR FLEXIBLE PIPE.
4. HAND PREPARED PIPE BED, PROVIDE A SMOOTH UNIFORM SURFACE, EXCAVATE FOR PIPE BELL.
5. TRACE WIRE REQUIRED TO BE PLACED ABOVE ALL FORCE MAINS.
6. TRACE WIRE SHALL BE TAPED TO MAIN AT 10-FEET ON CENTER.
7. TRACE WIRE TO BE ACCESSIBLE, WITHIN VALVE BOX, SERVICE POINT, OR WITHIN AN INSTALLED TWO POINT TEST BOX, AT 500-FEET ON CENTER MAXIMUM.
8. NATIVE SOIL MAY BE USED AS FINAL BACKFILL IF FREE OF ORGANIC MATTER/DEBRIS, MAXIMUM PARTICLE SIZE OF TWO-INCH (2"), LIQUID LIMIT OF <35, AND PLASTICITY INDEX OF <15. COMPACTION REQUIREMENTS FOR NATIVE MATERIAL SHALL REMAIN THE SAME AS IMPORT MATERIALS AND PLACEMENT SHALL OCCUR WITHIN ±2% OF OPTIMUM MOISTURE CONTEXT.



UNPAVED AREAS

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

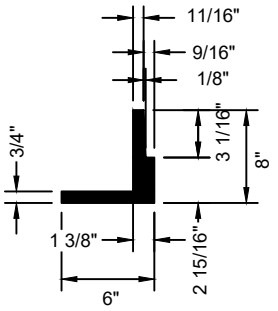
SANITARY SEWER TRENCH DETAIL

ISSUE DATE: JUNE 14, 2022

RESOLUTION NO: 2022-28

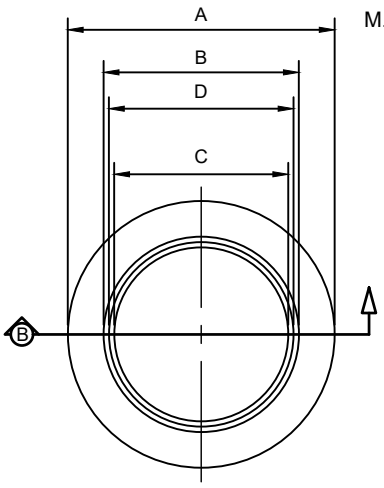
REVISION DATE: ----

SHEET NO: S-1

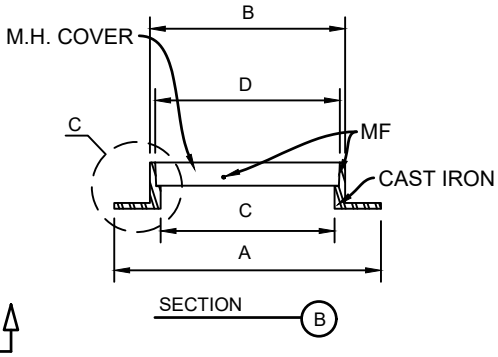


DETAIL C

MANHOLE RING	48" MANHOLE	72" MANHOLE
WEIGHT	155 LBS.	225 LBS.
A	2'-10 1/2"	3'-6"
B	2'-1 1/4"	2'-8 3/4"
C	1'-10 1/2"	2'-6"
D	1'-11 7/8"	2'-7 3/8"



TOP VIEW



NOTE:

1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.

TYPICAL MANHOLE RING DETAIL

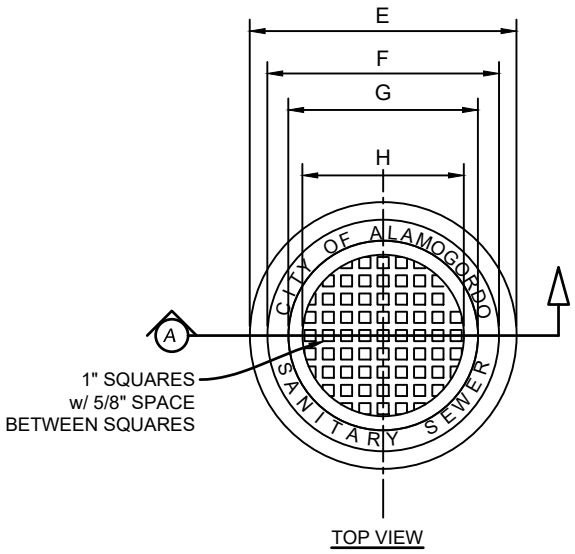
GENERAL NOTES:

1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED AND BE FREE OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.
3. MANHOLE RING AND LID SHALL BE DESIGNED FOR H-20 WHEEL LOADING.
4. MINIMUM TOTAL WEIGHT (RING AND LID) SHALL BE 300 LBS.
5. TOP OF LID MAY VARY FROM DETAIL SHOWN. LID SHALL BE MARKED FOR APPROPRIATE UTILITY.

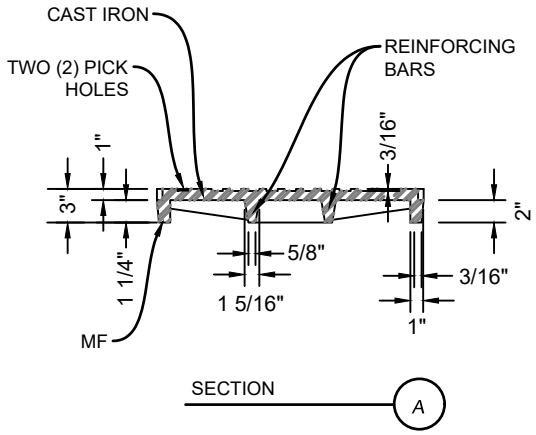
SCALE: NOT TO SCALE

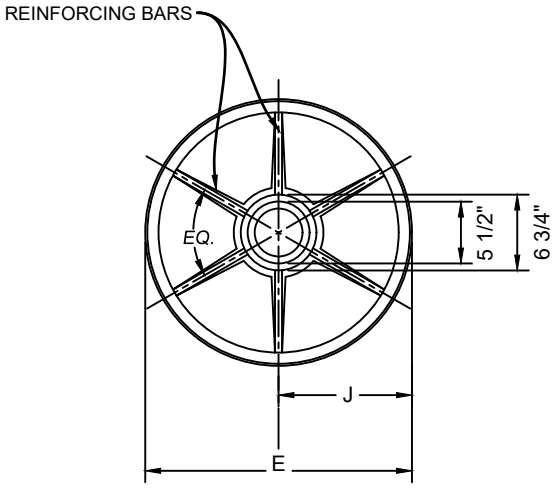
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MANHOLE RING DETAIL	REVISION DATE: ---- SHEET NO: S-2

MANHOLE RING	48" MANHOLE	72" MANHOLE
WEIGHT	175 LBS.	310 LBS.
E	23 3/4"	31 1/4"
F	20 5/8"	28 1/8"
G	16 7/8"	24 3/8"
H	14 3/8"	21 7/8"
J	11 7/8"	15 5/8"



TOP VIEW





BOTTOM VIEW

NOTE:

1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.

2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.

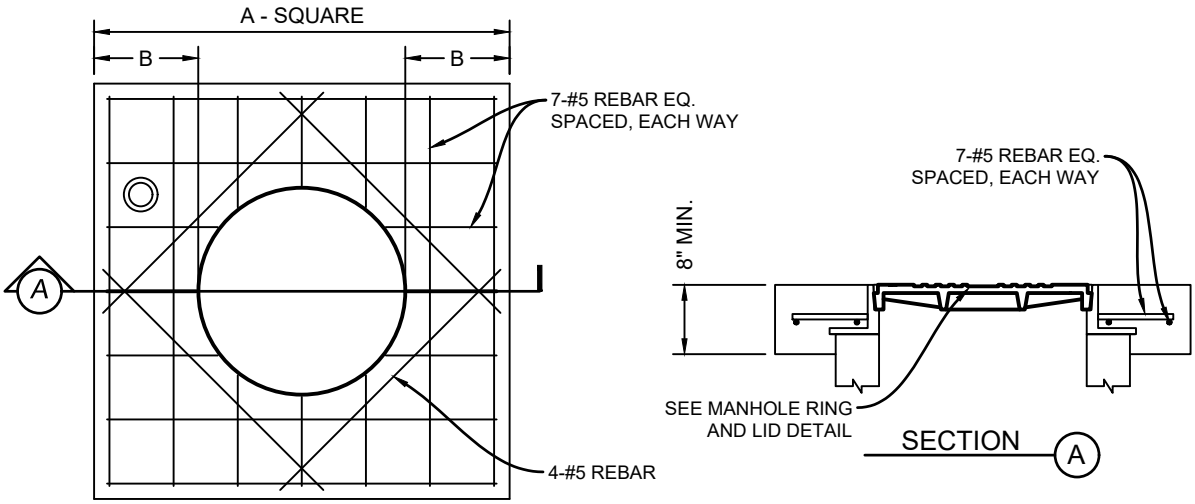
TYPICAL MANHOLE LID DETAIL

GENERAL NOTES:

1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED AND BE FREE OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.
3. MANHOLE RING AND LID SHALL BE DESIGNED FOR H-20 WHEEL LOADING.
4. MINIMUM TOTAL WEIGHT (RING AND LID) SHALL BE 300 LBS.
5. TOP OF LID MAY VARY FROM DETAIL SHOWN. LID SHALL BE MARKED FOR APPROPRIATE UTILITY.

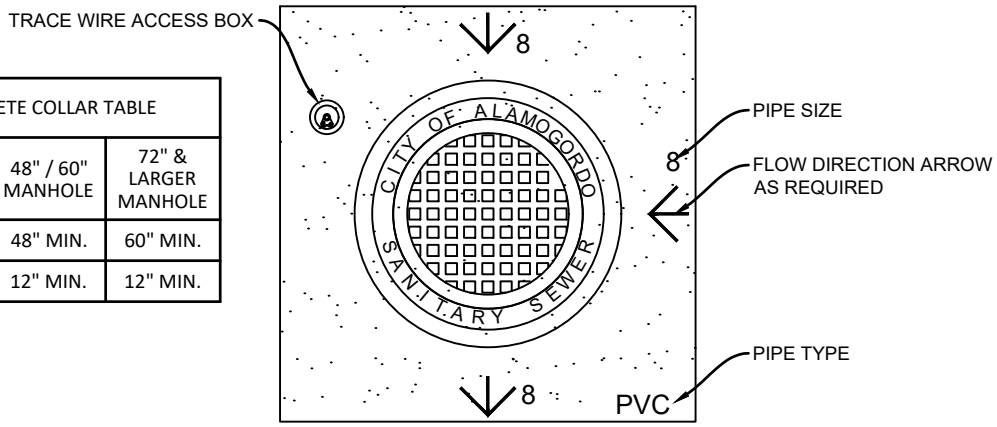
SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MANHOLE COVER DETAIL	REVISION DATE: ---- SHEET NO: S-3



MANHOLE CONCRETE COLLAR DETAIL

CONCRETE COLLAR TABLE		
TYPE	48" / 60" MANHOLE	72" & LARGER MANHOLE
A	48" MIN.	60" MIN.
B	12" MIN.	12" MIN.



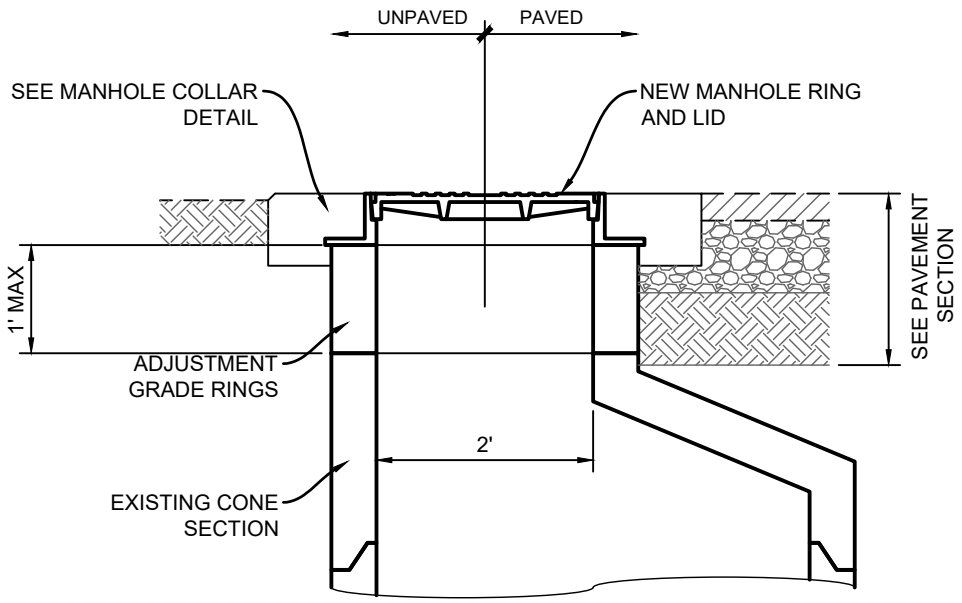
MANHOLE COLLAR MARKING DETAIL

GENERAL NOTES:

1. SIDES OF CONCRETE COLLAR TOP SHALL BE PARALLEL AND PERPENDICULAR TO THE NORMAL STREET TRAFFIC FLOW.
2. USE 3,000 P.S.I. CONCRETE FOR CONCRETE COLLAR.
3. SCRIBE CONCRETE WITH LINE DIRECTIONAL ARROWS, PIPE SIZE AND PIPE TYPE.
4. TEXT SIZE SHALL BE 4-INCHES TALL AND SCORED 3/8" DEEP IN A NEAT AND CONSISTENT MANNER, TYPICAL.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MANHOLE COLLAR DETAIL	REVISION DATE: ---- SHEET NO: S-4



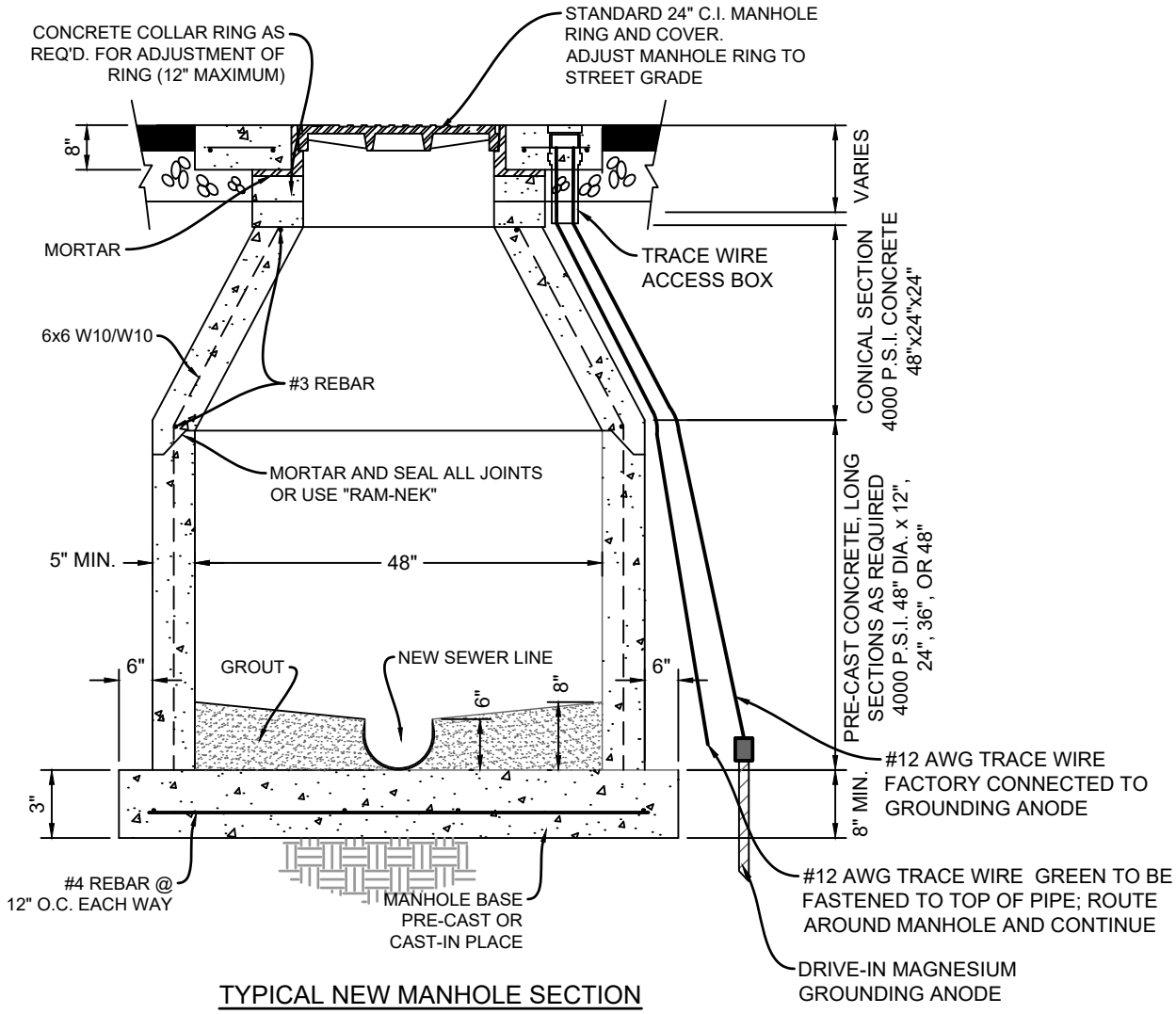
MANHOLE RING AND LID ADJUSTMENT DETAIL

GENERAL NOTES:

1. SIDES OF CONCRETE COLLAR TOP SHALL BE PARALLEL AND PERPENDICULAR TO THE NORMAL STREET TRAFFIC FLOW.
2. USE 3,000 P.S.I. CONCRETE FOR CONCRETE COLLARS.
3. SCRIBE CONCRETE WITH LINE DIRECTIONAL ARROWS, PIPE SIZE AND PIPE TYPE.
4. TEXT SIZE SHALL BE 4-INCHES TALL AND SCORED 3/8" DEEP IN A NEAT AND CONSISTENT MANNER, TYPICAL.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MANHOLE RING AND LID ADJUSTMENT DETAIL	REVISION DATE: ---- SHEET NO: S-5



TYPICAL NEW MANHOLE SECTION

GENERAL NOTES:

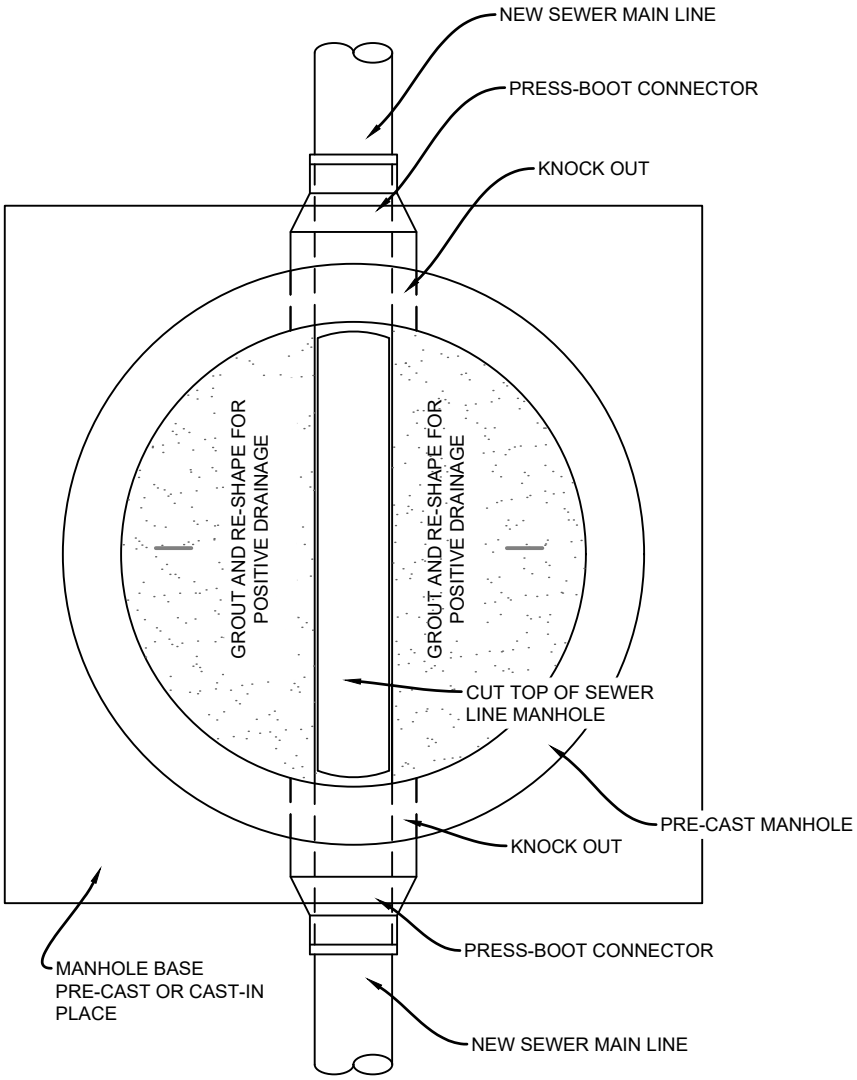
1. KNOCK OUT AND PRESS-BOOT CONNECTOR AS REQUIRED. PRECAST AS PART OF MANHOLE SECTION.

2. SEE PLAN AND PROFILE FOR INVERT ELEVATIONS.

3. THE ENTIRETY OF MANHOLES EXPOSED SURFACE SHALL BE COATED, PRIOR TO PLACEMENT INTO SERVICE, TO AIDE IN CORROSION AND IMPACT RESISTANCE. MANHOLE SHALL BE COATED WITH RAVEN 175 (PRIME COAT) AND RAVEN 405 (2ND COAT) TO 100 MIL TOTAL DRY THICKNESS; ALTERNATE COATING SYSTEMS SHALL BE PRE-APPROVED BY THE CITY.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	PRECAST CONCRETE MANHOLE DETAIL	REVISION DATE: ---- SHEET NO: S-6



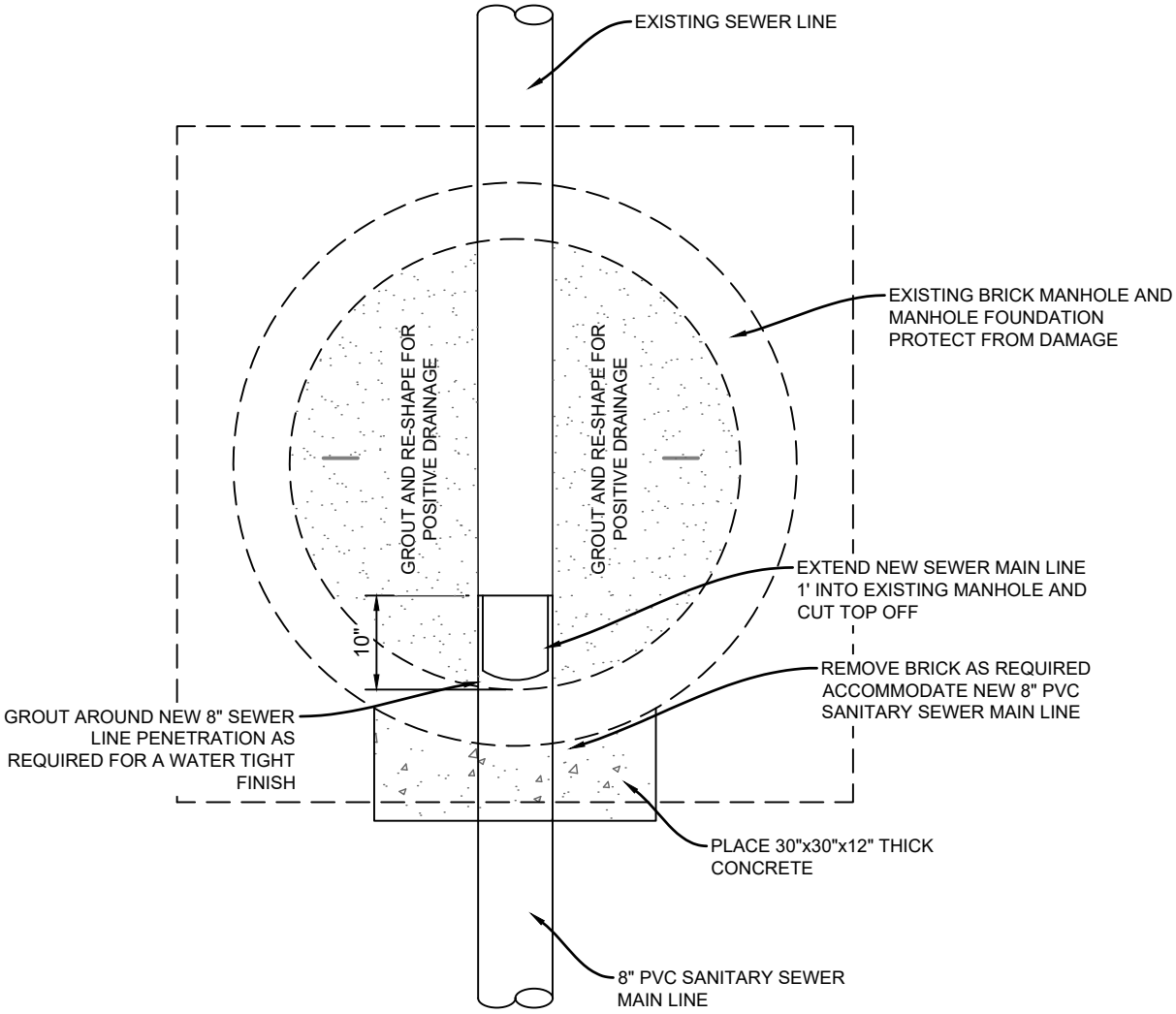
NEW MANHOLE SEWER MAIN CONNECTION

GENERAL NOTES:

1. AFTER MANHOLE HAS BEEN SET AND THE CONNECTIONS MADE CONTRACTOR SHALL CUT TOP OF SEWER LINE IN MANHOLE.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	NEW MANHOLE SEWER CONNECTION DETAIL	REVISION DATE: ---- SHEET NO: S-7



EXISTING MANHOLE SEWER MAIN CONNECTION

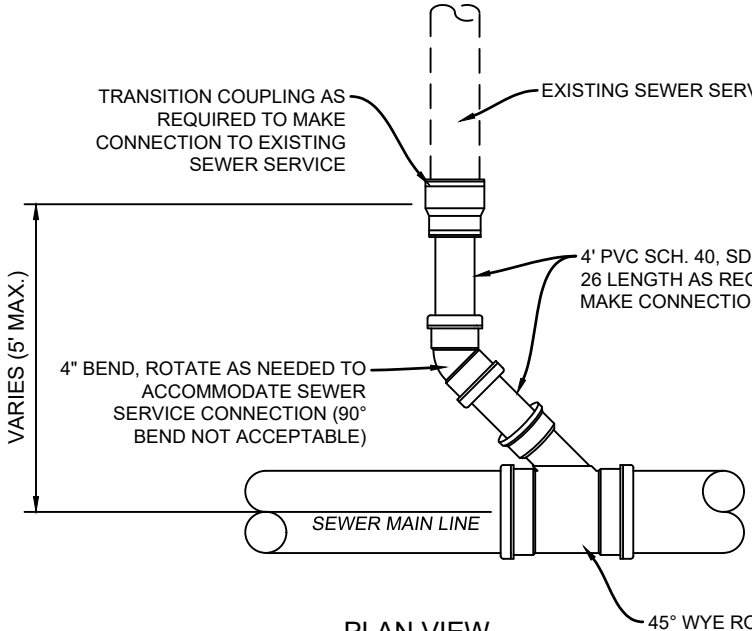
GENERAL NOTES:

1. AFTER MANHOLE HAS BEEN SET AND THE CONNECTIONS MADE CONTRACTOR SHALL CUT TOP OF SEWER LINE IN MANHOLE.

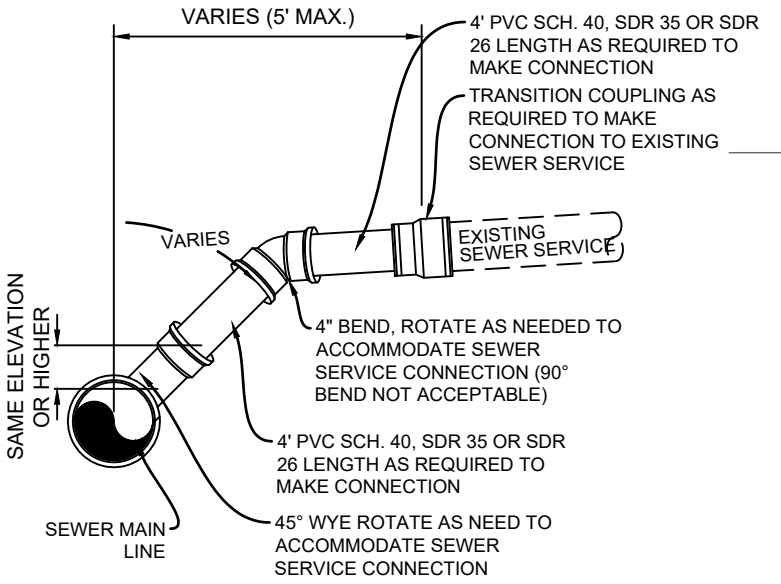
2. PER CITY ORDINANCE 28-02-080.(a) PUBLIC BUILDINGS-CONNECTIONS: NO PUBLIC SERVICE BUILDING, HOTEL, SCHOOL, PUBLIC SCHOOL, LAUNDRY OR OTHER KIND OF PUBLIC SERVICE ESTABLISHMENT SHALL BE PERMITTED TO CONNECT WITH THE PUBLIC SEWERS EXCEPT AT A MANHOLE.

SCALE: NOT TO SCALE

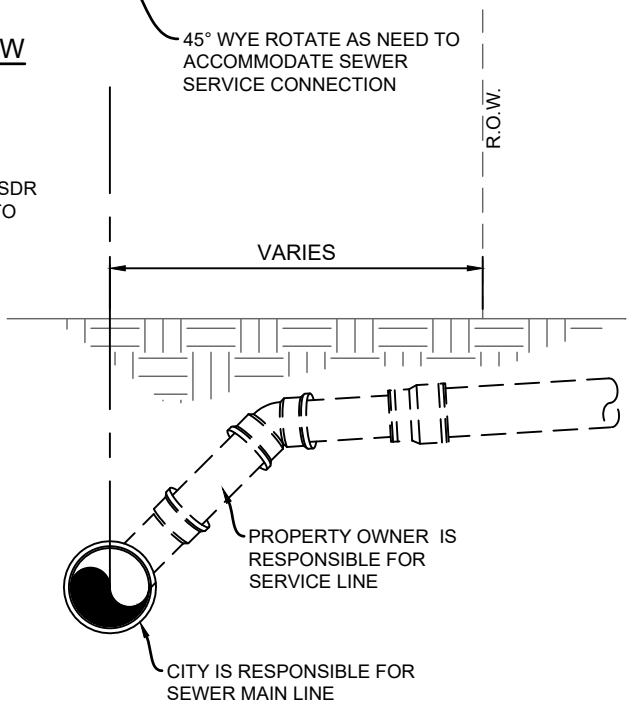
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	EXISTING MANHOLE SEWER CONNECTION DETAIL	REVISION DATE: ---- SHEET NO: S-8



PLAN VIEW



CROSS SECTION



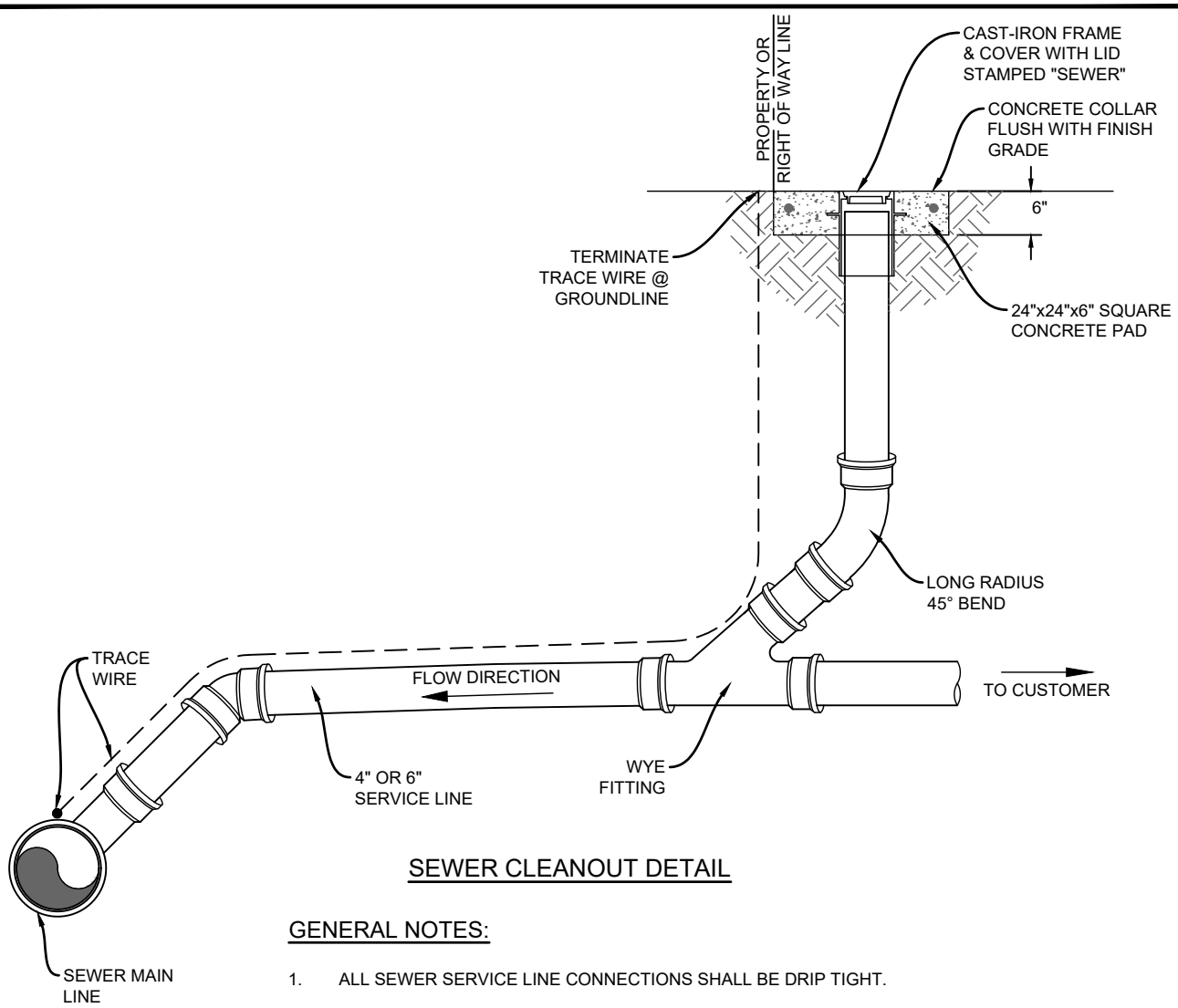
SERVICE RESPONSIBILITY

GENERAL NOTES:

1. ALL SEWER SERVICE LINE CONNECTIONS SHALL BE DRIP TIGHT.
2. WHERE SEWER SERVICE LINE(S) CROSSES CURB & GUTTER (PROPOSED OR EXISTING), A 2" HIGH STAMPED "S" SHALL BE STAMPED OR INSCRIBED INTO THE TOP OF CURB.

SCALE: NOT TO SCALE

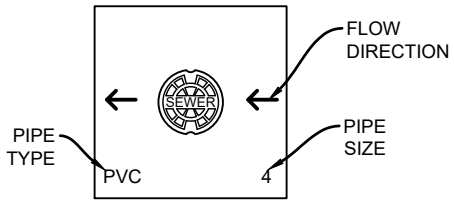
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	SEWER SERVICE LINE DETAIL	REVISION DATE: ---- SHEET NO: S-9



SEWER CLEANOUT DETAIL

GENERAL NOTES:

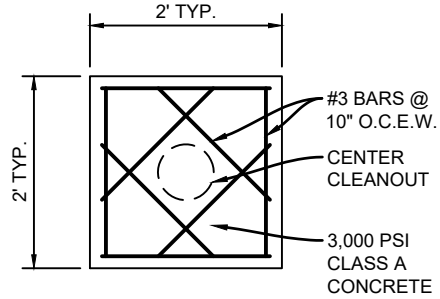
1. ALL SEWER SERVICE LINE CONNECTIONS SHALL BE DRIP TIGHT.



COLLAR CALLOUTS

GENERAL NOTES:

1. SCRIBE CONCRETE WITH LINE DIRECTIONAL ARROWS, PIPE SIZE AND PIPE TYPE.
2. TEXT SIZE SHALL BE 4-INCHES TALL AND SCORED 3/8" DEEP IN A NEAT AND CONSISTENT MANNER, TYPICAL.



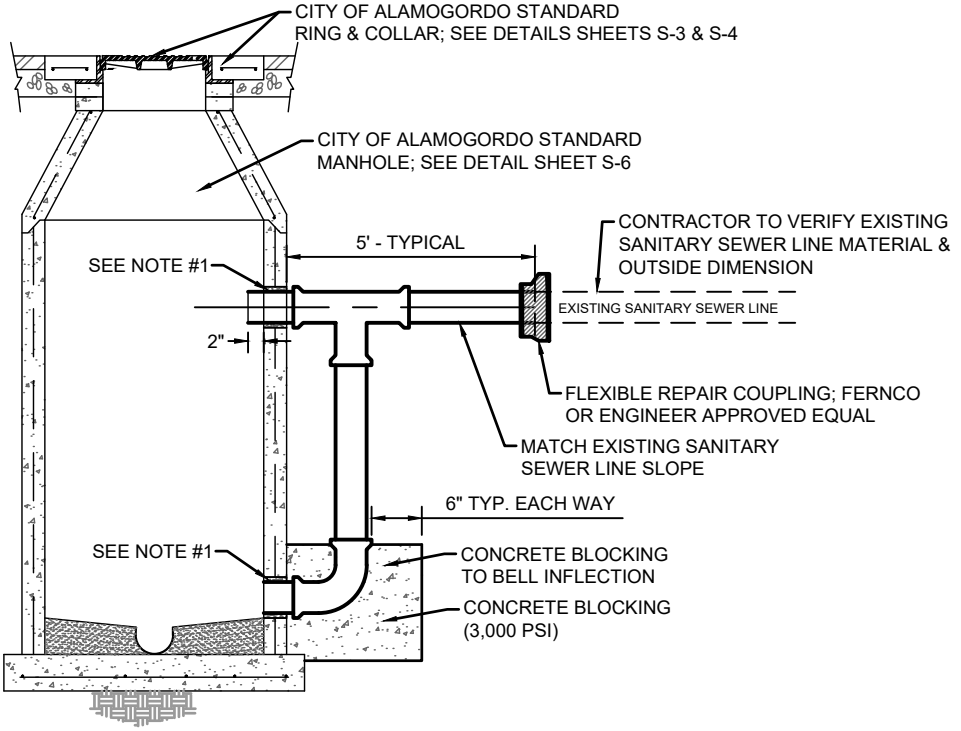
COLLAR DETAIL

GENERAL NOTES:

1. SEWER CLEANOUT SHALL BE CENTERED IN CONCRETE COLLAR.
2. REBAR SHALL BE 1-1/2" CLEAR FROM CONCRETE EDGE TYPICAL.

SCALE: NOT TO SCALE

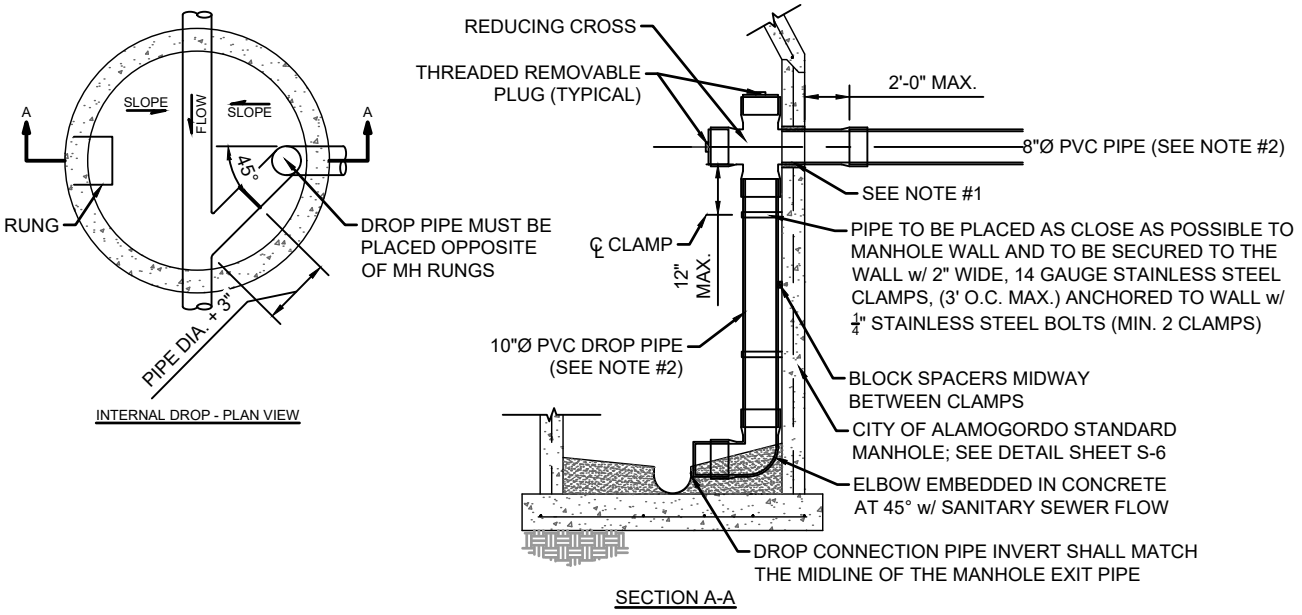
ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	SEWER CLEANOUT DETAIL	REVISION DATE: ---- SHEET NO: S-10



EXTERNAL DROP MANHOLE

NOTES:

1. MANHOLE STOP RING GASKETED AROUND NEW SEWER LINE AND SEAL COMPLETELY w/ NON-SHRINK GROUT.



INTERNAL DROP MANHOLE

NOTES:

1. MANHOLE STOP RING GASKETED AROUND NEW SEWER LINE AND SEAL COMPLETELY w/ NON-SHRINK GROUT.
2. FOR 8"Ø PVC PIPE PROVIDE 10"Ø PVC INTERNAL DROP PIPING.
   FOR 10"Ø PVC PIPE PROVIDE 12"Ø PVC INTERNAL DROP PIPING.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

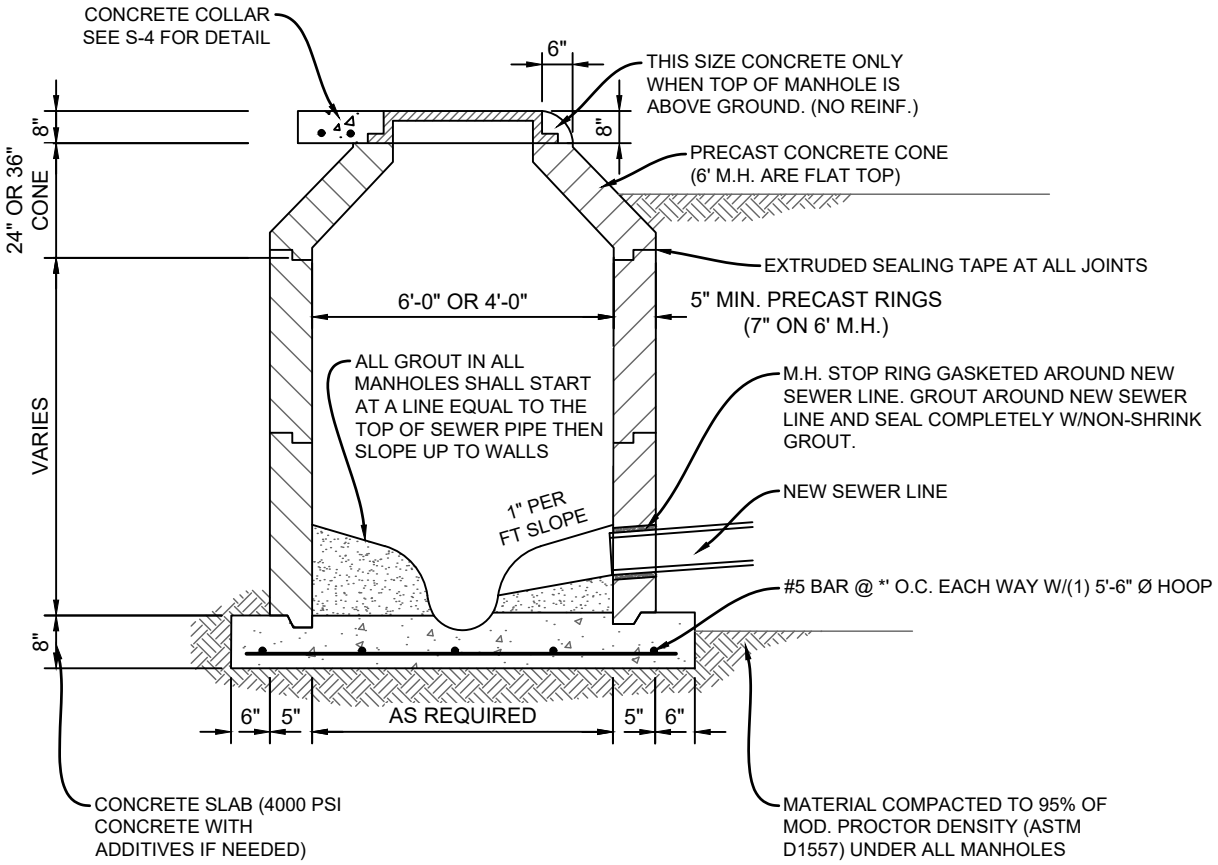
DROP MANHOLE DETAILS

ISSUE DATE: JUNE 14, 2022

RESOLUTION NO: 2022-28

REVISION DATE: ----

SHEET NO: S-11



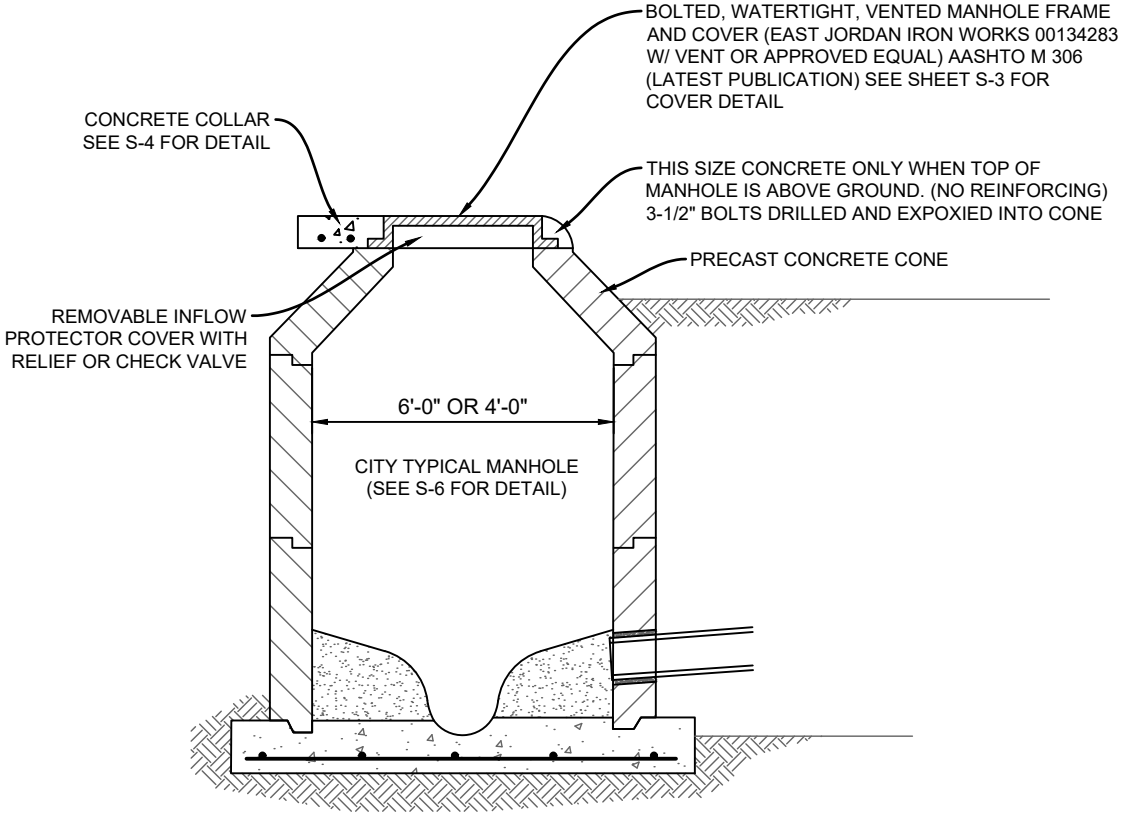
CONTRACTOR NOTES:

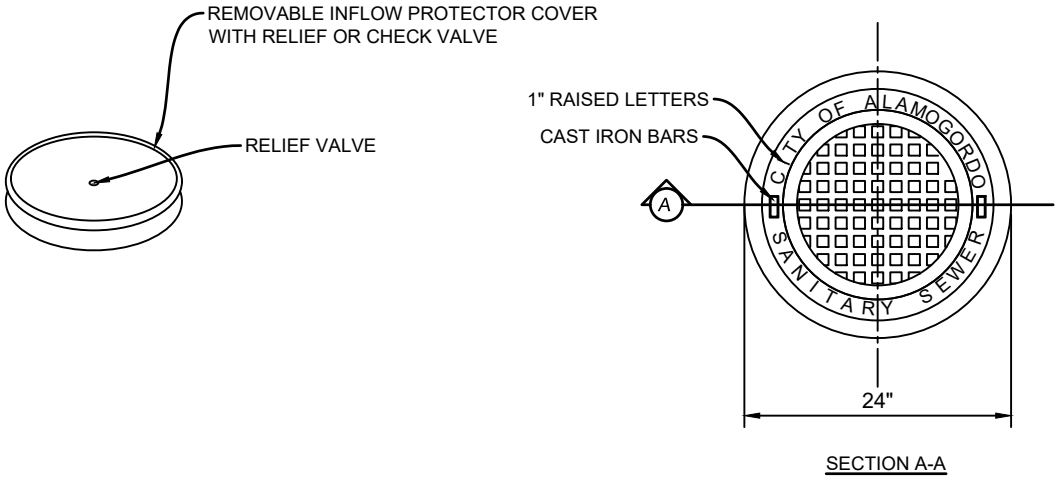
1. IF NEW PIPE INVERT IS BELOW EXISTING GROUTED SHELF, SHELF IS TO BE CUT OUT AS NEEDED AND RE-GROUTED.

2. PRECAST PORTION OF MANHOLES, EXCLUDING CAST IN PLACE BOTTOM, SHALL CONFORM TO ASTM C478 LATEST REVISIONS.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	TAPPING INTO EXISTING STANDARD MANHOLE DETAIL	REVISION DATE: ---- SHEET NO: S-12

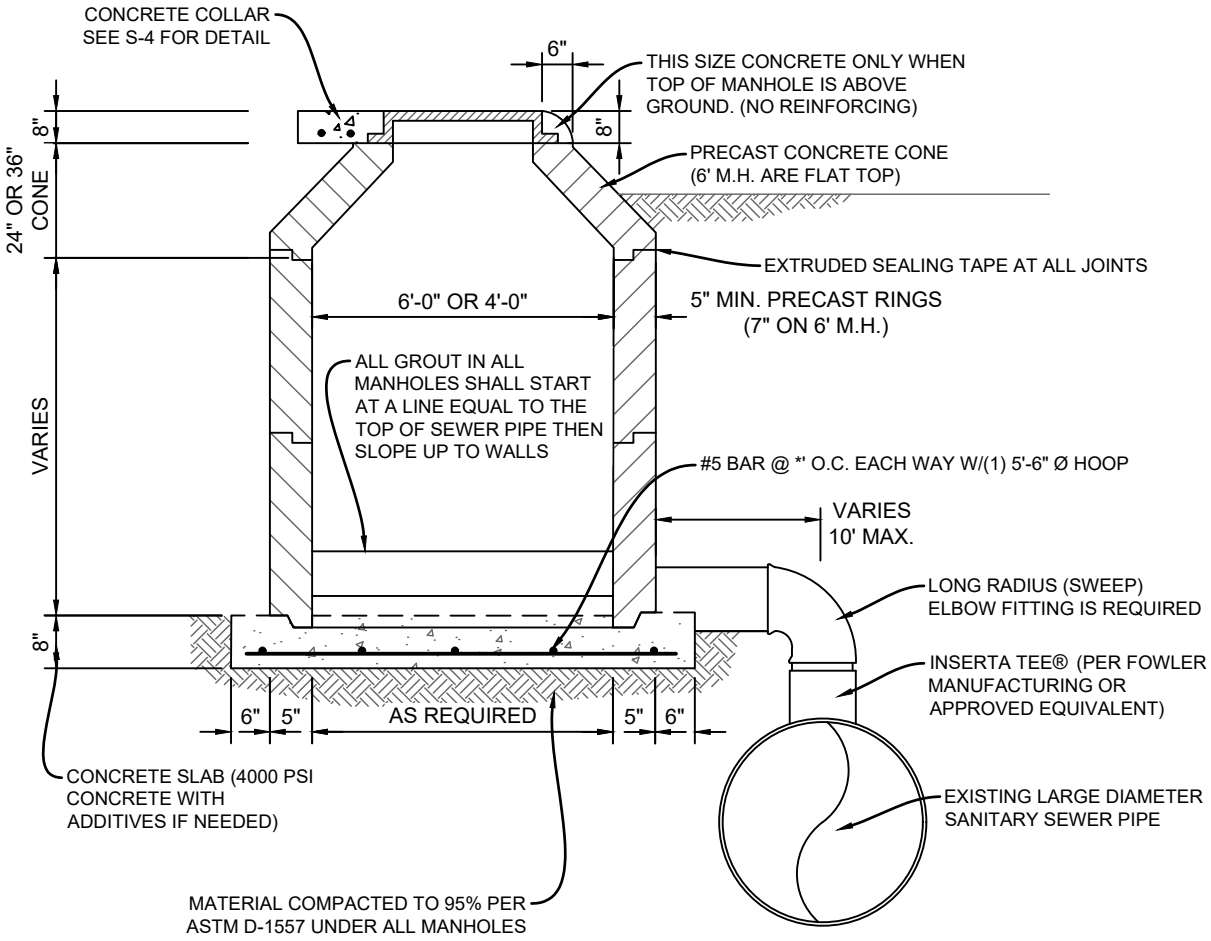




SECTION A-A

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	WATERTIGHT VENTED MANHOLE DETAIL	REVISION DATE: ----
		SHEET NO: S-13



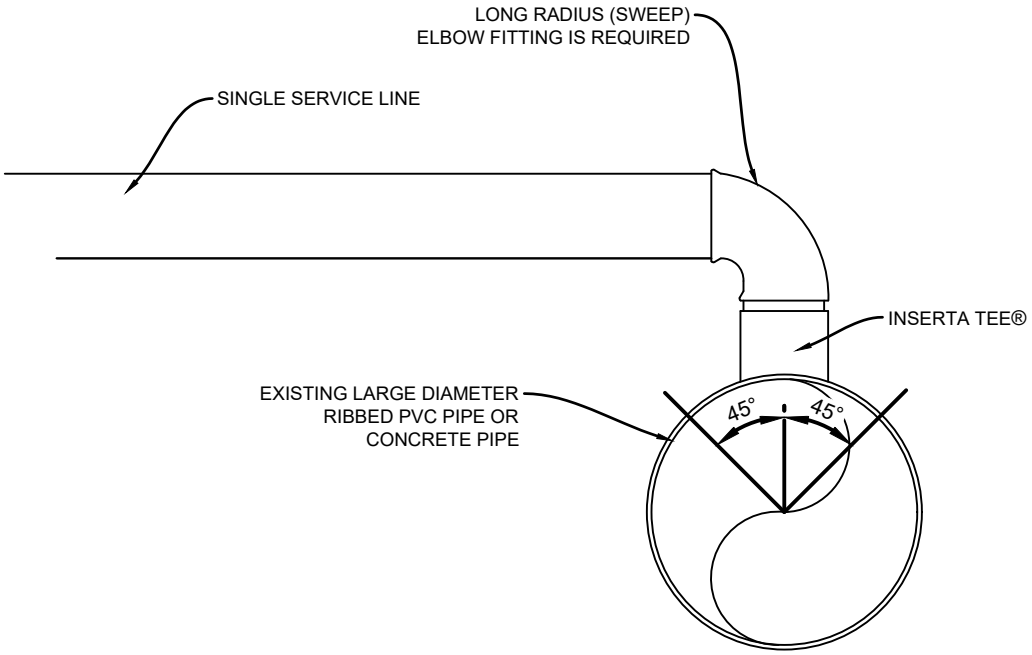
CONTRACTOR NOTES:

1. INSTERTA TEE® (OR APPROVED EQUAL) TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

2. PRECAST PORTIONS OF MANHOLES, EXCLUDING CAST IN PLACE BOTTOM, SHALL CONFORM TO ASTM C-478.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	MAIN LINE INSERTA TEE CONNECTION DETAIL	REVISION DATE: ---- SHEET NO: S-14

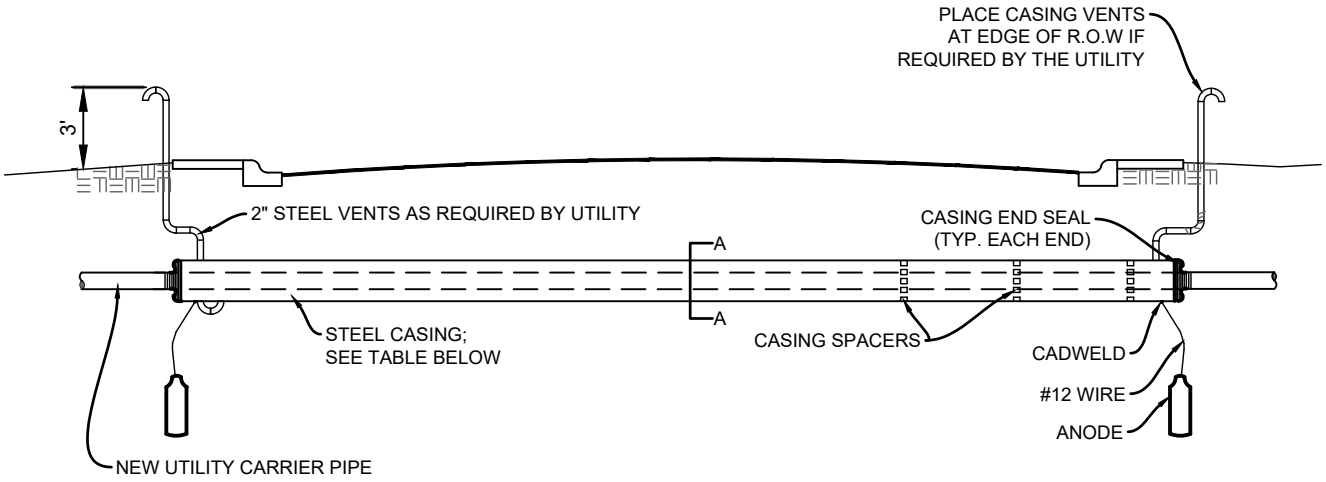


NOTES:

1. INSTERTA TEE® (OR APPROVED EQUAL) TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
2. TEE CONNECTION SHALL BE IN THE TOP OR WITHIN 45° OF THE TOP.

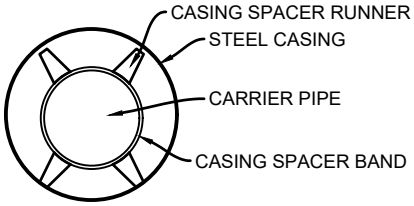
SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	SERVICE LINE INSERTA TEE CONNECTION DETAIL	REVISION DATE: ---- SHEET NO: S-15



GENERAL NOTES:

1. CASING END SEALS SHALL BE T.D. WILLIAMSON, INC Z-SEALS OR ENGINEER APPROVED EQUAL.
2. CASING SPACERS SHALL BE ADVANCE PRODUCTS & SYSTEMS, LLC MODEL SSIM OR ENGINEER APPROVED EQUAL.
3. STEEL CASING PIPE SHALL BE SIZED TO ADEQUATELY ACCOMMODATE CARRIER PIPE AND ADHERE TO THE REQUIREMENTS PROVIDED IN THE TABLE BELOW.
4. PIPE JOINT(S) INSIDE CASING SHALL BE JOINT RESTRAINED.
5. CASING VENTS TO BE PAINTED WITH AN OIL BASE ALKYD PRIMER AND AN OIL BASE ALKYD ENAMEL TOP COAT. COLOR SHALL BE PER APWA UNIFORM COLOR CODE FOR RESPECTIVE UTILITY.



SECTION A-A

STEEL CASING MINIMUM WALL THICKNESS		
NOMINAL DIAMETER (INCHES)	MIN. WALL THICKNESS FOR COATED (INCHES)	MIN. WALL THICKNESS NON-COATED (INCHES)
14 AND UNDER	0.1880	0.1880
16	0.2190	0.2810
18	0.2500	0.3120
20 AND 22	0.2810	0.3440
24	0.3120	0.3750
26	0.3440	0.4060
28	0.3750	0.4380
30	0.4060	0.4690
32	0.4380	0.5000
34 AND 36	0.4690	0.5310
42	0.5000	0.5630
48	0.5630	0.6250

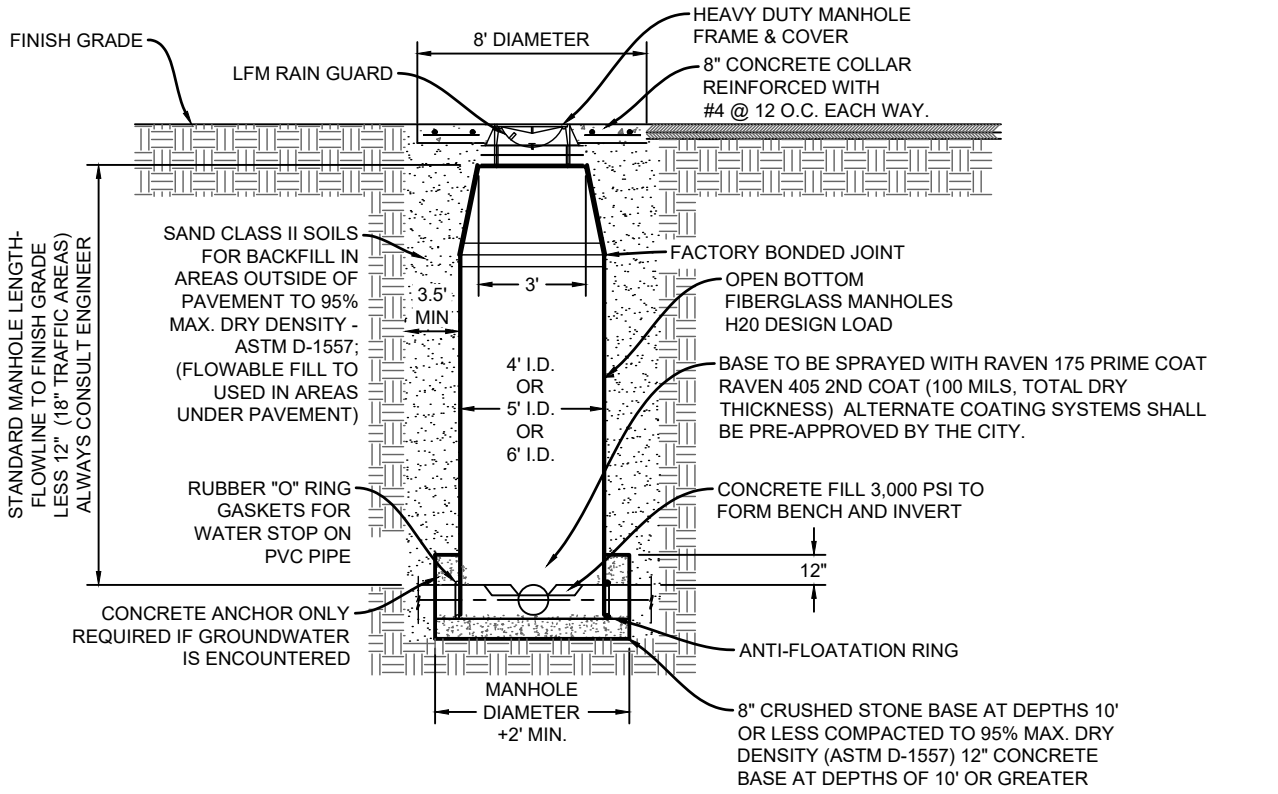
1. WALL THICKNESS DESIGNATIONS FOR STEEL CASING PIPE FOR E-80.
2. STEEL PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.
3. CORROSION CONTROL MEASURES MUST INCLUDE CATHODIC PROTECTION.

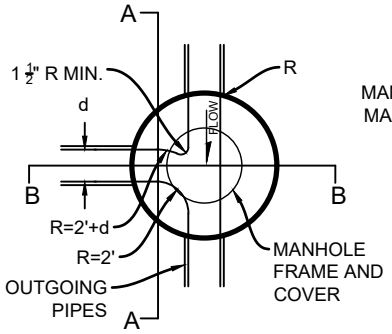
SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

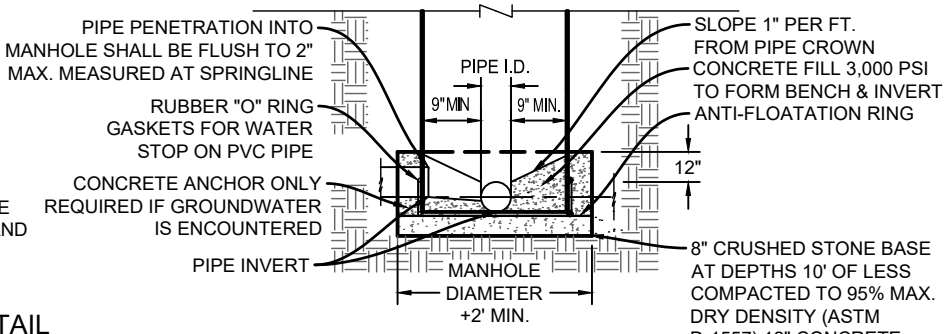
SEWER LINE BORE AND CASE DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: S-16





FIBERGLASS MANHOLE DETAIL
PLAN VIEW



SECTION B-B
BENCH AND INVERT DETAIL
FOR MULTIPLE PIPES

GENERAL NOTES:

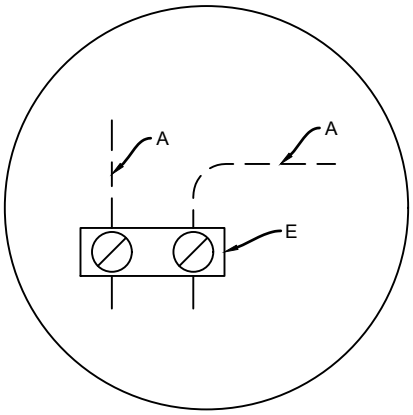
1. CONCRETE ANCHOR WILL ONLY BE REQUIRED IF GROUNDWATER IS ENCOUNTERED.

2. WHERE A SANITARY SEWER LINE ENTERS AND EXITS A MANHOLE IN A STRAIGHT LINE, A DROP BETWEEN THE INCOMING AND OUTGOING INVERTS WILL NOT BE REQUIRED. IF A DEFLECTION IN THE SANITARY SEWER ALIGNMENT IS PROPOSED AT THE MANHOLE, A MINIMUM OF ONE-TENTH (0.10) OF A FOOT BETWEEN INVERTS WILL BE REQUIRED WHEN THE ANGLE IF BETWEEN 0 AND 45, A MINIMUM OF TWO-TENTHS (0.20) OF A FOOT SHALL BE HELD BETWEEN INCOMING AND OUTGOING INVERTS, SUCH AS 90° BENDS. TEE INTERSECTIONS WILL REQUIRE ALL INCOMING LINES TO BE A MINIMUM OF TWO-TENTHS (0.20) OF A FOOT ABOVE OUTGOING LINES.

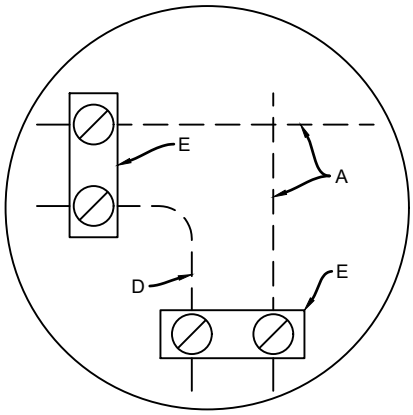
3. WATER TIGHT FIBERGLASS (CLOSED BOTTOM) MANHOLES ARE MANUFACTURED WITH A PRE-BUILT FIBERGLASS BENCH AND INVERT. THE DESIGN ENGINEER WILL NEED TO CONFIRM PROJECT REQUIREMENTS PRIOR TO MANUFACTURING OF MANHOLES.

SCALE: NOT TO SCALE

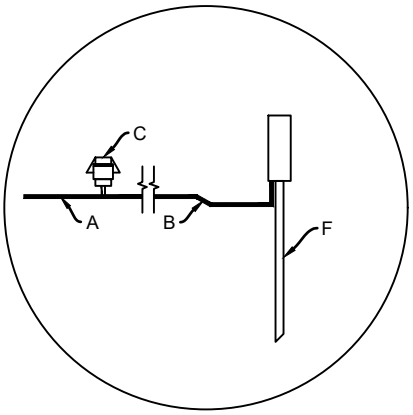
ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	FIBERGLASS MANHOLE DETAIL	REVISION DATE: ---- SHEET NO: S-17



Tee Connection Detail



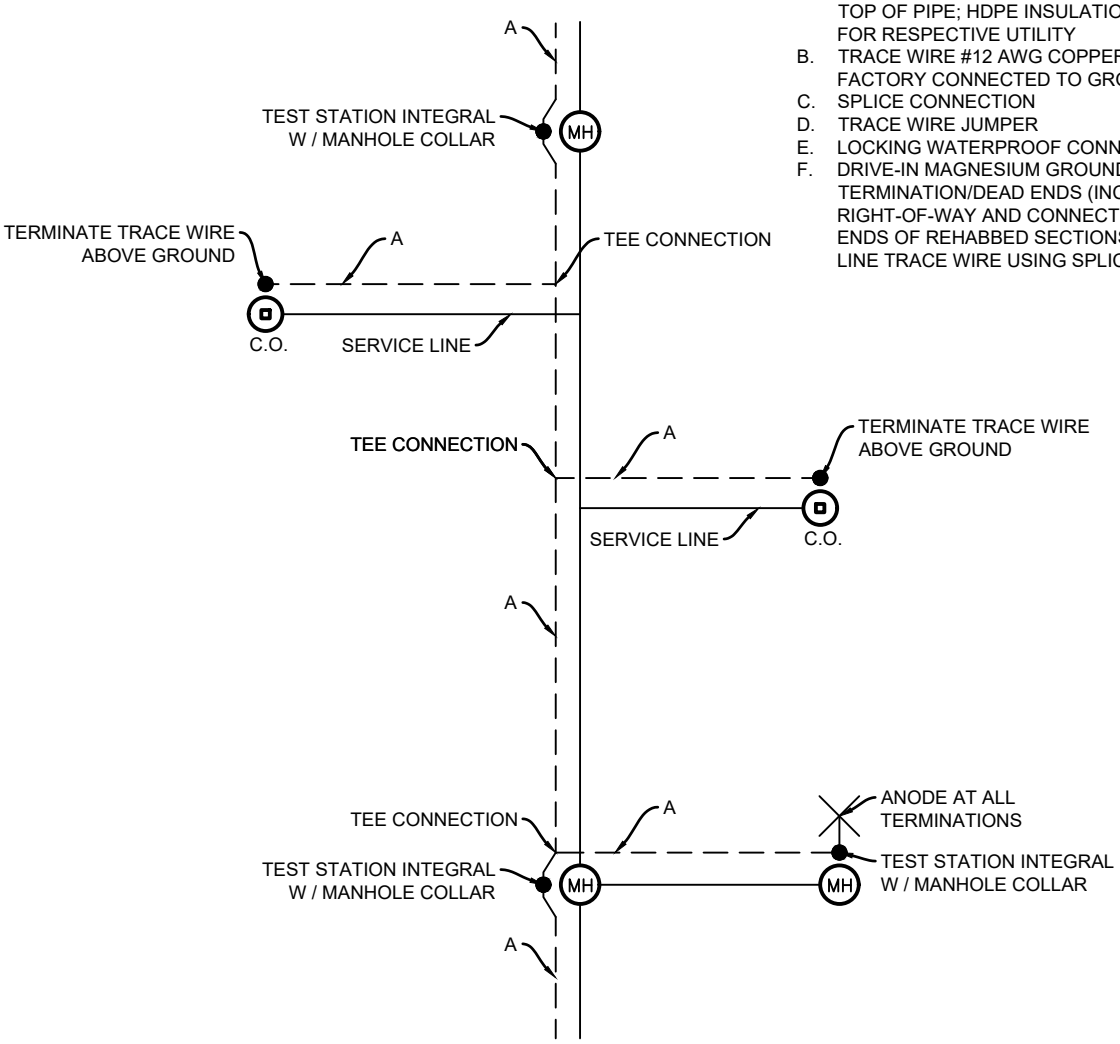
Cross Connection Detail



Anode Detail

CONSTRUCTION NOTES:

A. TRACE WIRE #12 AWG COPPER CLAD STEEL, TAPED TO TOP OF PIPE; HDPE INSULATION APWA COLOR CODED FOR RESPECTIVE UTILITY
B. TRACE WIRE #12 AWG COPPER CLAD STEEL - RED FACTORY CONNECTED TO GROUND ANODE
C. SPLICE CONNECTION
D. TRACE WIRE JUMPER
E. LOCKING WATERPROOF CONNECTOR
F. DRIVE-IN MAGNESIUM GROUNDING ANODE AT ALL TERMINATION/DEAD ENDS (INCLUDING EDGE OF RIGHT-OF-WAY AND CONNECTION POINTS/TERMINAL ENDS OF REHABBED SECTIONS). CONNECT TO MAIN LINE TRACE WIRE USING SPLICE CONNECTIONS.

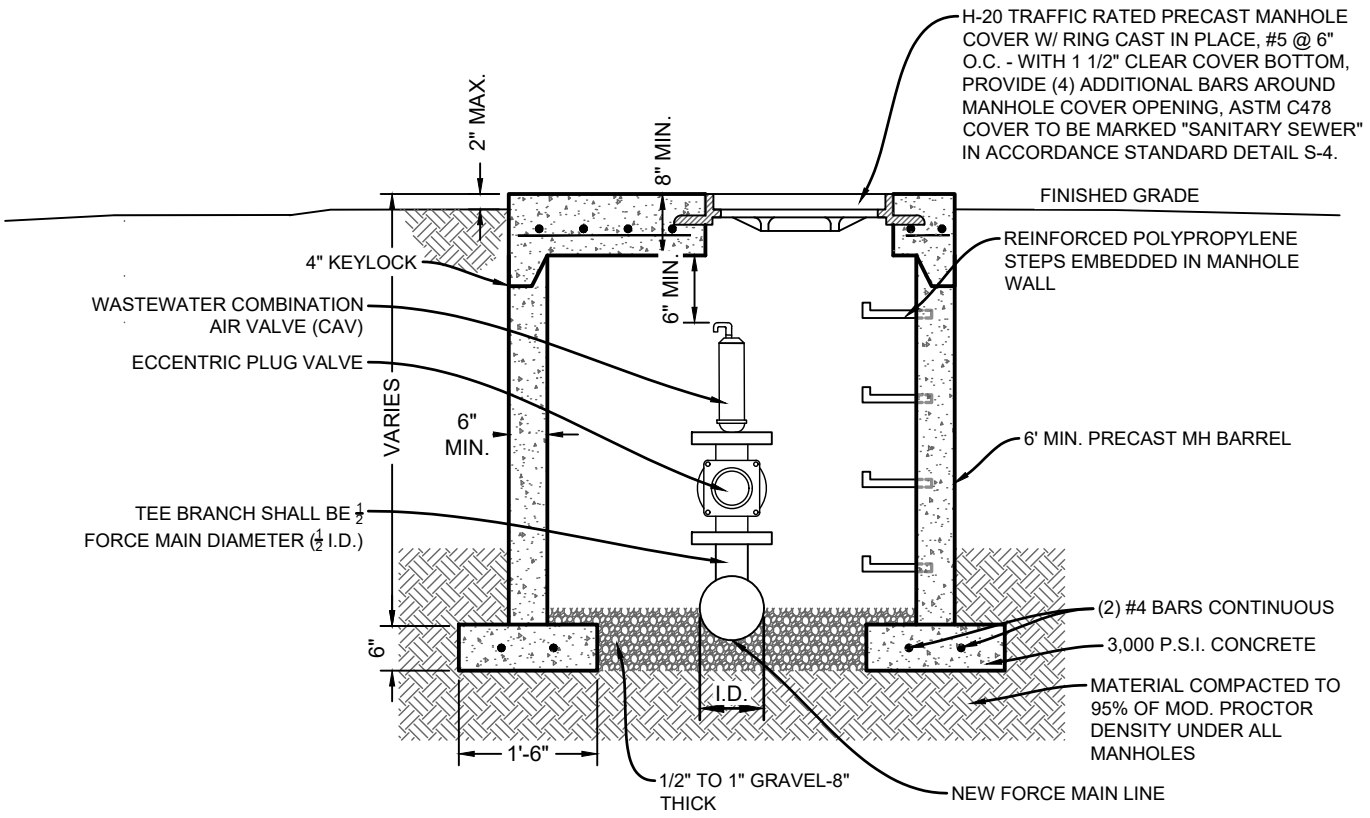


SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

SANITARY SEWER TRACE WIRE DETAILS

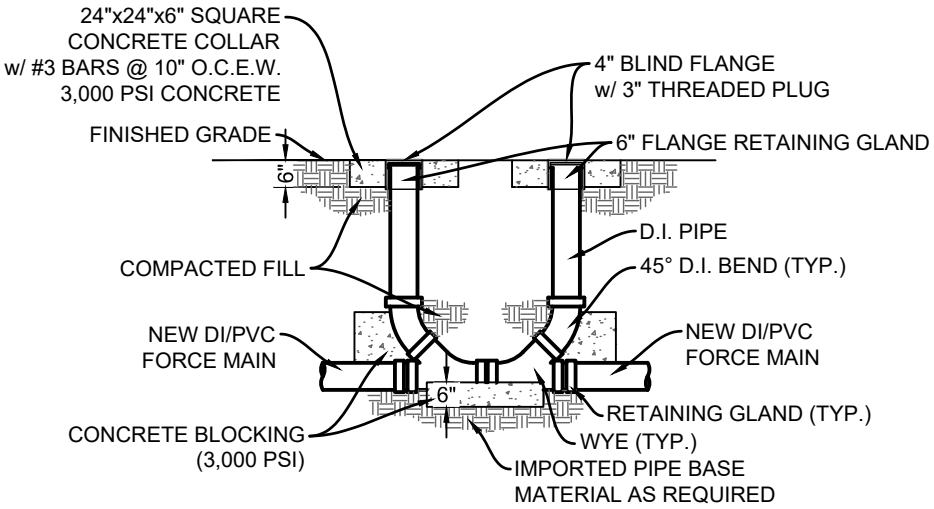
ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: S-18



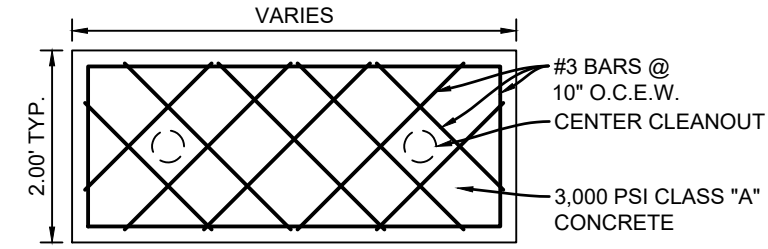
AIR RELEASE VALVE

SCALE: NOT TO SCALE

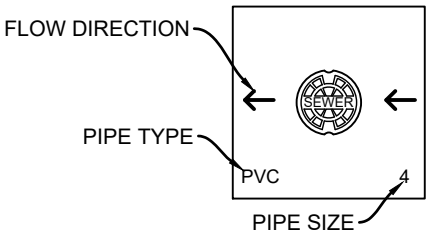
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	WASTEWATER COMBINATION AIR VALVE DETAIL	REVISION DATE: ---- SHEET NO: S-19



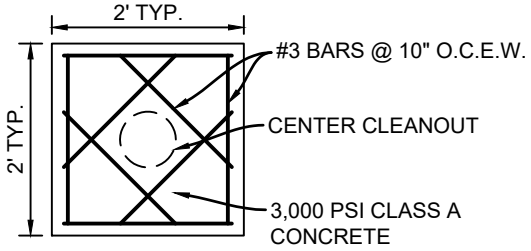
PLAN VIEW



INTEGRAL DUAL CLEANOUT COLLAR DETAIL



COLLAR CALLOUTS



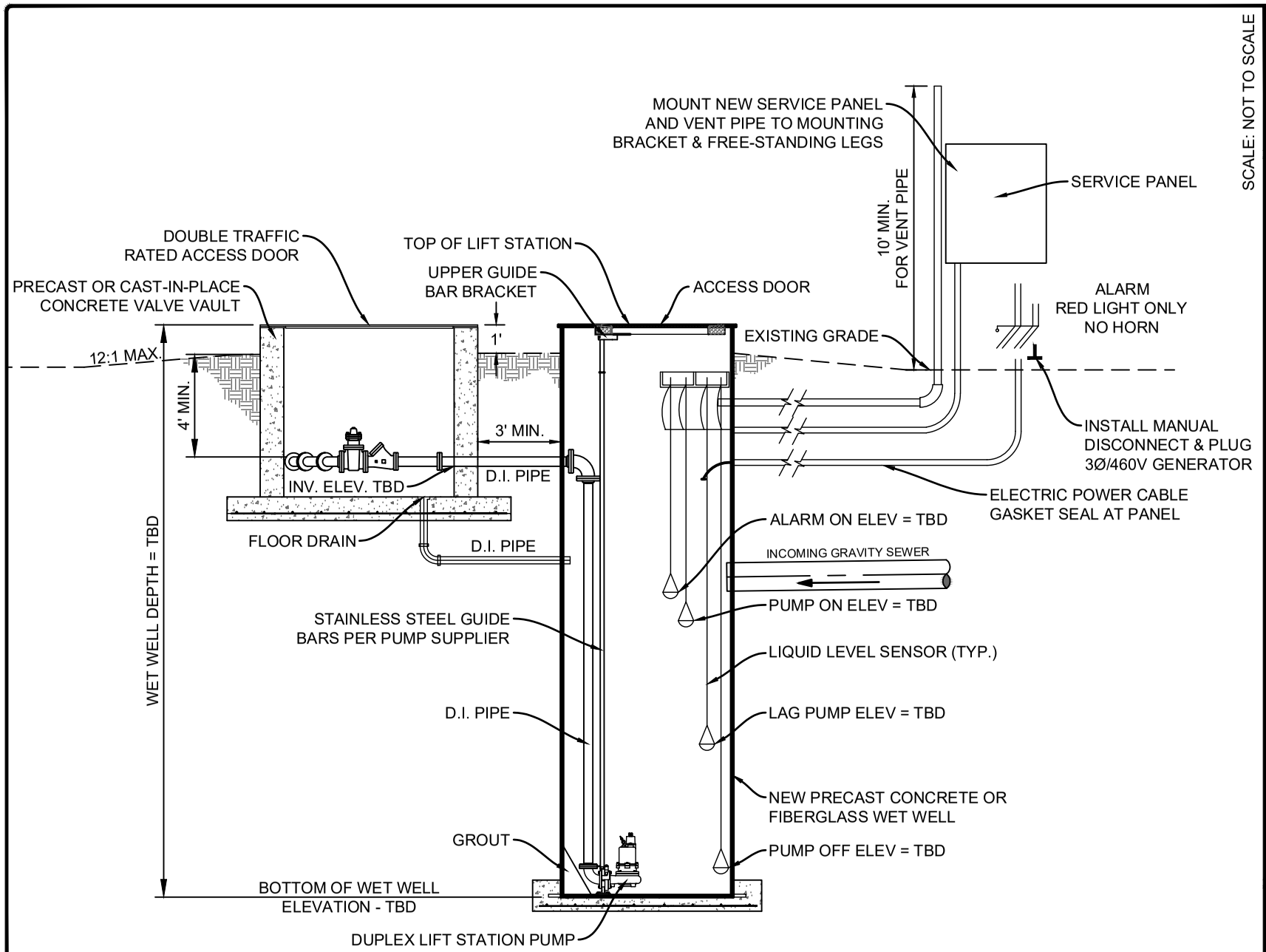
COLLAR DETAIL

GENERAL NOTES:

1. SCRIBE CONCRETE WITH LINE DIRECTIONAL ARROWS, PIPE SIZE AND PIPE TYPE.
2. TEXT SIZE SHALL BE 4-INCHES TALL AND SCORED 3/8" DEEP IN A NEAT AND CONSISTENT MANNER, TYPICAL.
3. SEWER CLEANOUT SHALL BE CENTERED IN CONCRETE COLLAR.
4. REBAR SHALL BE 1-1/2" CLEAR FROM CONCRETE EDGE, TYPICAL.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	DOUBLE PRESSURE CLEANOUT DETAIL	REVISION DATE: ---- SHEET NO: S-20



SCALE: NOT TO SCALE

ISSUE DATE: JUNE 14, 2022

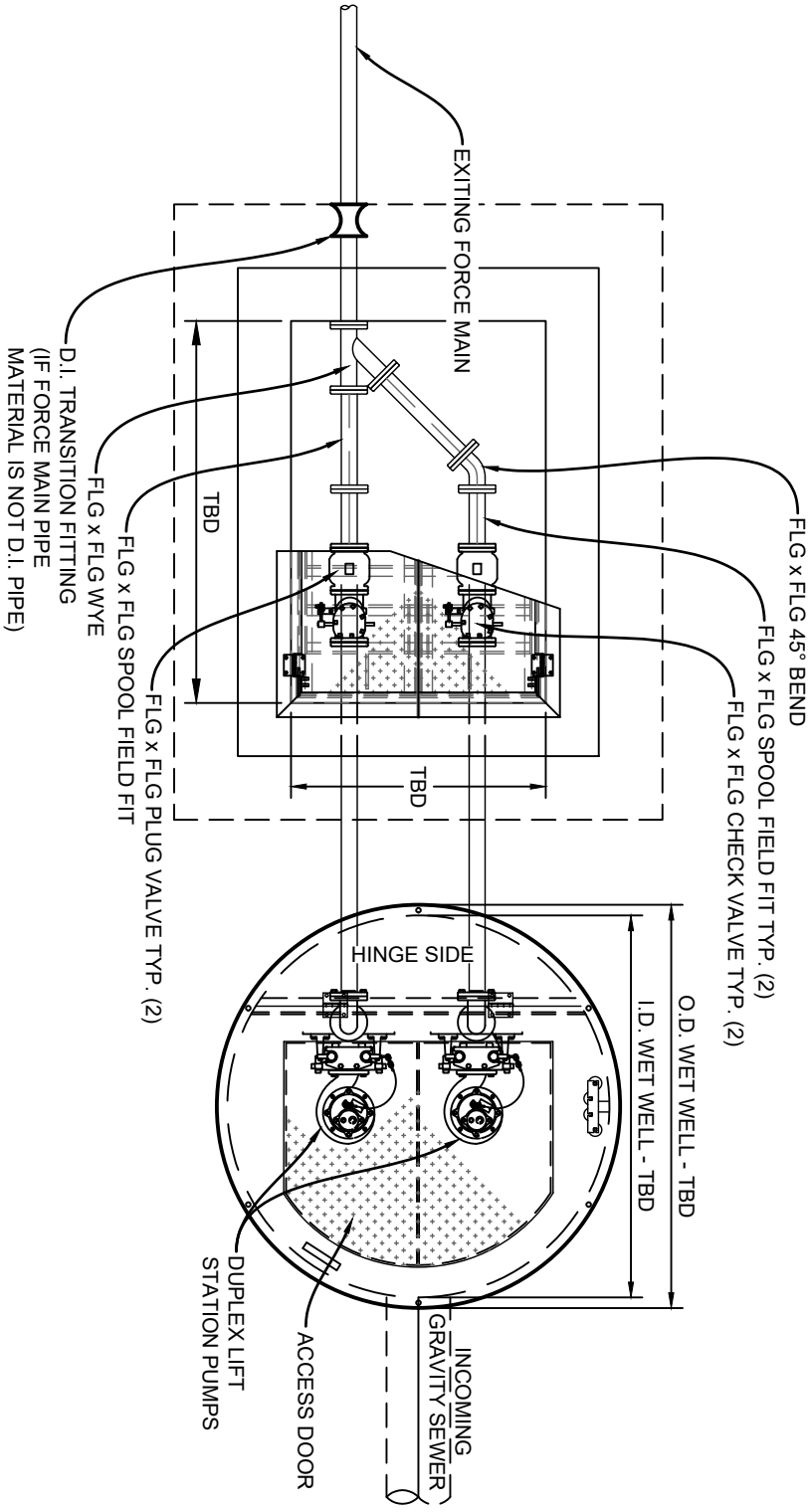
RESOLUTION NO.: 2022-28

REVISION DATE: ----

SHEET NO.: S-21

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

LIFT STATION ELEVATION DETAIL



SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

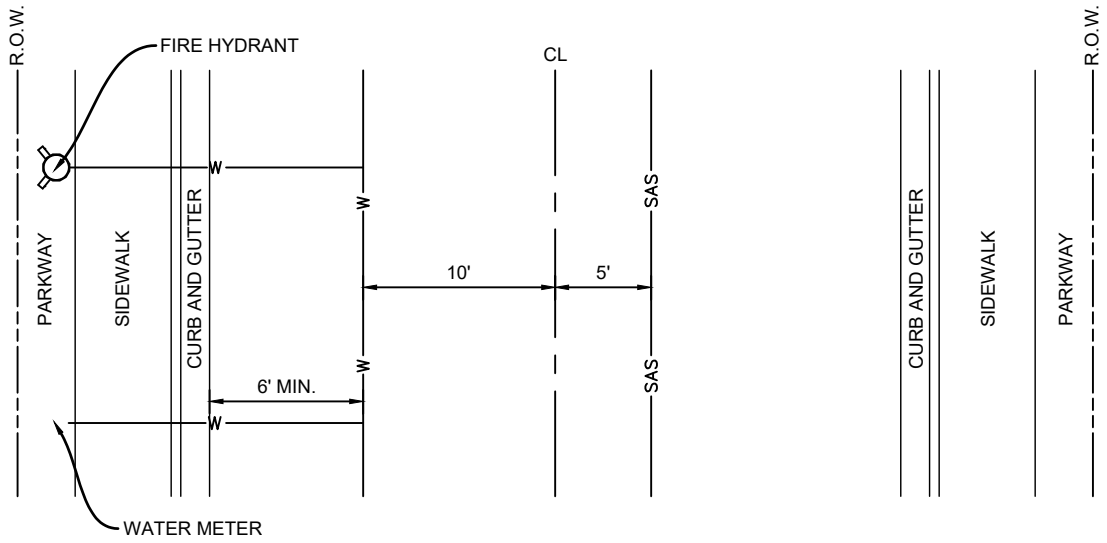
LIFT STATION PLAN VIEW DETAIL

ISSUE DATE: JUNE 14, 2022

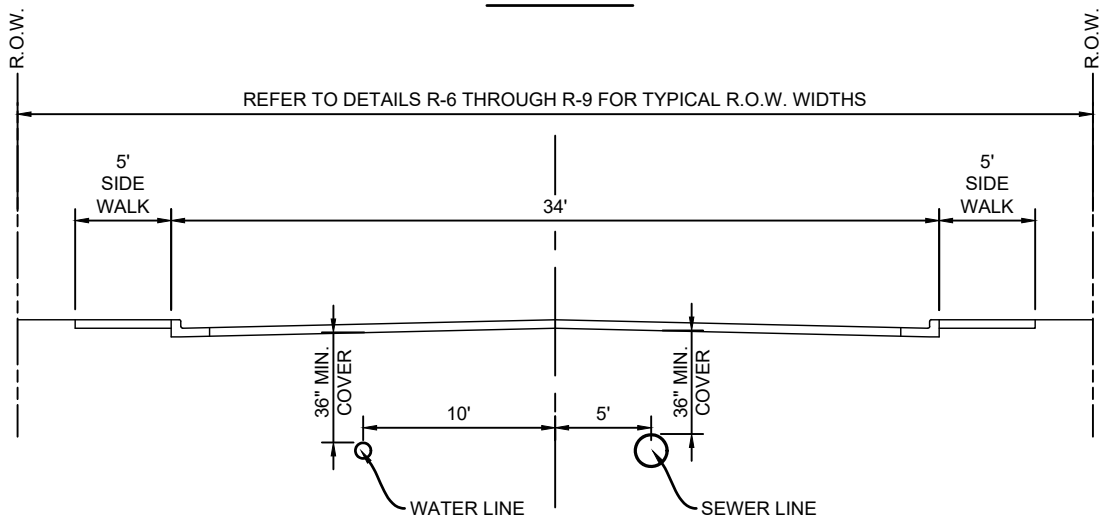
RESOLUTION NO: 2022-28

REVISION DATE: ----

SHEET NO: S-22



PLAN VIEW



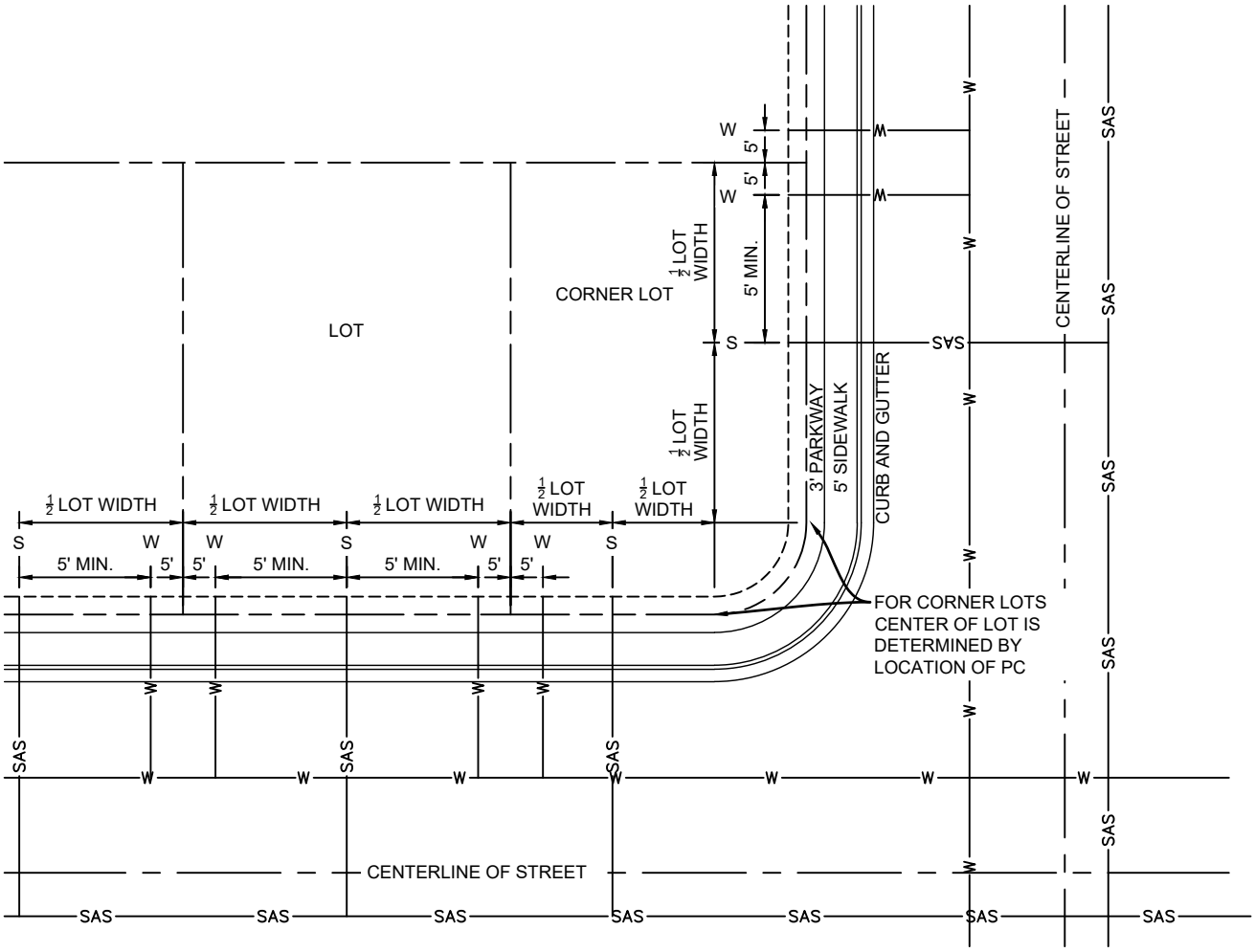
SECTION VIEW

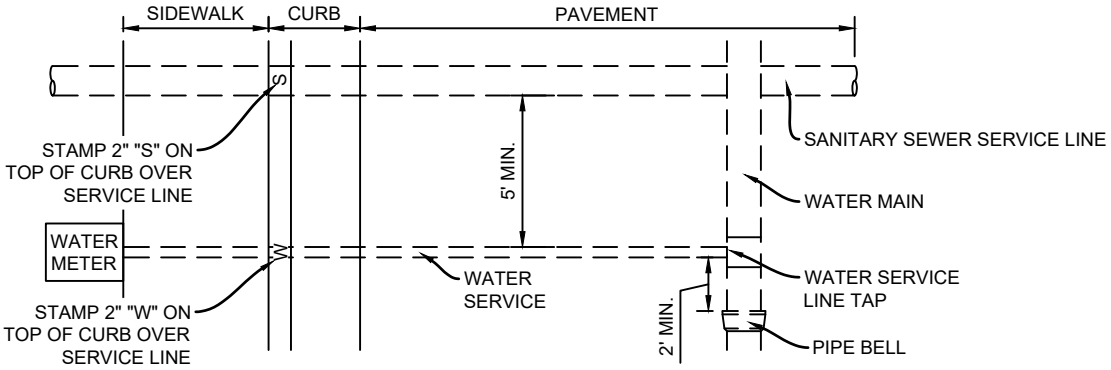
CONTRACTOR NOTES:

1. WATER LINE WILL BE LOCATED 10' NORTH OF STREET CENTERLINE ON EAST TO WEST STREETS AND 10' WEST OF STREET CENTERLINE ON NORTH AND SOUTH STREETS.
2. WATER LINE MINIMUM COVER SHALL BE 36".
3. SANITARY SEWER MINIMUM COVER SHALL BE 36".
4. SANITARY SEWER WILL BE LOCATED 5' SOUTH OF STREET CENTERLINE ON EAST AND WEST STREETS AND 5' EAST OF STREET CENTERLINE ON NORTH AND SOUTH STREETS.
5. NONSTANDARD LOCATIONS REQUIRE WRITTEN APPROVAL OF THE CITY OF ALAMOGORDO .
6. UTILITY EASEMENT WILL BE AT THE DISCRETION OF THE CITY OF ALAMOGORDO.

SCALE: NOT TO SCALE

ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	TYPICAL UTILITY LOCATIONS	REVISION DATE: ---- SHEET NO: S-23





CONTRACTOR NOTES:

1. THE WATER SERVICE WILL ENTER 5' FROM THE PROPERTY LINE AS SHOWN. THE SEWER SERVICE WILL ENTER AT THE CENTER OF THE LOT; A MINIMUM WATER SERVICE TO SANITARY SEWER SERVICE SEPARATION OF 5' SHALL BE MAINTAINED.
2. FOR CORNER LOTS UTILITY STANDARD LOCATIONS AS SHOWN.
3. UTILITY EASEMENTS WILL BE AT THE DISCRETION OF THE CITY OF ALAMOGORDO.
4. STAMPED/INSCRIBED SERVICE LINE MARKS AT TOP OF CURB SHALL BE PLACED ON PROPOSED OR EXISTING CURB & GUTTER AT THE TIME OF SERVICE LINE INSTALLATION.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	TYPICAL LOT UTILITY LOCATIONS	REVISION DATE: ----
		SHEET NO: S-24

CHAPTER 09 – WATER SUPPLY SYSTEM

ARTICLE 09-01 - GENERAL

Article 09-01-010 Water System Materials

Item Description	Size or Reference	Specification	Manufacturer
Water Meter	¾" to 4" (W-1, W-2, W-25 & W-26)	AWWA C700 ANSI/NSF 61 AWWA C707	Zenner Stealth Reader System
PVC Pipe DR18	4" to 12"	AWWA C900-16 ASTM D1784 - Pipe Compound ASTM F477 - Gasket	--
PVC Pipe DR25	14" to 36"	AWWA C900-16 ASTM D1784 – Pipe Compound ASTM F477 - Gasket	--
PVC Fittings	6" to 12"	AWWA C153	--
Ductile Iron Pipe	12" to 36"	ANSI/AWWA C151/A21.51	--
High Density Polyethylene Pipe DR11 min.	--	AWWA C901 or AWWA C906	--
Fittings for HDPE	--	AWWA C906	--
Fiberglass Flexible Markers	W-29	APWA Color Code	--
Couplings Mechanical and/or Flexible	W-15 thru W-18	AWWA C111	Romac or Approved Equal
Casing Pipe End Seals	W-21	See Manufacturer's Specifications	T.D. Williamson Z-Seal Casing Seals or Approved Equal
Casing Spacer Band	W-21	See Manufacturer's Specifications	Advance Products & Systems, LLC Model SSIM or Approved Equal
Gate Valves	4" to 12"	AWWA C515 NSF/ANSI 61 & 372	Waterous Company or Approved Equal
Butterfly Valves	14" and larger	AWWA C504	M&H Valve Co. or Approved Equal
Valve Boxes	Series 6850 W-5, W-6 & W-7	ASTM A-48	Tyler Pipe, Tyler Corporation or Approved Equal

Valve Box Lockable Debris Cap	W-5	See Manufacturer's Specifications	SW Services LLC or Approved Equal
Fire Hydrant	W-9	AWWA C502	Clow "Medallion" American Darling Model B-84, Mueller Super Centurion Model A-423
Post Type Flush Hydrant	W-28	ANSI/AWWA C502	Mueller Model A-411 or Approved Equal
Sampling Station	W-13	NSF/ANSI 372	Eclipse #88WC or Approved Equal
Reduced Pressure Backflow Prevention Devices	2 -1/2" to 10"	AWWA C511	Watts Series LF909 or Approved Equal
Reduced Pressure Backflow Prevention Enclosure	W-30 and W-31	--	USC Approved
Polyethylene Service Lines	W-1 & W-2	ASTM D 2737	--
Service Tapping Saddles	W-1 & W-2	ASTM A-536 – Body ASTM A-240 – Straps ASTM D-2000 - Gasket	--
Corporation Stops	W-1 & W-2	AWWA C800 NSF 61	Mueller Insta-Tite or Approved Equal
Curb Stop	W-1 & W-2	AWWA C800 NSF 61	Mueller 300 ball curb valve or Approved Equal
Copper Meter Resetters	W-1 & W-2	NSF/ANSI/CAN 61 NSF/ANSI/CAN 372	A.Y. McDonald Mfg. Co. Model 76102 or Approved Equal
Water Meter Can	W-1 & W-2, & W-12	ASTM C857-16	DFW Plastics Inc or Approved Equal
Stainless Steel Tapping Sleeve	W-1 & W-2	AWWA C207 ASTM D2000	--
Detectable Warning Tape	APWA Standard	ASTM D2103	--
Trace Wire	#12 AWG Copper Clad Steel W-19 & W-33	ASTM B1010 – Wire ASTM B910/B910M – Wire ASTM D1248 -Insulation	Copperhead Industries or Approved Equal

Trace Wire Connectors	W-33	See Manufacturer's Specifications	Copperhead Industries Connector Part Number 3WB-01 or Approved Equal
Trace Wire Access Boxes	W-19 & W-33	ASTM D1788, Type 1 – Base Material APWA Standard	Copperhead Industries CD14*2T-SW or Approved Equal
Trace Wire Access Box Lid	W-19 & W-33	ASTM D1788, Type 1 – Base Material APWA Standard	Copperhead Industries RB14*2T-SW or LD14*2T-SW or Approved Equal
Trace Wire Grounding (Ground Anode)	W-33	See Manufacturer's Specifications	Copperhead Industries Ground Rod with ANO-12 or Approved Equal
Mechanical Joint Restraint	W-15 thru W-18	AWWA C600, C605 or ASTM D2774 ASTM A536 - Material	EBBA Iron Inc. or Approved Equal
Repair coupling	2" to 12"	ANSI/AWWA C230 ASTM D2000 - Gasket	Romac or Approved Equal
Air-Release and Vacuum-Relief Valves	W-14	AWWA C512 ASTM A 48 ANSI B1.20.1	Val-Matic Model 201C.2 or Approved Equal
Air-Release and Vacuum-Relief Enclosure	Precast Manhole W-14	ASTM C478 AASHTO M199 NMDOT Section 517 and 662	Western Precast Concrete Inc. or Approved Equal
Non-Traffic Bearing Manhole ring and Cover	W-27	--	East Jordan or Approved Equal
Manhole gap filler	W-25 & W-26	ASTM C990-09	RAM-NEK Joint sealant or Approved Equal
Air-Release and Vacuum-Relief Enclosure Lid	W-14	H20 traffic rated ASTM C478-93	--

Article 09-01-020 Work Description

(a) This Work consists of furnishing all of equipment, materials, and labor to perform all operations in connection with the installation of potable water lines and

appurtenances. This section defines required characteristics and properties of Polyvinyl Chloride (PVC), High Density Polyethylene (HDPE), and Ductile Iron Pipe (DIP), valves, valve boxes, adapters, couplings, fire hydrants, materials, fittings, appurtenances, and construction practices.

(b) Contractor shall provide, in place, all valves, adapters, couplings, and appurtenances necessary to meet the requirements of this Project, whether shown in the Contract Documents or not.

(c) At all times, the new main shall be isolated from the active distribution system by physical separation until disinfecting water has been flushed out and satisfactory bacteriological testing has been completed in accordance with AWWA Standard C651. Water needed to fill the new main for testing and flushing purposes shall only be potable City water supplied through a temporary connection protected by a backflow device.

(d) The backflow device must be tested and certified after installation on-site. A copy of the Certification shall be given to the City and a copy shall be kept on-site with the device. Testing must be completed by a certified testing facility on the City's approved listing.

(e) Residential and commercial developments shall provide water service/meter sizing calculations in accordance with AWWA Manual 22.

Article 09-01-030 Location

Waterline transmission/distribution main lines shall be located in the streets and shall be approximately ten-feet (10') north of the street centerline on East-West bound streets, and ten-feet (10') west of the street centerline on the North-South bound streets. All water transmission/distribution main lines shall be laid with a minimum cover of three-feet (3'). The minimum pipe coverage shall apply to new construction only.

Water meters shall be located at the back of sidewalk or in landscape area between the curb and sidewalk (where parkways of ample width are present) within the right-of-way. Water meters cans shall not be located in driveways or vehicular traffic flows unless location(s) and meter can type(s) have been pre-approved by the City.

Article 09-01-040 Minimum Waterline Size

The minimum size of water transmission/distribution main lines shall be six-inches (6") in diameter.

ARTICLE 09-02 – MATERIALS

Article 09-02-010 General

(a) Pipe and accessories shall be new and unused. Pipe shall be color-coded (blue for potable water, green for sanitary sewer, purple for reclaimed water). Detectable Marking Tape shall be installed as provided in the Contract Documents.

(b) When PVC pipe is stored outside and exposed to prolonged periods of sunlight, an obvious discoloration of the pipe can occur. This is an indication of reduced pipe impact strength, and any length of pipe that is discolored will be rejected. The City will make the determination for rejection of pipe; all pipe rejected will be removed from the job site by the Contractor.

Article 09-02-020 PVC Pipe

(a) PVC pipe four inches (4"-for existing tie-in locations only) through twelve inches (12") shall be not less than DR18, Class 235 and in conformance with AWWA C900, latest revision. Pressure class of PVC pipe shall be as required by Appendix A of AWWA C900. PVC pipe over twelve inches (12") shall be no less than DR25, Class 165 and in conformance with AWWA C900, latest revision.

(b) All PVC pipes shall be approved for use in potable water systems by an agency such as NSF Testing Laboratory.

(c) Joints: For pipe six inches (6") through twelve inches (12"), elastomeric gasket bell push-on type ends shall be used in accordance with ASTM F 477.

(d) Fittings: For pipe six inches (6") through twelve inches (12"), fittings for PVC pipe shall conform to the requirements of AWWA C153 and shall be cement mortar lined in accordance with AWWA C104. Fitting types shall include restrained mechanical joints and concrete thrust block where required. Restraining, standard mechanical joints, and fittings shall be submitted for City approval.

Article 09-02-030 Ductile Iron Pipe

(a) Ductile iron pipe shall be in accordance with ANSI/AWWA C151/A21.51 and Federal Specification WW-P-421d, latest revision. All ductile iron pipe shall be minimum class 150, unless otherwise indicated in the Contract Documents. Ductile iron pipe fittings shall be pressure rated at three hundred fifty (350) psi and be in accordance with ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11.

(b) All ductile iron pipe and fittings shall be internally mortar lined in accordance with ANSI A21.4, latest revision, and shall have an exterior coating in accordance with ANSI A21.6, A21.8, or A21.51.

(c) All ductile iron pipe and ductile iron fittings shall have a polyethylene encasement in accordance with ANSI/AWWA C105/A21.5, latest revision.

(d) The ductile iron pipe shall be push-on type joints, unless indicated otherwise on the plans, and the fittings shall conform to the requirements of AWWA C153 and shall be cement mortar lined in accordance with AWWA C104. Fitting types shall include standard flange fittings and mechanical joints.

Article 09-02-040 High Density Polyethylene Pipe (HDPE)

(a) HDPE pipe shall not be less than DR11.0, Class 160 and in conformance with AWWA C901 or AWWA C906.

(b) Joints: Pipe shall be joined by heat fusion method and shall be performed as per manufacturer's safety instructions.

(c) Fittings: Fittings for HDPE shall conform to the requirements of AWWA C906 and used in accordance with ASTM D 3350, and F 714. Fitting types shall include restrained mechanical joints where required. Transition gaskets for HDPE pipe shall be used when mechanical joints are used. Restraining, standard mechanical joints, and fittings shall be submitted for City approval.

Article 09-02-050 Adapters and Couplings

(a) All adapters, pipe couplings, tap and sleeves, or mechanical type couplings required for any of the piping systems shall be of the type manufactured for the specific purpose of the use intended, and shall be installed in strict compliance with the manufacturer's specifications, and to the satisfaction of the City. Factory-made adapters shall be furnished for connecting transition material to the mechanical joint fittings and valves, where required, including plastic to steel and plastic to DIP.

(b) Mechanical and/or flexible couplings shall be manufactured by Romac, or approved equal, and shall be sized and styled in accordance with the requirement for the particular coupling and used in accordance with the manufacturer's recommendations for the diameter, thickness and type of pipe to be connected. The mechanical and/or flexible couplings shall be provided with an acceptable joint harness to prevent separation of the joint where required due to pressure or change in direction of fittings. Couplings shall be polyethylene wrapped.

Article 09-02-060 Valves

(a) Gate Valves: All gate valves four-inch to twelve-inch (4”-12”) shall be resilient seated gate valves conforming to AWWA C515 rated for two hundred fifty (250) psi working pressure. Valves shall have a standard two (2) inch operating nut that opens counterclockwise. The wedge shall be constructed of ductile iron and shall be fully encapsulated in synthetic rubber except for the guide and wedge nut areas. The wedge shall seat against seating surfaces that are inclined to the vertical at a minimum angle of thirty-two (32) degrees when stem is in vertical position to eliminate abrasive wear. The non-rising stem shall be sealed by at least two (2) O-rings. The waterway shall be smooth and shall have no depressions or cavities. The valve body and bonnet shall be epoxy coated, inside and out, and wrapped with polyethylene sheet encasement. Joints shall be restrained mechanical joint ends. Valve shall be as manufactured by Waterous Company or approved equal.

(b) Butterfly Valves: All butterfly valves fourteen-inch (14”) and larger shall be rubber seated, tight-closing type conforming to AWWA C504 rated for two hundred fifty (250) psi working pressure. Valves shall have a standard two-inch (2”) operating nut that opens counterclockwise. The offset vane shall be constructed of ductile iron and shall form an uninterrupted 360-degree seal. Joints shall be restrained mechanical joint ends. Valve shall be as manufactured by M&H Valve Company or approved equal.

Article 09-02-070 Valve Boxes

(a) Valve boxes shall be deep skirted, adjustable cast iron two (2) piece screw type, Series 6850 as manufactured by Tyler Pipe, Tyler Corporation, or approved equal. The valve boxes shall be five and one-quarter (5-1/4) inch diameter and the two (2) pieces shall overlap at least six (6) inches. The drop lid shall have a depth of two (2) inches, shall weigh thirteen (13) pounds, and shall have the word "WATER" embossed on top. Refer to Standard Details: W-5, W-6, and W-7.

(b) Valve boxes shall have debris caps installed to aid in the prevention of dirt and debris accumulation within the valve box. Lockable debris caps shall be as manufactured by SW Services, LLC or City approved equal.

Article 09-02-080 Fire Hydrants

(a) Fire hydrants and extensions shall be in accordance with AWWA C502, traffic type, fire hydrants shall have two (2) two and one-half (2-1/2) inch hose nozzle connections, and one (1) four and one-half (4-1/2) inch steamer nozzle. All nozzle connections shall be National Standard Fire Hose Coupling screw threads. Fire hydrants shall have a bronze or cast-iron pentagon operating nut. The main inlet

shall be six (6) inch restrained mechanical joint type. All fire hydrants shall be rated for two hundred fifty (250) psi working pressure. Hydrants shall be dry barrel, post type with compression main valve closing with pressure. Hydrants shall have a bronze ring threaded into a bronze drain ring or bronze bushing. Any marks or scratches on new fire hydrants shall be corrected to the satisfaction of the City. Extensions will be used, when required, to bring the bottom of the break-off flange three (3) to six (6) inches above the top of the surrounding finished grade. All fire hydrants shall be Clow Medallion (preferred), Mueller Super Centurion A-423 (second choice), or American Darling B-84. All fire hydrants shall be fire engine red. Refer to Standard Details: W-9 and W-10.

(b) The pipe, fittings, and fire hydrants starting at the main and ending at the fire hydrant must be laid in a line perpendicular to the water main unless otherwise approved in writing by the City.

(c) A fire hydrant shall be placed within 30-feet of the end of all dead-end water mains greater than 100-feet in length to facilitate flushing and maintenance of the water main (including all cul-de-sacs).

(d) Fire hydrant spacing shall adhere to the requirements of the National Fire Protection Association (NFPA) and shall be subject to review and modification by the City's fire marshal or their designee.

(e) Removal of an existing fire hydrant and appurtenances shall include removal and salvage to the City. The hydrant pipe to the main shall be removed and capped at the tee main line connection.

(f) Post type flush hydrants shall be installed on dead end lines. The feed line for the flushing shall be four inches (4") in diameter. Post hydrant shall be Mueller Model A-411 or Engineer Approved Equal. Refer to Standard Detail: W-28.

Article 09-02-090 Cross Connection, Prevention, and Control

(a) The need, responsibilities, requirements, inspections, and maintenance of backflow prevention devices shall adhere to Article 8.08 of the City's General Ordinances.

(b) All water lines supplying water-based fire protection systems outside of public utility easements and public rights-of-way shall require a Reduced Pressure Backflow Preventer, which must be sized accordingly by a New Mexico licensed engineer. The fire line, water-based fire protection system, and reduced pressure backflow preventer shall meet the requirements of the adopted City fire code and be approved by the fire code official.

(c) Reduced pressure backflow prevention devices shall be Watts Series LF909 or City Approved Equal. All backflow prevention devices utilized within the City shall be USC Approved.

(d) All approved containment and isolation backflow prevention assemblies which are classified as testable devices shall be tested at least one per year. Testing shall be completed by a certified tester (or technician) who is registered with the City. For complete testing and maintenance requirements refer to Article 8.08 of the City's General Ordinances.

Article 09-02-100 Water Services

(a) All service lines to individual customers shall be three-quarter inch (3/4") minimum diameter. Larger diameters may be required based on available pressures and demands.

(b) Polyethylene Service Lines: Polyethylene water service line tubing shall be fabricated from new polyethylene, PE 3406, SDR-9, 200 psi, manufactured in accordance with ASTM D 2737, latest revision, and be the size called for in the Contract Documents. The service line shall contain embedded trace wire with connections to the water main.

(c) All single-family residences shall be served by an individual service line and water meter. No service line splitting is allowed. Multiple dwelling units (duplexes, apartments, etc.) shall have a single service and master water meter; submetering units shall be installed downstream of the master meter.

(d) Identification of Water Services at Top Back of Curbs: The location of each water service shall be stamped or scribed (marked as "W") into the top of the curb. The marking shall be located directly above each respective service.

(e) Location of Water Services: Water service lines shall be tapped into the water main at 90-degrees and shall continue as a straight run (perpendicular to the main) to the water meter.

(f) Domestic meters two inches and smaller (≤2") are to be sized as per the International Plumbing Code (IPC). All other meters shall be sized in accordance with the American Water Works Association standards. Intermittent use shall not exceed three (3) hours per day. <u>All water meters are supplied by the City.</u>

(g) Water Meter: Water meter shall be positive displacement (compound), reading in cubic feet (cf) and acceptable for use with <u>Zenner Stealth Reader System (no substitutions).</u>

(1) Prior approval is a part of these specifications and any bidder or manufacturer wishing to obtain approval to use unspecified products shall submit a written request. The request shall be received, by the City, not later than seven (7) days prior to the bid opening date.

(2) Request shall clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. If the product is acceptable, the Engineer will approve it in an Addendum issued to all plan holders. Otherwise, the specified product or item shall be used. The burden of proof is the sole responsibility of the Contractor.

(3) Meters shall comply with AWWA C700 Standard for Cold-Water Meters, Displacement Type, Bronze Main Case, of the latest revision. Meters shall also comply with the Safe Drinking Water Act and ANSI/NSF 61 requirements.

(4) Meter Register housing and lid shall be plastic and the main case, bottom, shall be non-breakable plastic.

(5) The size, model, and direction of flow through the meter shall be cast permanently into the outer case of the meter. The manufacturer's meter serial number shall be imprinted on the outer case and lid.

(6) The meter connections shall be: 5/8" x 3/4" or the size called for in the Project Plans or Contract Documents and shall have standard male meter thread. Meter connections 1-1/2" and larger shall have flanged ends. Developments requiring a three-inch (3") service and meter shall be upsized to four inches (4").

(7) Registers shall be an Encoder-Type register for use in AMR, drive-by or fixed network systems. They shall meet the requirements of the AWWA C707 Standard, for Encoder-Type remote registers, of the latest revision. The encoded register shall be preassembled to the meter and supplied with a wire assembly, at least 16-inches in length. The wire assembly connections to the register will be sealed to prevent any water/moisture damage. The pigtail supplied must have enough leads to interface with ZENNER STEALTH READER SYSTEM unit. Each encoded register must have its own unique identification number, either external or internal.

(8) All encoded registers will have a 6-wheel odometer.

(9) A letter of certification from the meter manufacturer, certifying that the product supplied will work properly with the ZENNER STEALTH READER SYSTEM units.

(10) Existing water meters will be salvaged to City.

(h) Service (Tapping) Saddles: Service (tapping) saddles shall be pre-approved by City. Acceptable saddles shall have two (2) double straps, or one (1) large, wide, single strap secured by four (4) bolts and shall be the size called for in the Contract Documents.

(i) Corporation Stops: Corporation stops shall be ball valve type, rated for 150 psi. (minimum) working pressure. Corporation stops shall be per the size called for in the Project Plans or Contract Documents, CC or IP threaded inlet with compression fitting or Mueller Insta-Tite connection, or pre-approved equal.

(j) Curb stop: Curb stop shall be ball valve type, rated for 250 psi (minimum) working pressure. Curb stops shall be per the size called for in the Project Plans or Contract Documents. If the Contractor crimps the service line in order to install a curb stop, a moody shall be installed over the crimp. The crimped service shall be inspected by the City prior to acceptance.

(k) Copper meter resetters (meter yoke): Copper meter resetters (meter yoke) shall be pre-approved by City. Acceptable coppersetters shall be 5/8" x 3/4" copper or the size called for in the Project Plans or Contract Documents, with a lock wing and angle dual check backflow preventers/device. Existing copper meter resetters (meter yoke) will be salvaged to City. The face of the water meter shall be within 6"-8" below the bottom of the meter can lid.

(l) Water Meter Cans: All water meter cans for this Project shall be the size called for in the Project Plans or Contract Documents. The diameter and height for each installation shall be as shown in the Project Plans. Cutouts for the water service lines shall be neatly cut and trimmed to allow one (1) inch clearance on all sides of the water service line.

(1) Specification is based on use of "DFW PLASTICS, INC." by DFW Plastics, Inc., 901 E Industrial Avenue, Saginaw TX 76131, with attributes as described below. Equal products of other water meter can manufacturers may be acceptable when pre-approved by City.

(2) This product is designed to withstand loading in non-deliberate and incidental traffic. Not to be installed in roadway. Meter pit lid shall be black and constructed out of modified polyethylene material for maximum

durability and corrosion resistance. The black material is for maximum UV protection. The black material shall be uniform throughout the meter pit lid for maximum longevity and not have a foaming agent that creates air pockets within the polymer lid. New installations shall be completed with lockable meter can lids and customer-maintained ball shutoff valve outside the meter can.

A. Vertical and Lateral Load Rating:

- Compliant with AASHTO, Design Load of H-10; ASTM C857-16, Design Load of A-8, 8,000 lbs. transferred through a 10" x 10" steel plate centered in the cover and body.

- Compliant with AASHTO, Design Load of H-20; ASTM C857-16, Design Load of A-16, 16,000 lbs. transferred through a 10" x 20" steel plate centered on the cover and body.

- This product is designed to withstand H-10 and H-20 loading in non-deliberate or incidental traffic areas.

NOT INTENDED TO BE INSTALLED IN ROADWAYS.

B. Polymer Lid

- The polymer lid shall have a molded keyhole and Plastic Lock underneath lid - *as illustrated.*

- The polymer lid shall have one (1) molded slide mount for placement of AMR/AMI device - *as illustrated.*

- The polymer lid shall seat securely and evenly inside the meter pit and shall not overlap the top edge of the meter pit.

- The polymer lid shall have molded tread-pattern for skid resistance - tread dimensions shall be 0.188" x 0.938" x 0.150" deep.

- The polymer lid shall have "WATER METER" molded into the lid - Font shall be Std Fadal CNC Font with 1" characters x 0.150" deep.

- The polymer lid shall be black and have a molded recycled emblem with a minimum of 50% Post-Consumer Recycled and 50% Post Industrial/ Pre-Consumer Recycled Content- Verified with a Leed Product Documentation.

C. Polymer Body

- The polymer body shall be BLACK and have a minimum of 3/8" wall

thickness - *as illustrated.*

- The polymer body shall have minimum inside working room of (23-1/4") - *as illustrated.*

- The polymer body shall have crush resistant ribbing along the outside of the box with 1-5/8" base footing located at the bottom of the meter pit to help eliminate sinking or floating once installed.

- The polymer body shall have a straight wall design and not be flared as to allow for adjustment to grade after installation.

- The polymer body shall have one pipe slot molded on each end of the body that measures (3" x 5-3/4").

- The polymer body shall have a molded recycled emblem with a minimum of 35% Post Industrial/ Pre-Consumer Recycled Content - Verified with a Leed Product Documentation**.**

Whenever in the specifications, any particular materials, process and/or equipment is indicated or specified by patent, proprietary, or brand name, or by name of manufacturer, such wording shall be deemed to be used for the purpose of facilitating description of the material, process, and/or equipment desired, and shall be deemed to be followed by the words "or equal". The lists of acceptable material are not intended to be comprehensive lists, or in any order of preference. The bidder may offer any material, process, and/or equipment which comply with the governing specifications which the bidder considers to be equivalent to that which is indicated or specified.

(m) Temporary Service: Contractor shall maintain service to all connections during construction to minimize time water will be unavailable. Contractor shall complete work on new services and testing and disinfecting of new waterlines prior to removing service from existing waterline. Contractor shall submit a plan for temporary service for City approval prior to construction of new waterline. Refer to Standard Details: W-1 and W-2.

(n) A customer shut-off ball valve shall be installed, on all new meter installations, on the customer side of the meter outside of the meter box. The valve shall be completed to the finished ground surface with a capped pipe sleeve. The customer shut-off valve will allow service shutdown by the resident and minimize the potential damage to the water meter. The City is responsible for water service maintenance up to and including the water meter, and the individual customer is

responsible for the water service from outside the meter can toward their property or dwelling.

(o) Special circumstances where the City is responsible for the meter only means the City is responsible for the meter only; the customer is responsible for the can, riser, and curb stop.

(p) The pipe, fittings, and meter starting at the main and ending at the customer shut-off valve must be laid in a line perpendicular to the water main unless otherwise approved in writing by the City.

Article 09-02-110 Stainless Steel Tapping Sleeve

(a) Body: 18-8 Type 304 Stainless Steel. All welds shall be fully passivated to restore stainless characteristics.

(b) Bolts: 18-8 Type 304 Stainless Steel. Heavy hex nuts and washer are coated to prevent galling.

(c) Flange:18-8 Type 304 Stainless Steel Flange with recess per MSS-SP60 to accept standard tapping valve. Flange conforms to AWWA C207 Class D ANSI 150 lb. drilling.

(d) Outlet: 18-8 Type 304 Stainless Steel. Scheduled 10 for 3" and 4" outlets. Scheduled 5 for all outlets larger than 4".

(e) Test Plug: 18-8 Type 304 Stainless Steel in test outlet.

(f) Gasket: Sleeve shall have a full wide gasket of Nitrile Butadiene Rubber (NBR, Buna-N) per ASTM D2000 with hydromechanical activated lip, captured in a recessed groove around the outlet. Gasket shall be suitable for water, salt solutions, mild acids, bases, and sewage.

(g) Service Rating: 2"-12" outlets: 175 psi.

(h) Only qualified and appropriately licensed Utility Contractors shall complete potable water taps on new installations not connected to the City's potable water system at the time of the tap. The City shall observe all tapping activities. Taps on the City's active potable water system shall be completed by the City only.

Article 09-02-120 Detectable (Underground) Warning Tape

Detectable warning tape shall be 6" wide, 5 mil overall thickness, with a .35 mil solid foil coil. APWA Color coded with imprint of underground utility installed.

Article 09-02-130 Trace Wire

(a) All trace wire shall have HDPE insultation intended for direct bury service. HDPE insulation shall be color coated per APWA Standard for respective utility being installed.

(b) Trace wire shall be taped to the top of all water mains and fire hydrant/lines at a maximum 10-foot (10') interval. Trace wire integral to water services shall be connected to the water main trace wire.

(c) Trace wire shall be as following based on installation method:

(1) Open Trench Installation: #12 AWG copper clad steel, high strength with minimum 450-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries High Strength – 1230 CCS Trace Wire or City approved equal.

(2) Directional Drilling/Boring: #12 AWG copper clad steel, high strength with minimum 1,150-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries Extra-High Strength – 1245 CCS Trace Wire or City approved equal.

(3) Pipe Bursting/Slip Lining: 7 x 7 stranded copper clad steel, extreme strength with minimum 4,700-pound break load and minimum 50 mil HDPE insulation thickness. Copperhead Industries SoloShot Xtreme – PBX-50 CCS Trace Wire or City approved equal.

(4) When a new trace wire is to be tied to an existing trace wire the connection shall be made with an approved splice connector and shall be properly grounded at the splice connection.

(d) Connectors

(1) All main line trace wires shall be interconnected at intersections (tees and crosses). Connectors shall be lockable and manufactured specifically for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion and shall be installed in a manner as to prevent any uninsulated wire exposure.

(2) Tee Connectors (service lines, main line tees, and fire hydrants) shall include a 3-way lockable connector main line to lateral lug connector. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(3) Cross Connectors (main line crosses) shall include two (2) 3-way lockable main line to lateral lug connectors. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(4) Main line trace wire splices shall be completed utilizing twist-lock connectors. Copperhead Industries Locking Connector Part Number LSC1230C or City approved equal.

(5) Do not cut and splice main line trace wire.

(6) Non-locking friction fit, twist on, or taped connectors shall not be used.

(e) Termination/Access Boxes

(1) All trace wire termination points must utilize an approved trace wire access box, specifically manufactured for this purpose.

(2) All access boxes shall be identified with “sewer” or “water” cast into the cap and be APWA color coded according to the utility.

(3) A minimum of two-feet (2’) of slack is required in all trace wire boxes upon installation at final grade.

(4) All trace wire access boxes must include a manually interruptible conductive/connective link between the terminals for the trace wire connection and the terminal for the ground anode wire connection.

(5) Ground anode wire shall be connected to the identified terminal on all access boxes.

(6) Fire hydrants must terminate at an in-ground trace wire access box positioned within the fire hydrant concrete collar. Copperhead Industries SnakePit Concrete/Driveway with Two-Terminal Switchable Lid Access Point Part Number CD14*2T-SW or City approved equal.

(7) Main Line access boxes shall be placed at intervals not exceeding 500-feet in locations where fire hydrants are not present. Trace wire access boxes

may be placed outside the roadway driving surface or may be placed integral with valve box collars if pre-approved by the City.

A. Trace wire access box placed integrally in concrete valve box shall be Copperhead Industries SnakePit Roadway with Two-Terminal Switchable Lid Access Point Part Number RB14*2T-SW or City approved equal.

B. Trace wire access box outside the roadway prism shall be Copperhead Industries SnakePit Lite Duty with Two-Terminal Switchable Lid Access Point Part Number LD14*2T-SW or Engineer Approved Equal. Access boxes placed outside of the roadway shall be identified with flexible marker per Standard Detail W-19.

(f) Grounding

(1) Trace wire must be properly grounded at all dead ends and stubouts.

(2) Grounding of trace wire shall be accomplished using a drive-in magnesium grounding anode rod with a minimum of 20-feet of #12 AWG red HDPE insulated copper clad steel wire connected to the anode (minimum of 1.5-pound) specifically manufactured for the intended purposed. The ground anode shall be landed at the same elevation as the utility. Ground anode shall be Copperhead Industries Ground Rod with Twist-On Connector Part Number ANO-12 or City approved equal.

(3) When grounding the trace wire at dead ends or stubouts, the grounding anode shall be installed perpendicular to the trace wire at a maximum possible distance.

(4) When grounding the trace wire in long continuous runs, the grounding anode shall be installed directly beneath and in-line with trace wire. The grounding anode wire shall be trimmed to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.

(g) Testing

(1) All new trace wire installations shall be located using typical low frequency line trace equipment. The City shall conduct a test trace witnessed by the Contractor prior to final acceptance. The test trace shall be conducted using City equipment prior to final surface (asphalt/concrete) placement.

(2) Continuity testing in lieu of actual line trace will not be accepted.

Article 08-02-140 Sampling Stations

(a) All new developments proposing to tie to the City's Public Water System shall be completed with a minimum of one (1) sampling station. Based on the number of full buildout connections being served, the City will provide the developer with the total number of required sampling stations to be installed.

(b) Sampling stations shall be designed specifically for collecting bacteriological and other water samples at a designated point directly from the water main. The sampling station shall be NSF/ANSI 372 certified and shall be manufactured by Kupferle Foundry Eclipse #88 Sampling Station or City approved equal.

Article 09-02-150 Cathodic Protection

Cathodic protection, if required, shall be designed by a licensed engineer in the State of New Mexico.

Article 09-02-160 Pressure Reducing Stations

Pressure reducing or regulating valves (PRV) are utilized to control pressures between distribution zones within the distribution system. When water main extension plans are submitted for review and water availability analysis, the need for a PRV installation will be determined and located based on existing pressure zones and the existing distribution system layout by the City on a case-by-case basis. In certain situations, the City shall require monitoring of the valve(s) via SCADA equipment.

ARTICLE 09-03 – CONSTRUCTION REQUIREMENTS

Article 09-03-010 Trench Excavation

(a) Pipe trenches shall be excavated along straight lines to the dimensions as required in the Contract Documents.

(b) All trenching work shall be done in a safe manner, trenches shall be rendered safe for the workmen by complying with the applicable safety standards, and by practicing safety measures consistent with current OSHA Trenching and Excavation Safety Standards and good construction methods.

(c) All excavations shall be adequately barricaded and secured in accordance with the current New Mexico Department of Transportation Standard Specifications. Flashing lights and barricades shall be employed along open excavations and trenches to protect the public from potential hazards; barricades and advance

warning devices shall comply with MUTCD Standards as well as any special direction required by the City.

(d) Unless trench banks are cut back on a stable slope, the trenches shall be braced as necessary to prevent caving or sliding, to provide protection for the workmen and the pipe. All trenching shall comply with OSHA Trenching and Excavation Safety Standards.

(e) When over-excavation occurs beyond the limits indicated by the trench details, the over-excavated area shall be refilled with suitable material at optimum moisture and compacted to ninety-five (95) percent density per ASTM D 1557.

(f) The maximum amount of open trench permitted in any one location shall be 100-feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater, unless otherwise approved by the City. A trench shall be considered open until backfilled to the top of subgrade.

(g) Excavation of pipe trenches for flexible and rigid pipe is as required in the table below. In all cases, the trench shall be wide enough to allow for the compaction equipment.

Table 18: Minimum Trench Widths

Flexible Pipe	Minimum shall be not less than 1.5 times the pipe outer diameter plus twelve inches (12”)
Rigid Pipe	Minimum shall be not less than the outside pipe diameter times 0.33

(h) When trench is to be backfilled with flowable fill, the minimum trench width may be reduced to the pipe diameter plus twelve inches (12”) and enough room needed to allow for the proper placement of the flowable fill using tools to “spade” the material under the pipe haunches.

(i) Maximum Trench Width: the maximum width of the trench shall be determined by the Contractor based on the method and means for the installation. However, trench width shall not exceed the width of a ride-along compactor plus two feet (2’) when working alongside the pipe or culvert.

(j) Street Crossings

(1) Trenches crossing streets shall be completely backfilled immediately after pipe, wire, or conduit installation and a temporary or permanent asphalt patch or flowable fill cap shall be installed as directed by the City to protect the integrity of the trenches within the roadway limits from excessive

moisture. Under no circumstance shall a trench remain un-backfilled for longer than 30 calendar days. Trenches shall be considered backfilled when brought to final grade (in unpaved areas) or once surface patch (asphalt or concrete) has been placed.

(2) Substantial bridging, properly anchored, capable of carrying the vehicle loading, in addition to adequate trench bracing, shall be used to bridge across trenches at street crossings where trench backfill, and temporary patches have not been completed during regular working hours as directed and approved by the City. Safe and convenient passage for pedestrians and access to all properties shall be provided.

(k) Disposal of Unsuitable Excavated Materials

(1) Excess material and excavated material unsuitable for backfill shall be removed from the Project by the end of each working day unless otherwise approved by the City and disposed of by the Contractor in an environmentally responsible manner at no cost to the Project.

(2) When unsuitable material is encountered that is not shown in the Contract Documents, the City shall order the removal of the material by the Contractor and issue a field order to change the contract price due to the Contractor for removal of the materials.

(l) Portable trench shields or boxes that provide a movable safe working area for installing pipe may be used for the installation of the pipe. After placing the pipe in the trench, backfill material shall be placed in lifts and the shield shall be lifted to allow for the backfill material to be placed for each lift, trench wall to trench wall.

(m) Transition Installations: When differential conditions of pipe support might occur, such as transitions from manholes to trench, a transition support region shall be provided to ensure uniform pipe support and preclude the development of shear, or other concentrated loading on the pipe.

Article 09-03-020 Bedding

(a) The bottom of the trenches shall be smooth, and hand graded uniformly throughout. If rock or other unyielding material is encountered or if the trench is over-excavated, pipe bedding material shall be added, compacted, and graded to a smooth uniform surface. The compacted bedding shall support the pipe throughout its entire length, except at bells or couplings which shall not rest on the bedding.

(b) After the bell or coupling holes are excavated and after the pipe pieces are connected and properly aligned and graded, successive layers of select material shall be placed and compacted, until the pipe is covered, as required in the Contract Documents. The Contractor shall maintain proper alignment and grade during the bedding process. Any bent, cracked, chipped, or damaged pieces of pipe shall be removed and replaced at Contractor's expense.

Article 09-03-030 Pipe Laying

(a) Pipe shall be laid true to the line and grade indicated in the Contract Documents or as established by the City.

(b) The pipe shall be protected during handling against impact shocks and free fall. Do not permit hooks, chains, cables, or handling equipment to come in contact with the pre-molded or pre-formed end surfaces.

(c) Handle the pipe having pre-molded end surfaces or pre-formed end surfaces so that no weight, including the weight of the pipe itself, will bear on or be supported by the jointing material or surfaces. Do not drag the end of the pipe on the ground or allow them to be damaged by contact with gravel, crushed stone, or any other hard objects.

(d) No damaged or deformed pipe will be incorporated in the work.

(e) The interior of the pipelines shall be kept free from dirt and other foreign material as the work progresses and shall be clean upon its completion. Tight stoppers or bulkheads shall be securely placed in the ends of all pipelines when the work is stopped temporarily, or at the end of the workday.

(f) Immediately prior to joining, both pipe ends shall be thoroughly cleaned, and a lubricant shall be applied according to the manufacturer's recommendations. For push-on type joints, sufficient pressure shall be applied in making up joints to insure proper seating of the joints.

(g) The full length of each section of pipe shall rest solidly upon the bed, with recesses excavated to accommodate bells and joints. Any pipe that has the grade or joint disturbed after laying shall be taken up and re-laid. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the Work except by permission of the City. Minimum depth of cover over top of pipe shall be three feet, unless otherwise approved by the City.

(h) All nuts, and bolts utilized in underground pipe connections shall be stainless steel, high strength cast iron or high strength wrought iron. Carbon steel nuts and bolts

may be used except that they shall be protected by "cocoon" type protective coating of coal-tar and felt in accordance with AWWA Standard C 203.

(i) Where connections are made between new work and existing lines, the connections shall be made using all required fittings as recommended by pipe manufacturer and approved by the City. Couplings may be either cast iron or steel with bolts as stated above. If steel couplings are used, they will be cocoon wrapped as specified herein.

(j) Sanitary sewer main lines and potable water transmission/distribution main lines shall be laid parallel to each other and parallel to the street centerline when both are installed in the same street. Sanitary sewer main lines shall be placed within permitted streets only. If both are laid in the street, a minimum distance between the lines shall be ten-feet (10') horizontally, and the water transmission/distribution main line shall be at least two-feet (2') higher than the sanitary sewer main line. Where the water and sanitary sewer main lines cross each other, the water main line shall be a minimum of two-feet (2') higher than the sanitary sewer main line or the sanitary sewer line shall be concrete encased a minimum of ten-feet (10') on each side of the water line, per the detail W-11. If the water transmission/distribution main line crossing occurs below the sanitary/storm drain sewer the sewer main line shall be encased per detail W-11.

(k) Water main lines shall not be constructed under walkways, sidewalks, curbs and gutters, drive pads, or similar concrete structures by tunneling underneath. The Contractor will cut these concrete structures by using a concrete saw to the closest control joint or, at their option, may remove the section of the concrete structure to the nearest full expansion joint or edge.

(l) Encasement shall be performed as shown in the Contract Documents at shallow crossings or other instances in which piping may be exposed or susceptible to excessive surface loading. DIP shall be used for these crossings with push-on or M.J. type connections, blocked with curved / conforming cinder blocks underneath, installed in prepared trench of adequate width to house pipe diameter and encasement. Trench excavation shall have ninety-five (95) percent relative compaction or shall be in freshly excavated native material, and as approved by the City may suffice with adequate dimensions to omit use of formwork for encasement concrete placement. Encasement concrete shall be aggregate and Type II cement meeting or exceeding 3,000 psi compressive strength. Rebar shall be placed as shown in the Contract Documents, shall be new and unused, and tied with minimum six-inch (6") lap distances, with minimum two inches (2") of concrete cover on outside dimensions.

(m) All valves shall be set true, level, vertical and plumb. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM D 1557.

(n) The Contractor shall remove the valve box and operating nut from all existing valves that are to be abandoned. The resulting excavation shall be backfilled and compacted to ninety-five (95) percent density, ASTM D 1557. The top six inches (6") of the excavation shall receive new base course placed to the above stated density. The pavement shall be sawcut to form a square opening. The cut faces of the existing asphalt shall be thoroughly coated with tack coat and new asphalt pavement shall be placed and densified to ninety-five (95) percent density, ASTM D 1557.

(o) Cast iron valve boxes shall be set vertical and plumb centered over the operating nut. All valve boxes shall be adjusted to proper elevation, providing the minimum overlap of six inches (6") of the two (2) pieces, and a concrete collar shall be built around the top of each valve box. The concrete collar shall be of the size, shape, and dimensions shown in the Detail Drawings. The concrete shall be 3,000 psi at twenty-eight (28) days with one (1) inch aggregate and finished with a light broom finish. All concrete shall be removed from the top of the valve box and lid while it is still wet, and they shall be left clean. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM D 1557. Valve stem extensions shall be required and installed on all valves for which the valve operator is more than four feet (4') below the finished surface.

(p) Adapters and couplings shall be installed in strict compliance with the manufacturer's recommendations. Contractor shall provide, in place, all additional straps, rods, and harness required to make a secure water-tight connection.

(q) The City shall have the right to check the pipe for line and grade by any method desired after the pipe is laid, and before backfilling begins. The City shall also have the right to check each pipe joint with a gauge or by any means necessary in order to be assured that the gaskets are in place and properly seated. Any run of pipe that is found to be appreciably off of line or grade shall be removed from the trench, the trench bedding shall be re-graded and compacted, and the pipe shall then be laid accurately online and grade. Any joint that is found to be improperly gasketed and/or seated shall be un-jointed and correctly reassembled. If any gasket is found to be damaged, the entire pipe section containing the damaged gasket shall be replaced with a new one.

(r) Contractor shall furnish any tools, gauges, and all items required for the checking of the gaskets and joints, and he shall check every joint to be sure that the gaskets are seated and located in the correct place to avoid leakage at the joints.

(s) Trenches shall be kept free from water during pipe installation until suitable backfill has been placed and compacted to prevent pipe flotation. Any standing water within the trench shall be evacuated and the trench bottom or bedding be restored per the standards contained herein.

(t) Field cuts shall be completed with a hacksaw, handsaw, or a power saw with a steel blade or an abrasive disc. Field cuts shall be square to the pipe's flow area. The newly cut pipe end shall be beveled to the factory pipe chamfer. Completed field cuts shall be smooth and blunt free from shavings and rough edges.

(u) Plastic water pipe shall be connected and placed in the trench in accordance with the manufacturer's recommendations.

(v) The reference mark (a distinct circumferential line) is placed on the pipe's spigot end by the manufacturer to indicate the correct depth of spigot penetration into the pipe gasket joint. If the pipe is seated too deep or too shallow the pipe may buckle or separate due to thermal expansion/contraction. Spigot penetration shall be within one quarter (1/4) inch of the manufacturer's recommended mark.

Article 09-03-040 Utility Restraint Systems

(a) Utility system piping thrust is to be restrained through the use of restrained joint fittings. Refer to Standard Details W-15 through W-18.

(b) Bell joint restraints shall be utilized.

(c) Where site conditions preclude the use of pipe restraints concrete thrust blocks may be utilized as follows. Thrust blocks shall be poured at all bends, valves, tees, reducers, and fittings, where changes in pipe diameter, alignment or grade occur, and as indicated in the Contract Documents or as required by City. Thrust blocks are only necessary where mechanical restraint joints are not being utilized. The minimum size of concrete thrust blocks shall be as shown in the Contract Documents or as directed by the City. The material of thrust blocks shall be concrete composed of concrete aggregates and shall have a compressive strength of no less than two thousand five hundred (2,500) psi in twenty-eight (28) days for standard cement Type II and shall be placed between solid, undisturbed ground and the fitting to be anchored. The area of bearing on the fitting and on the ground shall in each instance be that required by the City. Unless otherwise directed by the City the thrust blocks shall be placed so that the pipe and fitting joints will be accessible for repair. Metal harness or tie rods, of the size and type shown in the Contract Documents, shall be used. Refer to Standard Details: W-3 and W-4.

Article 09-03-050 Backfilling Trenches

(a) Definitions

(1) Foundation: Over-excavation and backfill of the foundation only when the native trench bottom does not provide a firm-working platform for placement of the pipe bedding material.

(2) Bedding: In addition to bringing the trench bottom to required grade, the bedding levels out any irregularities and ensures uniform support along the length of the pipe.

(3) Haunch Zone: The backfill under the lower half of the pipe (haunches) distributes superimposed loadings.

(4) Initial Zone: The backfill from the pipe midline to the top of the pipe zone provides the primary support against lateral pipe deformation for flexible pipe.

(5) Final Zone: Backfill above the pipe zone to the top of the subgrade.

(b) Materials for trench backfill may include flowable fill, Type I aggregate base course, Type II aggregate base course, and native materials. Individual pipe zone backfill requirements are presented below. The Contractor shall submit the material types to the City for approval prior to construction.

Native backfill shall only be utilized within the Final backfill zone. Native materials shall be free from sod, frozen earth, organic materials, rubbish, and debris. The material should be free of large stones (maximum clod size shall be < 3") that may cause damage to the pipe, such as concentrated pipe loading.

Table 19: Type I Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
2-Inch	100
1-1/2-Inch	90-100
1-Inch	70-90
No. 4	30-65
No. 10	30-10
No. 16	15-20
No. 200	10-20
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 20: Type II Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
1-Inch	100
¾-Inch	85-95
No. 4	40-70
No. 10	35-45
No. 16	25-35
No. 200	6-18
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 21: Native Backfill Requirements

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
0-20.0	12
20.1 – 50.0	10
50.1 – 80.0	8
80.1 – 100	6
Liquid Limit	50 Maximum

(1) Foundation: Trench foundations shall be stable prior to placing bedding material. If the City determines that unsuitable materials exist at the trench foundations, the Contractor shall remove and replace the material as directed by the City.

(2) Pipe Bedding: The trench shall be excavated to a depth of four- to six-inches (4”-6”) below the bottom of the pipe barrel and to a depth that will

be sufficient to provide two- to four-inches (2”-4”) of clearance under the pipe bell (where applicable).

Uniform and stable bedding shall be provided for the pipe and any protruding features of its joints and/or fittings. The middle of the bedding equal to one-third (1/3) the pipe outside diameter may be loosely placed to allow for the pipe bell and other protruding features. Alternatively, the compacted bedding material may be excavated slightly to allow for continuous lines and grades of the pipe structure.

Pipe bedding shall consist of Type II aggregate base course or flowable fill. Bedding shall be backfilled to the required grade of the bottom of the pipe. The compaction shall provide a density, at minimum, equal to 95 percent of the maximum dry density in accordance with ASTM D 1557 with the exception of the middle-uncompacted area.

(3) Haunch Zone Backfill: After the pipe or conduit is laid, the haunch areas shall be backfilled with Type II aggregate base course or flowable fill.

Compaction of the haunching material can be best accomplished by hand with tampers or suitable power compactors for maximum compacted lift thickness of six inches (6”). The Contractor shall take care to not disturb the pipe from its line and grade while compacting the backfill. Material suitably distant from the pipe shall be compacted to 95 percent of the maximum dry density in accordance with ASTM D 1557.

While compacting the embedment near the pipe with impact-type tampers, caution shall be taken to not allow direct contact of the equipment with the pipe.

(4) Initial Backfill Zone: After the pipe or conduit is laid, the initial backfill area shall be backfilled with Type II aggregate base course or flowable fill. Avoid usage of impact tampers directly above the pipe until the full loose layer backfill depth above the pipe is obtained.

Table 22: Initial Backfill Zone Material Depths

Pipe or Conduit	Initial Zone
2-Inch or less diameter	6-Inches above the top of pipe
Greater than 2-Inch diameter	12-Inches above the top of pipe

(5) Final Backfill Zone: The remaining backfill, to the top of subgrade, shall consist of Type I or Type II aggregate basecourse, native material, or

flowable fill. The material shall be compacted to a minimum of 95 percent of the maximum dry density in accordance with ASTM D 1557.

A. If flowable fill is used, flowable fill shall be placed from the top of the initial backfill zone to the bottom of the flexible pavement (replaces aggregate road base in the pavement section over the trench).

B. Flowable fill cap may be required in the upper portion of the Final Backfill Zone for all non-residential roadways with a minimum thickness of twelve inches (12") for minor collectors and eighteen inches (18") for all major collectors and arterials.

(c) Compaction

(1) Compaction shall be performed by mechanical means except in the haunch zone where compaction may be required by hand tamping. Mechanically compacted backfill shall be placed in layers of thickness compatible with the characteristics of the backfill and the type of equipment being used and shall have a maximum lift thickness as shown in the table below. The lifts shall be placed on both sides of the pipe at the same time to reduce pipe movement.

Table 23: Backfill Lift Thickness

Location	**Maximum Compacted Lift Thickness (inches)**	**Maximum Loose Lift Thickness (inches)**
Bedding, Haunch, and Initial Zones	6	8
Final Zone	8	12

(2) Each layer shall be evenly spread, moistened, and tamped or rolled until the specified relative compaction has been attained.

(3) Compaction minimum shall be 95 percent of the maximum dry density in accordance with ASTM D 1557 for trenches within the roadway prism. Compaction requirements for the final zone of trenches outside the roadway may be reduced to 90 percent of maximum dry density in accordance with ASTM D 1557.

(4) Density testing shall be completed every 200-feet on mains or any part thereof per day, one per every three services or any part thereof per day.

(5) Density testing per depth: Less than or equal to four-feet (4') shall require one at depth and one at subgrade per horizontal length above. Greater than four-feet (4') depths shall require one per six-inch (6") or larger pipe, then one every three (3) vertical feet, and one at subgrade per horizontal length above.

(6) Where test results reveal non-compliance with the requirements of the Contract, the Contractor shall bear the costs of subsequent rework and retesting until the required specification compliance is obtained to the satisfaction of the City.

(d) Minimum Pipe Spacing: If the pipe space between parallel pipes in a single trench is not conducive to mechanical backfill, then flowable fill shall be used.

ARTICLE 09-04 – FLUSHING AND DISINFECTION

Article 09-04-010 Work Description

(a) This work includes materials and procedures for flushing and disinfection of water mains by the continuous feed method and by the slug method. The tablet method to disinfect pipelines shall not be used. Disinfect piping in accordance with AWWA C651 as modified below.

(b) At all times, the new main shall be isolated from the active distribution system by physical separation until disinfecting water has been flushed out and satisfactory bacteriological testing has been completed in accordance with AWWA Standard C651. Water needed to fill the new main for testing and flushing purposes shall only be potable City water supplied through a temporary connection protected by a backflow device.

(c) The backflow device must be tested and certified after installation on-site. A copy of the certification shall be given to the City and a copy shall be kept on-site with the device. Testing must be completed by a certified testing facility and be on the City's approved tester list.

Article 09-04-020 Job Conditions

(a) Disposal of the chlorinated disinfection water and the flushing water is the Contractor's responsibility. The chlorinated disinfection water shall be properly disposed of by either pumping the water into a tank truck or through de-chlorination using a neutralizing chemical applied to the wasted water in accordance with AWWA C655 "Field Dechlorination" prior to directing the dechlorinated water into the environment or the sewer system.

(b) An air gap of two (2) times the hose diameter must be provided to prevent cross contamination. The Contractor shall notify City (24) hours prior to disposal into the sewer system. Schedule the rate of flow and locations of discharges in advance to permit review and coordination with the City. Use potable water for chlorination. Submit request for use of water from waterline of the City forty-eight (48) hours in advance. All notifications to the City shall be completed in writing and acknowledged in writing prior to commencement of activities by the Contractor.

Article 09-04-030 Materials

(a) Liquid Chlorine: Inject with a solution feed chlorinator and a water booster pump. Use an experienced operator and follow the instructions of the chlorinator manufacturer.

(b) Calcium Hypochlorite (Dry): Dissolve in water to a known concentration in a drum and pump into the pipeline at a metered rate.

(c) Sodium Hypochlorite (Solution): Further dilute in water to desired concentration and pump into the pipeline at a metered rate.

(d) Chlorine Residual Test Kit: For measuring chlorine concentration, supply and use a medium range, drop count, titration kit or an orthotolidine indicator comparator with wide range color discs. Products: Hach Chemical or Helliege. Maintain kits in good working order available for immediate test of residuals at point of sampling. The use of expired DPD compound is prohibited.

Article 09-04-040 Execution

(a) Continuous Feed Method for Pipelines: The continuous-feed method consists of completely filling the main with potable water, removing air pockets, then flushing the completed main to remove particulates, and refilling the main with potable water that has been chlorinated to a minimum of 50 mg/L. After a 24-hour holding period in the main there shall be a free chlorine residual of not less than 25 mg/L. Table 16 below provides the amount of chlorine required for each 100-feet of pipe across various diameters. A complete step-by-step procedure can be found in AWWA C651.

Table 24: Chlorine required to produce an initial 50-mg/L concentration in 100ft of pipe by diameter.

Pipe Diameter (inches)	100% Chlorine (lb)	1% Chlorine Solution (gal)
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

(b) Slug Method for Pipelines: Introduce the water in the pipeline at a constant measured rate. At the start of the test section, feed the chlorine solution into the pipeline at a measured rate so that the chlorine concentration created in the pipeline is three hundred (300) mg/L. Feed the chlorine for a sufficient period to develop a solid column or "slug" of chlorinated water that will, as it passes along the line, expose all interior surfaces to a concentration of at least three hundred (300) mg/1 for at least three (3) hours.

(c) Disinfection of Valves and Appurtenances: During the period that the chlorine solution or slug is in the section of pipeline, open and close valves to obtain a chlorine residual at hydrants and other pipeline appurtenances.

(d) Disinfection of Connections to Existing Pipelines: Disinfect per AWWA C651. Flush with potable water until discolored water, mud, and debris are eliminated. Swab interior of pipe and fittings with a one (1) percent sodium hypochlorite solution. After disinfection, flush with potable water again until water is free of chlorine odor.

(e) After the chlorine solution applied by the continuous feed method has been retained in the pipeline for twenty-four (24) hours. Confirm that a chlorine residual of fifty (50) mg/1 minimum exists along the pipeline by sampling at air valves and other points of access.

(f) With the slug method, confirm by sampling as the slug passes each access point and as it leaves the pipeline. After confirming the chlorine residual, flush the excess chlorine solution from the pipeline until the chlorine concentration in the water leaving the pipe is within 0.5 mg/1 of the existing potable water system.

(g) Pipeline Flushing: After confirming the chlorine residual, dechlorinate the excess chlorine solution from the pipeline until the chlorine concentration in the water leaving the pipe is within 0.5 mg/l of the replacement water. Replacement water sample shall be verified by the City.

(h) Bacteriologic Tests: Collect two (2) samples, deliver to a certified laboratory within six (6) hours of obtaining the samples, and obtain a bacteriologic quality test to demonstrate the absence of coliform organisms in each separate section of the pipeline after chlorination and refilling. The City shall observe while samples are taken; written notification shall be received 24-hours prior to desired sampling. Water testing bottles for transportation to the lab must be sealed in the presence of the City. Sampling shall only occur between 8:30 AM and 3:00 Monday through Thursday, excluding holidays, unless preapproved by the City. Hydrants shall not be utilized as sampling points; smooth, unthreaded hose bib shall be utilized for sampling in accordance with AWWA C651.

(1) New Mains: An initial set of samples shall be completed and then resampled 24-hours later, in accordance with AWWA C651. In order to place the line into service both sets of samples must show the absence of coliform bacteria and acceptable aesthetic quality (e.g. chlorine residual, pH, alkalinity, specific conductance, turbidity). At the option of the City a heterotropic plate count (HPC) may be required.

A. For new mains, sets of samples shall be collected every 1,200 feet of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length.

B. If trench water has entered the new main during construction or if, in the opinion of the City, excessive quantities of dirt or debris have entered the new main, bacteriologic samples shall be taken at intervals of approximately 200 feet. Samples shall be taken of water that has stood in the new main for at least 16 hours after final flushing is completed.

(2) Repaired Mains: For repaired mains that were depressurized and/or wholly or partially dewatered, one set of samples will be required. Samples shall be collected downstream of the repair site and at intervals of approximately 200 feet within the length of pipe that was shut down. If the direction of flow is not known, or known to flow both directions, samples shall be collected on either side of the repair site. Refer to AWWA C651 for additional guidance.

(i) Repetition of Procedure: If the initial chlorination fails to produce required residuals and bacteriologic tests, repeat the chlorination and retesting until satisfactory results are obtained.

(j) Test Facility Removal: After satisfactory disinfection, replace air valves, restore the pipe coating, and complete the pipeline where temporary disinfection or test facilities were installed.

Article 09-04-050 Hydrostatic Tests

(a) The Contractor shall be required to test all piping and other lines and appurtenances in the presence of the City. Test reports shall be required for each test and submitted to the City. Testing of lines shall be done without being connected to existing lines. If such connections are allowed it is with the understanding that the Contractor assumes any and all responsibility in case of damage, failure and/or contamination to the existing system. The new water pipe will be tested before the backfilling is done. After the pipe is laid, earth cover shall be placed over the middle of the pipe joints, leaving the corp. stops, valves, service taps and laterals uncovered. The pipe will be filled with water, and the pressure in the pipeline shall be raised by means of a motor-driven water pump to a hydrostatic pressure of one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater, at the lower end of the pipe section. Applicable AWWA C-600 standards and procedures shall be adhered to for determination of losses on pipes up to thirty-inches (30") in diameter. If any leaks appear in the pipe, they shall be repaired to the satisfaction of the City, and the test shall be performed until the pipe holds the prescribed pressure. As an alternative, the Contractor may opt to test the pipeline in sections between mainline valves or as approved by the City.

(b) All testing shall be conducted in accordance with AWWA Standard C600 for ductile iron mains and AWWA Standard C605 for PVC mains and those portions of the above standard related to hydrostatic tests shall apply to any type of water main construction. Test pressure shall be one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater. Waterline shall be placed in its final position for hydrostatic testing. If the waterline is moved, all testing shall be performed again.

(c) All taps, gauges and necessary equipment shall be provided by the Contractor; however, the City may utilize gauges provided by the City at their discretion.

(d) Leakage Defined: Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within five (5) psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. If the pressure drops more than five (5) pounds in thirty (30) minutes, the pipe has failed to pass the test. If the pressure drop is less than five (5) pounds in thirty (30) minutes, water shall be added to the pipe section to maintain the one hundred fifty (150) psi test pressure and the volume of water added shall be duly recorded. This procedure shall be repeated at

each thirty (30) minute intervals for the test period. The total volume of water added to the pipe section to maintain the one hundred fifty (150) psi test pressure shall represent the total leakage during the test.

(e) Allowable leakage: No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$\underline{\text{DIP}} \qquad \underline{\text{PVC}}$$
$$L = \frac{SD\sqrt{P}}{133{,}200} \quad \text{or} \quad L = \frac{ND\sqrt{P}}{7{,}400}$$

where L is the allowable leakage, in gallons per hour, S is the length of pipe tested, in feet; N is the number of joints in the length of pipeline tested, D is the nominal diameter of the pipe, in inches, and P is the average test pressure during the leakage test, in pounds per square inch gauge.

The tables below present the allowable leakage per various pipe diameters per 1,000 feet of pipeline.

T**able 25: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (DIP)**

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
350	0.84	1.12	1.40	1.69	1.97	2.25	2.53	3.37	4.21
300	0.78	1.04	1.30	1.56	1.82	2.08	2.34	3.12	3.90
275	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.99	3.73
250	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.85	3.56
225	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.70	3.38
200	0.64	0.85	1.06	1.27	1.49	1.70	1.91	2.55	3.19
175	0.60	0.79	0.99	1.19	1.39	1.59	1.79	2.38	2.98
150	0.55	0.74	0.92	1.10	1.29	1.47	1.66	2.21	2.76

Table 26: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (PVC)

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
300	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.81	3.51
275	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.69	3.36
250	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.56	3.21
225	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.43	3.04
200	0.57	0.76	0.96	1.15	1.34	1.53	1.72	2.29	2.87
175	0.54	0.72	0.89	1.07	1.25	1.43	1.61	2.15	2.68
150	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.99	2.48

(f) When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/h/in. (0.0012 L/h/mm) of nominal valve size shall be allowed.

(g) When hydrants are in the test section, the test shall be made against the closed hydrant.

(h) Acceptance of Installations: Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid disclosed leakage greater than specified the Contractor shall, at the Contractor's expense, locate and make repairs as necessary until the leakage is within the specified allowance.

(i) All visible leaks are to be repaired regardless of the amount of leakage.

(j) The Contractor shall be notified of any leaks that may occur during the one (1) year warranty period and shall make immediate arrangements after he is notified to return to the job site and repair any leaks that may develop in the pipeline.

Article 09-04-060 Asbestos Containing Materials

It is the Contractor's responsibility to follow all EPA, OSHA, New Mexico Solid Waste Management Regulations, and all other regulations when working with asbestos-cement (AC) pipe. At a minimum, the work shall be completed with all personal protective equipment and a respirator. Cutting of AC pipe will not be permitted. At the point of tie-in connection to an existing AC line, the Contractor shall excavate to the nearest joint and remove the section of pipe in a single piece (full joint). The AC pipe must remain wet and encapsulated with 6 mil or thicker plastic bag per NM Solid Waste Management Regulations until the pipe is delivered to the Special Waste Facility. Existing AC pipe shall remain abandoned in place whenever possible.

ARTICLE 09-05 – COORDINATION

Article 09-05-010 Construction Coordination, Survey, & Acceptance

(a) The Contractor shall coordinate the Work with the City before commencing work. The City shall inspect and approve all work prior to backfilling. Photos will not be accepted in lieu of a physical inspection.

(b) The Contractor shall notify the City in writing when each utility installation is complete in place per plan and ready for inspection. No utility backfill shall be placed until inspection has been satisfied by the City.

(c) Acceptance Submittal – All test reports (utility, bacteriological, concrete, compaction, etc.), signed inspection forms, field marked construction drawings reflecting as-built conditions, and delivery of post construction survey as defined below.

(d) Post Construction Survey – to be completed by a professional surveyor licensed in the State of New Mexico. The survey shall include key system components for incorporation into the City's geographic information system (GIS). All data shall be created in real world coordinate system based on the following projection: horizontal control in NAD83, vertical control in NAVD88, and based on New Mexico State Plan Coordinates System (Grid), Central Zone, US Foot. The survey shall be tied to at least two (2) City control points as included at the end of Chapter 05. The Post Construction Survey shall be completed in a City approved AutoCAD version (.dwg format) provided to the City on a mass storage drive (compact disc or usb storage device) or via secure downloadable link.

The Post Construction Survey provider shall include a table identifying the layering convention used to depict system components (i.e. Layer C-UTIL-WATR-12in represents a twelve (12") diameter C-900 PVC Water Line, etc.). This will allow the City personnel to isolate and import portions of the drawing and translate the information directly into usable data in their GIS. The user at their option can base their layering convention on the National Cad Standard (NCS) for ease of use. The City will not accept CAD files containing information drawn in paperspace.

The post construction survey shall be in conjunction with the Record Drawings noting work per plan or identifying different field installation conditions.

(1) Drainage Systems Components: drainage channel control features and flowline elevations, drainage channel structure information (culvert upstream/downstream flowline elevations), manholes, inlets, pipe outfall(s), pond top elevation, and pond bottom elevation.

(2) Sanitary Sewer System Components: standard manholes, control manholes, drop manholes, cleanouts at right-of-way or property lines, casing installations, and sewer service taps.

(3) Lift Station Components: wet wells, dry wells, vaults, cleanouts, air valves, plug valves, flow meter, bends, and manholes.

(4) Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, fire hydrants, water meters, service line taps, sampling stations, and pressure reducing stations.

(5) Reclaimed Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, hydrants, meters, service line taps, or pressure reducing stations.

(e) Substantial Completion – the Acceptance Submittal and Post Construction Survey shall be provided to the City, reviewed, and accepted by the City prior to issuance of Substantial Completion and subsequent commencement of the warranty period.

END OF ARTICLE CHAPTER 09

CHAPTER 10 – RECLAIMED WATER SUPPLY SYSTEM

ARTICLE 10-01 - GENERAL

Article 10-01-010 Reclaimed Water System Materials

Item Description	Size or Reference	Specification	Manufacturer
PVC Pipe DR18	4" to 30"	AWWA C900-16 ASTM D1784 - Pipe Compound ASTM F477 - Gasket	--
PVC Pipe DR25	4" to 36"	AWWA C900-16 ASTM D1784 – Pipe Compound ASTM F477 - Gasket	--
PVC Fittings	6" to 12"	AWWA C153	--
Ductile Iron Pipe	12" to 36"	ANSI/AWWA C151/A21.51	--
Fiberglass Flexible Markers	W-29	APWA Color Code	--
Couplings Mechanical and/or Flexible	--	AWWA C111	Romac or Approved Equal
Casing Pipe End Seals	W-21	See Manufacturer's Specifications	T.D. Williamson Z-Seal Casing Seals or Approved Equal
Casing Spacer Band	W-21	See Manufacturer's Specifications	Advance Products & Systems, LLC Model SSIM or Approved Equal
Gate Valves	4" to 12"	AWWA C515 NSF/ANSI 61 & 372	Waterous Company or Approved Equal
Butterfly Valves	≥ 12"	AWWA C504	MH Valve Co. or Approved Equal
Valve Boxes	Series 6850 W-5, W-6, & W-7	ASTM A-48	Tyler Pipe, Tyler Corporation or Approved Equal
Valve Box Lockable Debris Cap	W-5	See Manufacturer's Specifications	SW Services LLC or Approved Equal

Fire Hydrant	W-9	AWWA C502	Clow "Medallion" American Darling Model B-62 or B-84, Mueller Super Centurion Model A-423
Reduced Pressure Backflow Prevention Devices	2 -1/2" to 10"	AWWA C511-92	Watts Series LF909 or Approved Equal
Stainless Steel Tapping Sleeve	--	AWWA C207 ASTM D2000	--
Detectable Warning Tape	APWA Standard	ASTM D2103	--
Trace Wire	#12 AWG Copper Clad Steel W-19 & W-33	ASTM B1010 – Wire ASTM B910/B910M – Wire ASTM D1248 -Insulation	Copperhead Industries or Approved Equal
Trace Wire Connectors	W-19 & W-33	See Manufacturer's Specifications	Copperhead Industries Connector Part Number 3WB-01 or Approved Equal
Trace Wire Access Boxes	W-19	ASTM D1788, Type 1 – Base Material APWA Standard	Copperhead Industries CD14*2T-SW or Approved Equal
Trace Wire Access Box Lid	W-19	ASTM D1788, Type 1 – Base Material APWA Standard	Copperhead Industries RB14*2T-SW or LD14*2T-SW or Approved Equal
Trace Wire Grounding (Ground Anode)	W-33	See Manufacturer's Specifications	Copperhead Industries Ground Rod with ANO-12 or Approved Equal
Mechanical Joint Restraint	W-15 thru W-18	AWWA C600, C605 or ASTM D2774 ASTM A536 - Material	EBBA Iron Inc. or Approved Equal
Air-Release and Vacuum-Relief Valves	W-14	AWWA C512 ASTM A 48 ANSI B1.20.1	Val-Matic Model 201C.2 or Approved Equal
Air-Release and Vacuum-Relief Enclosure	Precast Manhole W-14 & W-25	ASTM C478 AASHTO M199 NMDOT Section 517 and 662	Western Precast Concrete Inc. or Approved Equal

Traffic Bearing Manhole ring and Cover	W-25	AASHTO H-20	East Jordan or Approved Equal
Manhole gap filler	W-25 & W-26	ASTM C990-09	RAM-NEK Joint sealant or Approved Equal
Air-Release and Vacuum-Relief Enclosure Lid	W-14	H20 traffic rated ASTM C478-93	--

Article 10-01-020 Work Description

(a) This Work consists of furnishing all of equipment, materials, and labor to perform all operations in connection with the installation of reclaimed water lines and appurtenances. This section defines required characteristics and properties of Polyvinyl Chloride (PVC) and Ductile Iron Pipe (DIP), valves, valve boxes, adapters, couplings, fire hydrants, materials, fittings, appurtenances, and construction practices.

(b) Contractor shall provide, in place, all valves, adapters, couplings, and appurtenances necessary to meet the requirements of this Project, whether shown in the Contract Documents or not.

(c) Water needed to fill the new main for testing and flushing purposes shall only be potable City water supplied through a temporary connection protected by a backflow device.

(d) The backflow device must be tested and certified after installation on-site. A copy of the Certification shall be given to the City and a copy shall be kept on-site with the device. Testing must be completed by a certified testing facility on the City's approved listing.

Article 10-01-030 Location

Reclaimed waterline shall be located as directed by the City. All reclaimed water mains shall be laid with a minimum cover of three-feet (3'). The minimum pipe coverage shall apply to new construction only.

Article 10-01-040 Minimum Reclaimed Waterline Size

The minimum size of reclaimed water mains shall be six-inches (6") in diameter.

ARTICLE 10-02 – MATERIALS

Article 10-02-010 General

(a) Pipe and accessories shall be new and unused. Pipe shall be color-coded (purple for reclaimed water). Detectable Marking Tape shall be installed as provided in the Contract Documents.

(b) When PVC pipe is stored outside and exposed to prolonged periods of sunlight, an obvious discoloration of the pipe can occur. This is an indication of reduced pipe impact strength, and any length of pipe that is discolored will be rejected by the City. All pipe rejected will be removed from the job site by the Contractor.

Article 10-02-020 PVC Pipe

(a) PVC pipe four inches (4"-for existing tie-in locations only) through twelve inches (12") shall be not less than DR18, Class 235 and in conformance with AWWA C900, latest revision. Pressure class of PVC pipe shall be as required by Appendix A of AWWA C900. PVC pipe over twelve inches (12") shall be no less than DR25, Class 165 and in conformance with AWWA C900, latest revision.

(b) All PVC pipes shall be approved for use in potable water systems by an agency such as NSF Testing Laboratory.

(c) Joints: For pipe six inches (6") through twelve inches (12"), elastomeric gasket bell push-on type ends shall be used in accordance with ASTM F 477.

(d) Fittings: For pipe six inches (6") through twelve inches (12"), fittings for PVC pipe shall conform to the requirements of AWWA C153 and shall be cement mortar lined in accordance with AWWA C104. Fitting types shall include restrained mechanical joints and concrete thrust block where required. Restraining, standard mechanical joints, and fittings shall be submitted for City approval.

Article 10-02-030 Ductile Iron Pipe

(a) Ductile iron pipe shall be in accordance with ANSI/AWWA C151/A21.51 and Federal Specification WW-P-421d, latest revision. All ductile iron pipe shall be minimum class 150, unless otherwise indicated in the Contract Documents. Ductile iron pipe fittings shall be pressure rated at three hundred fifty (350) psi and be in accordance with ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11.

(b) All ductile iron pipe and fittings shall be internally mortar lined in accordance with ANSI A21.4, latest revision, and shall have an exterior coating in accordance with ANSI A21.6, A21.8, or A21.51.

(c) All ductile iron pipe and ductile iron fittings shall have a polyethylene encasement in accordance with ANSI/AWWA C105/A21.5, latest revision.

(d) The ductile iron pipe shall be push-on type joints, unless indicated otherwise on the plans, and the fittings shall conform to the requirements of AWWA C153 and shall be cement mortar lined in accordance with AWWA C104. Fitting types shall include standard flange fittings and mechanical joints.

Article 10-02-040 Adapters and Couplings

(a) All adapters, pipe couplings, tap and sleeves, or mechanical type couplings required for any of the piping systems shall be of the type manufactured for the specific purpose of the use intended, and shall be installed in strict compliance with the manufacturer's specifications, and to the satisfaction of the City. Factory-made adapters shall be furnished for connecting transition material to the mechanical joint fittings and valves, where required, including plastic to steel and plastic to DIP.

(b) Mechanical and/or flexible couplings shall be manufactured by Romac, or approved equal, and shall be sized and styled in accordance with the requirement for the particular coupling and used in accordance with the manufacturer's recommendations for the diameter, thickness and type of pipe to be connected. The mechanical and/or flexible couplings shall be provided with an acceptable joint harness to prevent separation of the joint where required due to pressure or change in direction of fittings. Couplings shall be polyethylene wrapped.

Article 10-02-050 Valves

(a) Gate Valves: All gate valves four-inch to twelve-inch (4”-12”) shall be resilient seated gate valves conforming to AWWA C515 rated for two hundred fifty (250) psi working pressure. Valves shall have a standard two (2) inch operating nut that opens counterclockwise. The wedge shall be constructed of ductile iron and shall be fully encapsulated in synthetic rubber except for the guide and wedge nut areas. The wedge shall seat against seating surfaces that are inclined to the vertical at a minimum angle of thirty-two (32) degrees when stem is in vertical position to eliminate abrasive wear. The non-rising stem shall be sealed by at least two (2) O-rings. The waterway shall be smooth and shall have no depressions or cavities. The valve body and bonnet shall be epoxy coated, inside and out, and wrapped with polyethylene sheet encasement. Joints shall be restrained mechanical joint ends. Valve shall be as manufactured by Waterous Company or approved equal.

(b) Butterfly Valves: All butterfly valves fourteen-inch (14”) and larger shall be rubber seated, tight-closing type conforming to AWWA C504 rated for two hundred fifty

(250) psi working pressure. Valves shall have a standard two-inch (2") operating nut that opens counterclockwise. The offset vane shall be constructed of ductile iron and shall form an uninterrupted 360-degree seal. Joints shall be restrained mechanical joint ends. Valve shall be as manufactured by M&H Valve Company or approved equal.

Article 10-02-060 Valve Boxes

(a) Valve boxes shall be deep skirted, adjustable cast iron two (2) piece screw type, Series 6850 as manufactured by Tyler Pipe, Tyler Corporation, or approved equal. The valve boxes shall be five and one-quarter (5-1/4) inch diameter and the two (2) pieces shall overlap at least six (6) inches. The drop lid shall have a depth of two (2) inches, shall weigh thirteen (13) pounds, and shall have the word "WATER" embossed on top. Refer to Standard Details: W-5, W-6, and W-7.

(b) Valve boxes shall have debris caps installed to aid in the prevention of dirt and debris accumulation within the valve box. Lockable debris caps shall be as manufactured by SW Services, LLC or City approved equal.

Article 10-02-070 Fire Hydrants

(a) Fire hydrants and extensions shall be in accordance with AWWA C502, traffic type, fire hydrants shall have two (2) two and one-half (2-1/2) inch hose nozzle connections, and one (1) four and one-half (4-1/2) inch steamer nozzle. All nozzle connections shall be National Standard Fire Hose Coupling screw threads. Fire hydrants shall have a bronze or cast-iron pentagon operating nut. The main inlet shall be six (6) inch restrained mechanical joint type. All fire hydrants shall be rated for two hundred fifty (250) psi working pressure. Any marks or scratches on new fire hydrants shall be corrected to the satisfaction of the City. Extensions will be used, when required, to bring the bottom of the break-off flange three (3) to six (6) inches above the top of the surrounding finished grade. All fire hydrants shall be Clow Medallion (preferred), Mueller Super Centurion A-423 (second choice), or American Darling B-84. All fire hydrants shall be painted purple. Refer to Standard Details: W-9 and W-10.

(b) The pipe, fittings, and fire hydrants starting at the main and ending at the fire hydrant must be laid in a line perpendicular to the water main unless otherwise approved in writing by the City.

Article 10-02-080 Cross Connection, Prevention, and Control

(a) The need, responsibilities, requirements, inspections, and maintenance of backflow prevention devices shall adhere to Article 8.08 of the City's General Ordinances.

(b) Reduced pressure backflow prevention devices shall be Watts Series LF909 or Engineer Approved Equal.

(c) All approved containment and isolation backflow prevention assemblies which are classified as testable devices shall be tested at least one per year. For complete testing and maintenance requirements refer to Article 8.08 of the City's General Ordinances. Refer to Standard Details: W-30 and W-31.

Article 10-02-090 Reclaimed Water Services

(a) All new reclaimed water services shall be accompanied by an approved New Mexico Environment Department (NMED) Ground Water Discharge Permit.

(b) Approved connections to the City's Reclaimed Water System shall be metered. The meter location and manufacture shall be coordinated with the City.

Article 10-02-100 Stainless Steel Tapping Sleeve

(a) Body: 18-8 Type 304 Stainless Steel. All welds shall be fully passivated to restore stainless characteristics.

(b) Bolts: 18-8 Type 304 Stainless Steel. Heavy hex nuts and washer are coated to prevent galling.

(c) Flange:18-8 Type 304 Stainless Steel Flange with recess per MSS-SP60 to accept standard tapping valve. Flange conforms to AWWA C207 Class D ANSI 150 lb. drilling.

(d) Outlet: 18-8 Type 304 Stainless Steel. Scheduled 10 for 3" and 4" outlets. Scheduled 5 for all outlets larger than 4".

(e) Test Plug: 18-8 Type 304 Stainless Steel in test outlet.

(f) Gasket: Sleeve shall have a full wide gasket of Nitrile Butadiene Rubber (NBR, Buna-N) per ASTM D2000 with hydromechanical activated lip, captured in a recessed groove around the outlet. Gasket shall be suitable for water, salt solutions, mild acids, bases, and sewage.

(g) Service Rating: 2"-12" outlets: 175 psi.

(h) Only qualified and appropriately licensed Utility Contractors shall complete reclaimed water taps on new installations not connected to the City's reclaimed

water system at the time of the tap. The City shall observe all tapping activities. Taps on the City's active reclaimed water system shall be completed by the City only.

Article 10-02-110 Detectable (Underground) Warning Tape

Detectable warning tape shall be 6" wide, 5 mil overall thickness, with a .35 mil solid foil coil. APWA Color coded with imprint of underground utility installed.

Article 10-02-120 Trace Wire

(a) All trace wire shall have HDPE insultation intended for direct bury service. HDPE insulation shall be color coated per APWA Standard for respective utility being installed.

(b) Trace wire shall be taped to the top of all water mains and fire hydrant/lines at a maximum 10-foot (10') interval. Trace wire integral to water services shall be connected to the water main trace wire.

(c) Trace wire shall be as following based on installation method:

(1) Open Trench Installation: #12 AWG copper clad steel, high strength with minimum 450-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries High Strength – 1230 CCS Trace Wire or City approved equal.

(2) Directional Drilling/Boring: #12 AWG coper clad steel, high strength with minimum 1,150-pound break load and minimum 30 mil HDPE insulation thickness. Copperhead Industries Extra-High Strength – 1245 CCS Trace Wire or City approved equal.

(3) Pipe Bursting/Slip Lining: 7 x 7 stranded copper clad steel, extreme strength with minimum 4,700-pound break load and minimum 50 mil HDPE insulation thickness. Copperhead Industries SoloShot Xtreme – PBX-50 CCS Trace Wire or City approved equal.

(4) When a new trace wire is to be tied to an existing trace wire the connection shall be made with an approved splice connector and shall be properly grounded at the splice connection.

(d) Connectors

(1) All main line trace wires shall be interconnected at intersections (tees and crosses). Connectors shall be lockable and manufactured specifically for use in underground trace wire installation. Connectors shall be dielectric silicon filled to seal out moisture and corrosion and shall be installed in a manner as to prevent any uninsulated wire exposure.

(2) Tee Connectors (service lines, main line tees, and fire hydrants) shall include a 3-way lockable connector main line to lateral lug connector. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(3) Cross Connectors (main line crosses) shall include two (2) 3-way lockable main line to lateral lug connectors. Copperhead Industries Mainline-to-Service Connector Part Number 3WB-01 or City approved equal.

(4) Main line trace wire splices shall be completed utilizing twist-lock connectors. Copperhead Industries Locking Connector Part Number LSC1230C or City approved equal.

(5) Do not cut and splice main line trace wire.

(6) Non-locking friction fit, twist on, or taped connectors shall not be used.

(e) Termination/Access Boxes

(1) All trace wire termination points must utilize an approved trace wire access box, specifically manufactured for this purpose.

(2) All access boxes shall be identified with “sewer” or “water” cast into the cap and be APWA color coded according to the utility.

(3) A minimum of two feet (2’) of slack is required in all trace wire boxes upon installation at final grade.

(4) All trace wire access boxes must include a manually interruptible conductive/connective link between the terminals for the trace wire connection and the terminal for the ground anode wire connection.

(5) Ground anode wire shall be connected to the identified terminal on all access boxes.

(6) Fire hydrants must terminate at an in-ground trace wire access box positioned within the fire hydrant concrete collar. Copperhead Industries

SnakePit Concrete/Driveway with Two-Terminal Switchable Lid Access Point Part Number CD14*2T-SW or City approved equal.

(7) Main Line access boxes shall be placed at intervals not exceeding 500-feet in locations where fire hydrants are not present. Trace wire access boxes may be placed outside the roadway driving surface or may be placed integral with valve box collars if pre-approved by the City.

A. Trace wire access box placed integrally in concrete valve box shall be Copperhead Industries SnakePit Roadway with Two-Terminal Switchable Lid Access Point Part Number RB14*2T-SW or City approved equal.

B. Trace wire access box outside the roadway prism shall be Copperhead Industries SnakePit Lite Duty with Two-Terminal Switchable Lid Access Point Part Number LD14*2T-SW or Engineer Approved Equal. Access boxes placed outside of the roadway shall be identified with flexible marker per Standard Detail W-19.

(f) Grounding

(1) Trace wire must be properly grounded at all dead ends and stubouts.

(2) Grounding of trace wire shall be accomplished using a drive-in magnesium grounding anode rod with a minimum of 20-feet of #12 AWG red HDPE insulated copper clad steel wire connected to the anode (minimum of 1.5-pound) specifically manufactured for the intended purposed. The ground anode shall be landed at the same elevation as the utility. Ground anode shall be Copperhead Industries Ground Rod with Twist-On Connector Part Number ANO-12 or City approved equal.

(3) When grounding the trace wire at dead ends or stubouts, the grounding anode shall be installed perpendicular to the trace wire at a maximum possible distance.

(4) When grounding the trace wire in long continuous runs, the grounding anode shall be installed directly beneath and in-line with trace wire. The grounding anode wire shall be trimmed to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.

(g) Testing

(1) All new trace wire installations shall be located using typical low frequency line trace equipment. The City shall conduct a test trace witnessed by the Contractor prior to final acceptance. The test trace shall be conducted using City equipment prior to final surface (asphalt/concrete) placement.

(2) Continuity testing in lieu of actual line trace will not be accepted.

Article 10-02-130 Cathodic Protection

Cathodic protection, if required, shall be designed by a licensed engineer in the State of New Mexico.

ARTICLE 10-03 – CONSTRUCTION REQUIREMENTS

Article 10-03-010 Trench Excavation

(a) Pipe trenches shall be excavated along straight lines to the dimensions as required in the Contract Documents.

(b) All trenching work shall be done in a safe manner, trenches shall be rendered safe for the workmen by complying with the applicable safety standards, and by practicing safety measures consistent with current OSHA Trenching and Excavation Safety Standards and good construction methods.

(c) All excavations shall be adequately barricaded and secured in accordance with the current New Mexico Department of Transportation Standard Specifications. Flashing lights and barricades shall be employed along open excavations and trenches to protect the public from potential hazards; barricades and advance warning devices shall comply with MUTCD Standards as well as any special direction required by the City.

(d) Unless trench banks are cut back on a stable slope, the trenches shall be braced as necessary to prevent caving or sliding, to provide protection for the workmen and the pipe. All trenching shall comply with OSHA Trenching and Excavation Safety Standards.

(e) When over-excavation occurs beyond the limits indicated by the trench details, the over-excavated area shall be refilled with suitable material at optimum moisture and compacted to ninety-five (95) percent density per ASTM D 1557.

(f) The maximum amount of open trench permitted in any one location shall be 100-feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater, unless otherwise approved by the City. A trench shall be considered open until backfilled to the top of subgrade.

(g) Excavation of pipe trenches for flexible and rigid pipe is as required in the table below. In all cases, the trench shall be wide enough to allow for the compaction equipment.

Table 27: Minimum Trench Widths

Flexible Pipe	Minimum shall be not less than 1.5 times the pipe outer diameter plus twelve inches (12")
Rigid Pipe	Minimum shall be not less than the outside pipe diameter times 0.33

(h) When trench is to be backfilled with flowable fill, the minimum trench width may be reduced to the pipe diameter plus twelve inches (12") and enough room needed to allow for the proper placement of the flowable fill using tools to "spade" the material under the pipe haunches.

(i) Maximum Trench Width: the maximum width of the trench shall be determined by the Contractor based on the method and means for the installation. However, trench width shall not exceed the width of a ride-along compactor plus two feet (2') when working alongside the pipe or culvert.

(j) Street Crossings

(1) Trenches crossing streets shall be completely backfilled immediately after pipe, wire, or conduit installation and a temporary or permanent asphalt patch or flowable fill cap shall be installed as directed by the City to protect the integrity of the trenches within the roadway limits from excessive moisture. Under no circumstance shall a trench remain un-backfilled for longer than 30 calendar days. Trenches shall be considered backfilled when brought to final grade (in unpaved areas) or once surface patch (asphalt or concrete) has been placed.

(2) Substantial bridging, properly anchored, capable of carrying the vehicle loading, in addition to adequate trench bracing, shall be used to bridge across trenches at street crossings where trench backfill, and temporary patches have not been completed during regular working hours as directed and approved by the City. Safe and convenient passage for pedestrians and access to all properties shall be provided.

(k) Disposal of Unsuitable Excavated Materials

(1) Excess material and excavated material unsuitable for backfill shall be removed from the Project by the end of each working day unless otherwise approved by the City and disposed of by the Contractor in an environmentally responsible manner at no cost to the Project.

(2) When unsuitable material is encountered that is not shown in the Contract Documents, the City shall order the removal of the material by the Contractor and issue a field order to change the contract price due to the Contractor for removal of the materials.

(l) Portable trench shields or boxes that provide a movable safe working area for installing pipe may be used for the installation of the pipe. After placing the pipe in the trench, backfill material shall be placed in lifts and the shield shall be lifted to allow for the backfill material to be placed for each lift, trench wall to trench wall.

(m) Transition Installations: When differential conditions of pipe support might occur, such as transitions from manholes to trench, a transition support region shall be provided to ensure uniform pipe support and preclude the development of shear, or other concentrated loading on the pipe.

Article 10-03-020 Bedding

(a) The bottom of the trenches shall be smooth, and hand graded uniformly throughout. If rock or other unyielding material is encountered or if the trench is over-excavated, pipe bedding material shall be added, compacted, and graded to a smooth uniform surface. The compacted bedding shall support the pipe throughout its entire length, except at bells or couplings which shall not rest on the bedding.

(b) After the bell or coupling holes are excavated and after the pipe pieces are connected and properly aligned and graded, successive layers of select material shall be placed and compacted, until the pipe is covered, as required in the Contract Documents. The Contractor shall maintain proper alignment and grade during the bedding process. Any bent, cracked, chipped, or damaged pieces of pipe shall be removed and replaced at Contractor's expense.

Article 10-03-030 Pipe Laying

(a) Pipe shall be laid true to the line and grade indicated in the Contract Documents or as established by the City.

(b) The pipe shall be protected during handling against impact shocks and free fall. Do not permit hooks, chains, cables, or handling equipment to come in contact with the pre-molded or pre-formed end surfaces.

(c) Handle the pipe having pre-molded end surfaces or pre-formed end surfaces so that no weight, including the weight of the pipe itself, will bear on or be supported by the jointing material or surfaces. Do not drag the end of the pipe on the ground or allow them to be damaged by contact with gravel, crushed stone, or any other hard objects.

(d) No damaged or deformed pipe will be incorporated in the work.

(e) The interior of the pipelines shall be kept free from dirt and other foreign material as the work progresses and shall be clean upon its completion. Tight stoppers or bulkheads shall be securely placed in the ends of all pipelines when the work is stopped temporarily, or at the end of the workday.

(f) Immediately prior to joining, both pipe ends shall be thoroughly cleaned, and a lubricant shall be applied according to the manufacturer's recommendations. For push-on type joints, sufficient pressure shall be applied in making up joints to insure proper seating of the joints.

(g) The full length of each section of pipe shall rest solidly upon the bed, with recesses excavated to accommodate bells and joints. Any pipe that has the grade or joint disturbed after laying shall be taken up and re-laid. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the Work except by permission of the City. Minimum depth of cover over top of pipe shall be three feet, unless otherwise approved by the City.

(h) All nuts, and bolts utilized in underground pipe connections shall be stainless steel, high strength cast iron or high strength wrought iron. Carbon steel nuts and bolts may be used except that they shall be protected by "cocoon" type protective coating of coal-tar and felt in accordance with AWWA Standard C 203.

(i) Where connections are made between new work and existing lines, the connections shall be made using all required fittings as recommended by pipe manufacturer and approved by the City. Couplings may be either cast iron or steel with bolts as stated above. If steel couplings are used, they will be cocoon wrapped as specified herein.

(j) Sanitary sewer main lines and potable water transmission/distribution main lines shall be laid parallel to each other and parallel to the street centerline when both are installed in the same street. Sanitary sewer main lines shall be placed within permitted streets only. If both are laid in the street, a minimum distance between

the lines shall be ten-feet (10') horizontally, and the water transmission/distribution main line shall be at least two-feet (2') higher than the sanitary sewer main line. Where the water and sanitary sewer main lines cross each other, the water main line shall be a minimum of two-feet (2') higher than the sanitary sewer main line or the sanitary sewer line shall be concrete encased a minimum of ten-feet (10') on each side of the water line, per the detail W-11. If the water transmission/distribution main line crossing occurs below the sanitary/storm drain sewer the sewer main line shall be encased per detail W-11.

(k) Water main lines shall not be constructed under walkways, sidewalks, curbs and gutters, drive pads, or similar concrete structures by tunneling underneath. The Contractor will cut these concrete structures by using a concrete saw to the closest control joint or, at their option, may remove the section of the concrete structure to the nearest full expansion joint or edge.

(l) Encasement shall be performed as shown in the Contract Documents at shallow crossings or other instances in which piping may be exposed or susceptible to excessive surface loading. DIP shall be used for these crossings with push-on or M.J. type connections, blocked with curved / conforming cinder blocks underneath, installed in prepared trench of adequate width to house pipe diameter and encasement. Trench excavation shall have ninety-five (95) percent relative compaction or shall be in freshly excavated native material, and as approved by the City may suffice with adequate dimensions to omit use of formwork for encasement concrete placement. Encasement concrete shall be aggregate and Type II cement meeting or exceeding 3,000 psi compressive strength. Rebar shall be placed as shown in the Contract Documents, shall be new and unused, and tied with minimum six-inch (6") lap distances, with minimum two inches (2") of concrete cover on outside dimensions.

(m) All valves shall be set true, level, vertical and plumb. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM D 1557.

(n) The Contractor shall remove the valve box and operating nut from all existing valves that are to be abandoned. The resulting excavation shall be backfilled and compacted to ninety-five (95) percent density, ASTM D 1557. The top six inches (6") of the excavation shall receive new base course placed to the above stated density. The pavement shall be sawcut to form a square opening. The cut faces of the existing asphalt shall be thoroughly coated with tack coat and new asphalt pavement shall be placed and densified to ninety-five (95) percent density, ASTM D 1557.

(o) Cast iron valve boxes shall be set vertical and plumb centered over the operating nut. All valve boxes shall be adjusted to proper elevation, providing the minimum overlap of six inches (6") of the two (2) pieces, and a concrete collar shall be built around the top of each valve box. The concrete collar shall be of the size, shape, and dimensions shown in the Detail Drawings. The concrete shall be 3,000 psi at twenty-eight (28) days with one (1) inch aggregate and finished with a light broom finish. All concrete shall be removed from the top of the valve box and lid while it is still wet, and they shall be left clean. Backfill shall be compacted to ninety-five (95) percent density under pavement, ninety (90) percent in unpaved areas, ASTM D 1557. Valve stem extensions shall be required and installed on all valves for which the valve operator is more than four feet (4') below the finished surface.

(p) Adapters and couplings shall be installed in strict compliance with the manufacturer's recommendations. Contractor shall provide, in place, all additional straps, rods, and harness required to make a secure water-tight connection.

(q) The City shall have the right to check the pipe for line and grade by any method necessary after the pipe is laid, and before backfilling begins. The City shall also have the right to check each pipe joint with a gauge or by any means necessary in order to be assured that the gaskets are in place and properly seated. Any run of pipe that is found to be appreciably off of line or grade shall be removed from the trench, the trench bedding shall be re-graded and compacted, and the pipe shall then be laid accurately online and grade. Any joint that is found to be improperly gasketed and/or seated shall be un-jointed and correctly reassembled. If any gasket is found to be damaged, the entire pipe section containing the damaged gasket shall be replaced with a new one.

(r) Contractor shall furnish any tools, gauges, and all items required for the checking of the gaskets and joints, and he shall check every joint to be sure that the gaskets are seated and located in the correct place to avoid leakage at the joints.

(s) Trenches shall be kept free from water during pipe installation until suitable backfill has been placed and compacted to prevent pipe flotation. Any standing water within the trench shall be evacuated and the trench bottom or bedding be restored per the standards contained herein.

(t) Field cuts shall be completed with a hacksaw, handsaw, or a power saw with a steel blade or an abrasive disc. Field cuts shall be square to the pipe's flow area. The newly cut pipe end shall be beveled to the factory pipe chamfer. Completed field cuts shall be smooth and blunt free from shavings and rough edges.

(u) Plastic sewer pipe shall be connected and placed in the trench in accordance with the manufacturer's recommendations.

(v) The reference mark (a distinct circumferential line) is placed on the pipe's spigot end by the manufacturer to indicate the correct depth of spigot penetration into the pipe gasket joint. If the pipe is seated too deep or too shallow the pipe may buckle or separate due to thermal expansion/contraction. Spigot penetration shall be within one quarter (1/4) inch of the manufacturer's recommended mark.

Article 10-03-040 Utility Restraint Systems

(a) Utility system piping thrust is to be restrained through the use of restrained joint fittings. Refer to Standard Details W-15 through W-18.

(b) Bell joint restraints shall be utilized.

(c) Where site conditions preclude the use of pipe restraints concrete thrust blocks may be utilized as follows. Thrust blocks shall be poured at all bends, valves, tees, reducers, and fittings, where changes in pipe diameter, alignment or grade occur, and as indicated in the Contract Documents or as required by City. Thrust blocks are only necessary where mechanical restraint joints are not being utilized. The minimum size of concrete thrust blocks shall be as shown in the Contract Documents or as directed by the City. The material of thrust blocks shall be concrete composed of concrete aggregates and shall have a compressive strength of no less than two thousand five hundred (2,500) psi in twenty-eight (28) days for standard cement Type II and shall be placed between solid, undisturbed ground and the fitting to be anchored. The area of bearing on the fitting and on the ground shall in each instance be that required by the City. Unless otherwise directed by the City the thrust blocks shall be placed so that the pipe and fitting joints will be accessible for repair. Metal harness or tie rods, of the size and type shown in the Contract Documents, shall be used. Refer to Standard Details: W-3 and W-4.

Article 10-03-050 Backfilling Trenches

(a) Definitions

(1) Foundation: Over-excavation and backfill of the foundation only when the native trench bottom does not provide a firm-working platform for placement of the pipe bedding material.

(2) Bedding: In addition to bringing the trench bottom to required grade, the bedding levels out any irregularities and ensures uniform support along the length of the pipe.

(3) Haunch Zone: The backfill under the lower half of the pipe (haunches) distributes superimposed loadings.

(4) Initial Zone: The backfill from the pipe midline to the top of the pipe zone provides the primary support against lateral pipe deformation for flexible pipe.

(5) Final Zone: Backfill above the pipe zone to the top of the subgrade.

(b) Materials for trench backfill may include flowable fill, Type I aggregate base course, Type II aggregate base course, and native materials. Individual pipe zone backfill requirements are presented below. The Contractor shall submit the material types to the City for approval prior to construction.

Native backfill shall only be utilized within the Final backfill zone. Native materials shall be free from sod, frozen earth, organic materials, rubbish, and debris. The material should be free of large stones (maximum clod size shall be < 3") that may cause damage to the pipe, such as concentrated pipe loading.

Table 28: Type I Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
2-Inch	100
1-1/2-Inch	90-100
1-Inch	70-90
No. 4	30-65
No. 10	30-10
No. 16	15-20
No. 200	10-20
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 29: Type II Aggregate Base Course Gradation and Requirements

Sieve Size	Percentage of Dry Weight Passing Sieve
1-Inch	100
¾-Inch	85-95
No. 4	40-70
No. 10	35-45
No. 16	25-35
No. 200	6-18
Plastic Index	12 Maximum
Liquid Limit	35 Maximum
Fractured Faces	70% Minimum
Total Available Water-Soluble Sulfates	Less than 0.3% by dry weight of soil

Table 30: Native Backfill Requirements

Percentage by Weight Passing No. 200 Sieve	Plasticity Index Maximum
0-20.0	12
20.1 – 50.0	10
50.1 – 80.0	8
80.1 – 100	6
Liquid Limit	50 Maximum

(1) Foundation: Trench foundations shall be stable prior to placing bedding material. If the City determines that unsuitable materials exist at the trench foundations, the Contractor shall remove and replace the material as directed by the City.

(2) Pipe Bedding: The trench shall be excavated to a depth of four- to six-inches (4”-6”) below the bottom of the pipe barrel and to a depth that will be sufficient to provide two- to four-inches (2”-4”) of clearance under the pipe bell (where applicable).

Uniform and stable bedding shall be provided for the pipe and any protruding features of its joints and/or fittings. The middle of the bedding equal to one-third (1/3) the pipe outside diameter may be loosely placed to allow for the pipe bell and other protruding features. Alternatively, the compacted bedding material may be excavated slightly to allow for continuous lines and grades of the pipe structure.

Pipe bedding shall consist of Type II aggregate base course or flowable fill. Bedding shall be backfilled to the required grade of the bottom of the pipe. The compaction shall provide a density, at minimum, equal to 95 percent of

the maximum dry density in accordance with ASTM D 1557 with the exception of the middle-uncompacted area.

(3) Haunch Zone Backfill: After the pipe or conduit is laid, the haunch areas shall be backfilled with Type II aggregate base course or flowable fill.

Compaction of the haunching material can be best accomplished by hand with tampers or suitable power compactors for maximum compacted lift thickness of six inches (6”). The Contractor shall take care to not disturb the pipe from its line and grade while compacting the backfill. Material suitably distant from the pipe shall be compacted to 95 percent of the maximum dry density in accordance with ASTM D 1557.

While compacting the embedment near the pipe with impact-type tampers, caution shall be taken to not allow direct contact of the equipment with the pipe.

(4) Initial Backfill Zone: After the pipe or conduit is laid, the initial backfill area shall be backfilled with Type II aggregate base course or flowable fill. Avoid usage of impact tampers directly above the pipe until the full loose layer backfill depth above the pipe is obtained.

Table 31: Initial Backfill Zone Material Depths

Pipe or Conduit	Initial Zone
2-Inch or less diameter	6-Inches above the top of pipe
Greater than 2-Inch diameter	12-Inches above the top of pipe

(5) Final Backfill Zone: The remaining backfill, to the top of subgrade, shall consist of Type I or Type II aggregate basecourse, native material, or flowable fill. The material shall be compacted to a minimum of 95 percent of the maximum dry density in accordance with ASTM D 1557.

A. If flowable fill is used, flowable fill shall be placed from the top of the initial backfill zone to the bottom of the flexible pavement (replaces aggregate road base in the pavement section over the trench).

B. Flowable fill cap may be required in the upper portion of the Final Backfill Zone for all non-residential roadways with a minimum thickness of twelve inches (12”) for minor collectors and eighteen inches (18”) for all major collectors and arterials.

(c) Compaction

(1) Compaction shall be performed by mechanical means except in the haunch zone where compaction may be required by hand tamping. Mechanically compacted backfill shall be placed in layers of thickness compatible with the characteristics of the backfill and the type of equipment being used and shall have a maximum lift thickness as shown in the table below. The lifts shall be placed on both sides of the pipe at the same time to reduce pipe movement.

Table 32: Backfill Lift Thickness

Location	Maximum Compacted Lift Thickness (inches)	Maximum Loose Lift Thickness (inches)
Bedding, Haunch, and Initial Zones	6	8
Final Zone	8	12

(2) Each layer shall be evenly spread, moistened, and tamped or rolled until the specified relative compaction has been attained.

(3) Compaction minimum shall be 95 percent of the maximum dry density in accordance with ASTM D 1557 for trenches within the roadway prism. Compaction requirements for the final zone of trenches outside the roadway may be reduced to 90 percent of maximum dry density in accordance with ASTM D 1557.

(4) Density testing shall be completed every 200-feet on mains or any part thereof per day, one per every three services or any part thereof per day.

(5) Density testing per depth: Less than or equal to four feet (4') shall require one at depth and one at subgrade per horizontal length above. Greater than four feet (4') depths shall require one per six-inch (6") or larger pipe, then one every three (3) vertical feet, and one at subgrade per horizontal length above.

(6) Where test results reveal non-compliance with the requirements of the Contract, the Contractor shall bear the costs of subsequent rework and retesting until the required specification compliance is obtained to the satisfaction of the City.

(d) Minimum Pipe Spacing: If the pipe space between parallel pipes in a single trench is not conducive to mechanical backfill, then flowable fill shall be used.

ARTICLE 10-04 – FLUSHING & TESTING

Article 10-04-010 Work Description

(a) Water needed to fill the new main for testing and flushing purposes shall only be potable City water supplied through a temporary connection protected by a backflow device.

(c) The backflow device must be tested and certified after installation on-site. A copy of the certification shall be given to the City and a copy shall be kept on-site with the device. Testing must be completed by a certified testing facility and be on the City's approved tester list.

Article 10-04-020 Hydrostatic Tests

(a) The Contractor shall be required to test all piping and other lines and appurtenances in the presence of the City. Test reports shall be required for each test and submitted to the City. Testing of lines shall be done without being connected to existing lines. If such connections are allowed it is with the understanding that the Contractor assumes any and all responsibility in case of damage, failure and/or contamination to the existing system. The new water pipe will be tested before the backfilling is done. After the pipe is laid, earth cover shall be placed over the middle of the pipe joints, leaving the corp. stops, valves, service taps and laterals uncovered. The pipe will be filled with water, and the pressure in the pipeline shall be raised by means of a motor-driven water pump to a hydrostatic pressure of one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater, at the lower end of the pipe section. Applicable AWWA C-600 standards and procedures shall be adhered to for determination of losses on pipes up to thirty-inches (30") in diameter. If any leaks appear in the pipe, they shall be repaired to the satisfaction of the City, and the test shall be performed until the pipe holds the prescribed pressure. As an alternative, the Contract may opt to test the pipeline in sections between mainline valves or as approved by the City.

(b) All testing shall be conducted in accordance with AWWA Standard C600 for ductile iron mains and AWWA Standard C605 for PVC mains and those portions of the above standard related to hydrostatic tests shall apply to any type of water main construction. Test pressure shall be one hundred fifty (150) psi or one and one-half (1.5) times the normal working pressure, whichever is greater.

(c) All taps, gauges and necessary equipment shall be provided by the Contractor; however, the City may utilize gauges provided by the City at their discretion.

(d) Leakage Defined: Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure

within five (5) psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. If the pressure drops more than five (5) pounds in thirty (30) minutes, the pipe has failed to pass the test. If the pressure drop is less than five (5) pounds in thirty (30) minutes, water shall be added to the pipe section to maintain the one hundred fifty (150) psi test pressure and the volume of water added shall be duly recorded. This procedure shall be repeated at each thirty (30) minute intervals for the test period. The total volume of water added to the pipe section to maintain the one hundred fifty (150) psi test pressure shall represent the total leakage during the test.

(e) Allowable leakage: No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$\underline{\text{DIP}} \qquad \underline{\text{PVC}}$$
$$L = \frac{SD\sqrt{P}}{133{,}200} \quad \text{or} \quad L = \frac{ND\sqrt{P}}{7{,}400}$$

where L is the allowable leakage, in gallons per hour, S is the length of pipe tested, in feet; N is the number of joints in the length of pipeline tested, D is the nominal diameter of the pipe, in inches, and P is the average test pressure during the leakage test, in pounds per square inch gauge.

The tables below present the allowable leakage per various pipe diameters per 1,000 feet of pipeline.

Table 33: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (DIP)

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
350	0.84	1.12	1.40	1.69	1.97	2.25	2.53	3.37	4.21
300	0.78	1.04	1.30	1.56	1.82	2.08	2.34	3.12	3.90
275	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.99	3.73
250	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.85	3.56
225	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.70	3.38
200	0.64	0.85	1.06	1.27	1.49	1.70	1.91	2.55	3.19
175	0.60	0.79	0.99	1.19	1.39	1.59	1.79	2.38	2.98
150	0.55	0.74	0.92	1.10	1.29	1.47	1.66	2.21	2.76

Table 34: Allowable Leakage (GPH) per 1,000 Feet of Pipeline (PVC)

Avg. Test Pressure	6	8	10	12	14	16	18	24	30
PSI	In.	In.	In.	In.	In.	In.	In.	In.	In.
300	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.81	3.51
275	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.69	3.36
250	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.56	3.21
225	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.43	3.04
200	0.57	0.76	0.96	1.15	1.34	1.53	1.72	2.29	2.87
175	0.54	0.72	0.89	1.07	1.25	1.43	1.61	2.15	2.68
150	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.99	2.48

(f) When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/h/in. (0.0012 L/h/mm) of nominal valve size shall be allowed.

(g) When hydrants are in the test section, the test shall be made against the closed hydrant.

(h) Acceptance of Installations: Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid disclosed leakage greater than specified the Contractor shall, at the Contractor's expense, locate and make repairs as necessary until the leakage is within the specified allowance.

(i) All visible leaks are to be repaired regardless of the amount of leakage.

(j) The Contractor shall be notified of any leaks that may occur during the one (1) year warranty period and shall make immediate arrangements after he is notified to return to the job site and repair any leaks that may develop in the pipeline.

ARTICLE 10-05 – COORDINATION

Article 10-05-010 Construction Coordination, Survey, & Acceptance

(a) The Contractor shall coordinate the Work with the City before commencing work. The City shall inspect and approve all work prior to backfilling. Photos will not be accepted in lieu of a physical inspection.

(b) The Contractor shall notify the City in writing when each utility installation is complete in place per plan and ready for inspection. No utility backfill shall be placed until inspection has been satisfied by the City.

(c) Acceptance Submittal – All test reports (utility, bacteriological, concrete, compaction, etc.), signed inspection forms, field marked construction drawings

reflecting as-built conditions, and delivery of post construction survey as defined below.

(d) Post Construction Survey – to be completed by a professional surveyor licensed in the State of New Mexico. The survey shall include key system components for incorporation into the City's geographic information system (GIS). All data shall be created in real world coordinate system based on the following projection: horizontal control in NAD83, vertical control in NAVD88, and based on New Mexico State Plan Coordinates System (Grid), Central Zone, US Foot. The survey shall be tied to at least two (2) City control points as included at the end of Chapter 05. The Post Construction Survey shall be completed in a City approved AutoCAD version (.dwg format) provided to the City on a mass storage drive (compact disc or usb storage device) or via secure downloadable link.

The Post Construction Survey provider shall include a table identifying the layering convention used to depict system components (i.e., Layer C-UTIL-WATR-12in represents a twelve (12") diameter C-900 PVC Water Line, etc.). This will allow the City personnel to isolate and import portions of the drawing and translate the information directly into usable data in their GIS. The user at their option can base their layering convention on the National Cad Standard (NCS) for ease of use. The City will not accept CAD files containing information drawn in paperspace.

The post construction survey shall be in conjunction with the Record Drawings noting work per plan or identifying different field installation conditions.

(1) Drainage Systems Components: drainage channel control features and flowline elevations, drainage channel structure information (culvert upstream/downstream flowline elevations), manholes, inlets, pipe outfall(s), pond top elevation, and pond bottom elevation.

(2) Sanitary Sewer System Components: standard manholes, control manholes, drop manholes, cleanouts at right-of-way or property lines, casing installations, and sewer service taps.

(3) Lift Station Components: wet wells, dry wells, vaults, cleanouts, air valves, plug valves, flow meter, bends, and manholes.

(4) Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, fire hydrants, water meters, service line taps, sampling stations, and pressure reducing stations.

(5) Reclaimed Water System Components: bends, tees, crosses, air valves, vaults or manholes, control valves, casing installations, hydrants, meters, service line taps, or pressure reducing stations.

(e) Substantial Completion – the Acceptance Submittal and Post Construction Survey shall be provided to the City, reviewed, and accepted by the City prior to issuance of Substantial Completion and subsequent commencement of the warranty period.

END OF CHAPTER 10

CHAPTER 11 – AIR-RELEASE AND VACUUM-RELIEF VALVES

ARTICLE 10-01 - GENERAL

Article 11-01-010 Work Description

This work includes materials and installation of combination air-release and vacuum-relief valves.

ARTICLE 11-02 – VALVE COMPONENTS

Article 11-02-010 Materials

Materials of construction for air and vacuum valves for water service shall be as follows:

Item	Material	Specification
Body and cover	Cast iron or brass	ASTM A 48, Class 30; or ASTM A 126, Class B
Float, guide rod, guide bushings	Stainless steel	AISI Type 316, ASTM A 240 or A 276
Seat	Buna-N	--

Article 11-02-020 Seating

Valves shall be seated drip-tight at a pressure of one (1) psi.

Article 11-02-030 Valves End Connections

Valves shall have threaded ends and comply with ANSI B1.20.1.

Article 11-02-040 Combination Air-Release and Vacuum Valves

Valves shall have a float with lever arm to actuate a poppet valve. A needle shall be attached to the float arm. The poppet valve shall serve to admit large quantities of air when the pipeline drains. The needle shall serve to release small quantities of air as the pipeline fills or as air accumulates in the pipeline. Valves shall have an operating pressure of three hundred (300) psi. Body and cover shall be cast iron (ASTM A 48, Class 30). Float, lever, and poppet shall be Type 316 stainless steel (ASTM A 240 or A 276). Seat shall be Buna-N. Valves shall be Val-Matic Model 202C, as scheduled on plans or equivalent.

Article 11-02-050 Service Saddles

Service saddles shall be sized as called out for in the Project Plans and shall be pre-approved.

Article 11-02-060 Gate Valves

Gate valves shall be sized as called out for in the Contract Documents; shall be non-rising stem, solid wedge, threaded ends; and shall be pre-approved.

Article 11-02-070 Enclosures

(a) Precast Manhole

(1) Risers and adjustment rings shall be standard precast manhole sections of 4,000 psi reinforced concrete.

(2) Manhole frame and lid shall be ductile iron; H20 traffic rated, marked "Water" and shall have three (3) half-inch (1/2") diameter vent holes.

(b) Galvanized meter box shall be sized as called out for in the Contract Documents.

(c) Steel frame and lid shall be sized as called out for in the Contract Documents and shall be vehicle traffic rated.

Article 11-02-080 Piping

Piping shall be brass, standard strength, highest quality, seamless, threaded, reamed and chamfered.

Article 11-02-090 Drainage Media

Drainage media shall be clean crushed rock, three-quarter inch (3/4") size.

ARTICLE 11-03 – EXECUTION

Article 11-03-010 Installation

Locate combination, air-release and vacuum-relief valves at high points ("peaks") of the pipeline. Holes in the pipe shall be the same size as the service saddle outlet. Position enclosure and manhole frame and lid to allow personnel entry. Valve and enclosure shall be set vertical. Clean threaded joints by wire-brushing or swabbing. Apply Teflon joint compound or Teflon tape to pipe threads prior to installation of threaded valves. All joints shall be watertight. Refer to Standard Detail W-14.

Article 11-03-020 Valve Pressure Testing

Test valves at the same time that the connecting pipelines are pressure tested. See Chapter 8 Water Supply System, for pressure testing requirements. Protect or isolate any parts of

valves, operators, or control and instrumentation systems whose pressure rating is less than the test pressure.

END OF CHAPTER 11

CONTRACTOR NOTE:

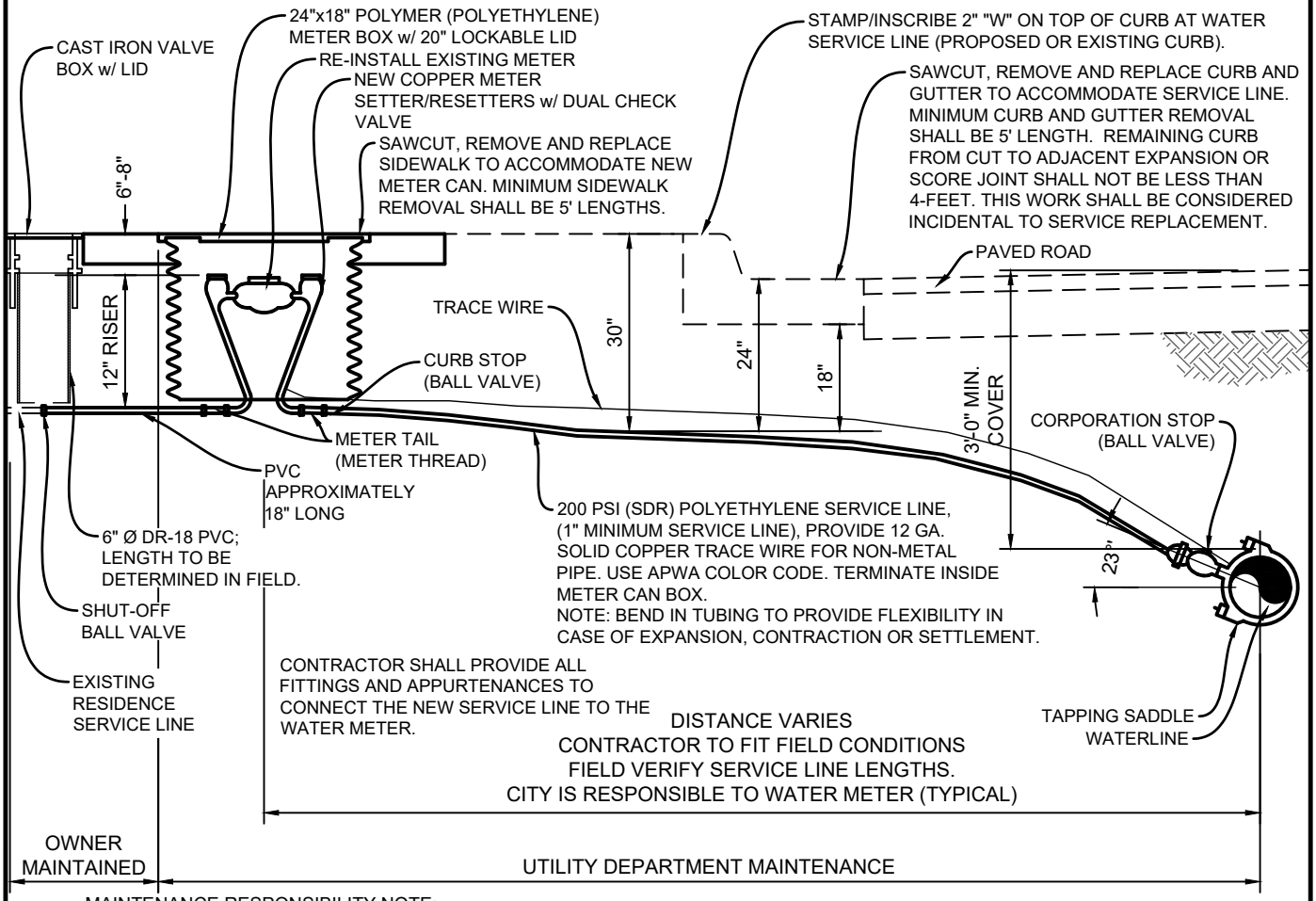
METER CAN SHALL NOT BE INSTALLED IN ACCESSIBLE (ADA) RAMP PAN, SLOPE OR LANDINGS.

IN SOME CASES THE EXISTING WATER METER IS SURROUNDED BY CONCRETE, ANY DAMAGE BY THE CONTRACTOR TO THE ADJACENT CONCRETE SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

CONTRACTOR SHALL INSCRIBE A 'W' ON TOP OF CONCRETE CURB (IN-LINE W/ NEW WATER SERVICE) TO INDICATE THE LOCATION OF THE NEW WATER SERVICE LINE. CONTRACTOR TO RE-INSCRIBE "W" INTO NEW CONCRETE IF EXISTING CONCRETE IS REMOVED AND REPLACED.

THE WATER SERVICE LINE MAY BE PUNCHED UNDERNEATH THE EXISTING CURB AND GUTTER AS LONG AS THE RESULTING HOLE IS LESS THAN 6-INCHES IN THE HORIZONTAL DIRECTION.

METER CAN SHALL BE INSTALLED IN SIDEWALKS OR LANDSCAPE AREA (BETWEEN SIDEWALK AND BACK OF CURB) WITHIN RIGHT OF WAY. METER CANS SHALL NOT BE INSTALLED IN DRIVEWAYS OR VEHICULAR TRAFFIC FLOWS UNLESS LOCATION(S) AND METER CAN TYPE(S) HAVE BEEN PRE-APPROVED IN WRITING BY THE PUBLIC WORKS DEPARTMENT AND THE ENGINEERING DEPARTMENT PRIOR TO INSTALLATION.



MAINTENANCE RESPONSIBILITY NOTE:
THE CITY OF ALAMOGORDO WATER DEPARTMENT WILL BE RESPONSIBLE FOR MAINTENANCE OF THE WATER LINE FROM THE WATER MAIN TO THE WATER METER. THE OWNER WILL BE RESPONSIBLE FOR MAINTENANCE OF THE WATER LINE FROM THE WATER METER TO THE BUILDING.

NOTE:

1. THE CITY OF ALAMOGORDO RESERVES THE RIGHT TO CHANGE AND/OR MODIFY ANY ITEM(S) EITHER DETAILED OR SPECIFIED ON THIS DRAWING.
2. WATER SERVICE DETAIL AND WATER SERVICE INSTALLATION MATERIAL LISTING ARE TYPICAL FOR 3/4" WATER SERVICE. ADJUSTMENTS SHALL BE MADE TO FITTINGS, CONNECTIONS, SERVICE LINE, ECT. SIZE AS REQUIRED FOR WATER SERVICES LARGER THAN 3/4".
3. ALL FITTING, CONNECTIONS, SERVICE LINE, ETC. SHALL BE RATED FOR 200 P.S.I. (MINIMUM) WORKING PRESSURE.
4. METER RISERS SHALL BE SET PLUMB AND VERTICAL WITHIN THE METER CAN.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

WATER SERVICE DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-1

TYPICAL WATER SERVICE INSTALLATION MATERIAL LISTING:

COLD WATER METER: WATER METERS SHALL BE MULTIJET, READING IN CUBIC FEET AND ACCEPTABLE FOR USE WITH ZENNER STEALTH READER MIU SYSTEM. NO SUBSTITUTIONS. REFER TO ARTICLE 02-026.1 WATER SUPPLY SYSTEM FOR THE LIST OF COMPATIBLE WATER METERS. WATER METERS LARGER THAN 2-INCHES SHALL BE POSITIVE DISPLACEMENT (COMPOUND) METERS AND ACCEPTABLE FOR USE WITH ZENNER STEALTH READER MIU SYSTEM.

SERVICE (TAPPING) SADDLE: TAPPING SADDLES REQUIRE THE PRE-APPROVAL IN WRITING BY PUBLIC WORKS DEPARTMENT AND ENGINEERING DEPARTMENT PRIOR TO INSTALLATION. ACCEPTABLE SADDLES SHALL HAVE DOUBLE STRAPS STRAP SECURED BY FOUR BOLTS. SADDLES SHALL ALSO HAVE 1" IP THREADED OUTLET AND BE MADE OF THE FOLLOWING ACCEPTED MATERIALS:

BODY - DUCTILE IRON BODY, CONFORMING TO ASTM A-536, WITH 10-12 MIL FUSION EPOXY COATING OR NYLON COATED.

STRAPS - TYPE 304 (18-8) HEAVY GRADE STAINLESS STEEL, CONFORMING TO ASTM A-240.

NUTS & WASHERS - UNC ROLL THREAD TYPE 304 (18-8) STAINLESS STEEL BOLTS WITH HEAVY HEX NUTS. ROD FOR BOLTS, CONFORMING TO ASTM A-240, AND NUTS, CONFORMING TO ASTM A-194. ALL WELDS FULLY PASSIVATED FOR ENHANCED CORROSION RESISTANCE. NUTS COATED TO PREVENT GALLING. INSTALLATION SHALL CONFORM TO MANUFACTURER'S TORQUE SPECIFICATIONS.

GASKET - NITRILE BUTADIENE RUBBER (NBR), ASTM D-2000 MBC-610 OR HD EDPM O-RING.

NOTE: SADDLE WITH SLENDER SINGLE STRAPS SECURED BY TWO BOLTS, CAST IRON BODY AND STEEL STRAPS ARE NOT ACCEPTABLE.

CORPORATION STOP: CORPORATION STOP SHALL BE BALL VALVE TYPE AND RATED FOR 150 P.S.I. (MINIMUM) WORKING PRESSURE. CORPORATION STOP SHALL HAVE A 1" IP THREADED INLET WITH A PACK JOINT CONNECTION FITTING OR MUELLER INSTA-TITE CONNECTION FOR 1" PVC SERVICE LINE.

SERVICE LINE: SERVICE LINE SHALL BE 1" BLUE SDR POLYETHYLENE, 200 PSI, CONFORMING TO ASTM D2737 AND SPECIFIED FOR POTABLE WATER.

CURB STOP: CURB STOP SHALL BE BALL VALVE TYPE AND RATED FOR 250 P.S.I. (MINIMUM) WORKING PRESSURE.

COPPER METER RESETTER: COPPER METER RESETTER (METER YOKE) SHALL BE HORIZONTAL STYLE, 5/8"x3/4" (METER YOKE) BRASS/COPPER WITH LOCK WING STYLE ANGLE METER VALVE ON INLET AND TOP ENTRY ANGLE DUAL CHECK VALVE ON OUTLET WITH BRASS SUPPORT BAR. THE CONNECTIONS FOR METER SHALL BE BRASS SWIVEL NUT WITH WIRE SEAL HOLE AND METER SUPPORT LIP. INLET AND OUTLET THREADS SHALL BE METER THREAD. THE CONNECTION TO THE 1" SERVICE LINE SHALL BE MADE WITH AN AY McDONALD 76102 O.A.E. CTS MAC-PAC JOINTxFNPT CURB STOP AND A 3/4"x1" BRASS METER BUSHING. IF A THERMAL-COIL BOX IS UTILIZED THE FOLLOWING MATERIALS SHALL BE USED VERSUS THE METER YOKE:

-POLYBUTYLENE TUBING
-A LOCK WING METER STOP (INLET 3/4")
-A DUAL CHECK VALVE (OUTLET 3/4")
-A 3/4" OUTSIDE METER THREADED INLET
-A 3/4" OUTSIDE METER THREADED OUTLET

METER BOXES: SPECIFICATION IS BASED ON USE OF “DFW PLASTICS, INC.” BY DFW PLASTICS, INC., 901 E INDUSTRIAL AVENUE, SAGINAW TX 76131, WITH ATTRIBUTES AS DESCRIBED BELOW. EQUAL PRODUCTS OF OTHER WATER METER CAN MANUFACTURES MAY BE ACCEPTABLE WHEN PRE-APPROVED BY PUBLIC WORK DEPARTMENT AND ENGINEERING DEPARTMENT. PRE-APPROVED EQUAL, SUBSTITUTIONS UNDER ARTICLE 01-002.4. SHALL ONLY BE USED FOR CITY WATER METER INSTALLATIONS.

THIS PRODUCT IS DESIGNED TO WITHSTAND LOADING IN NON-DELIBERATE AND INCIDENTAL TRAFFIC. NOT TO BE INSTALLED IN ROADWAYS, DRIVEWAYS, PARKING LOTS, OR ALLEYS. METER PIT LID SHALL BE BLACK AND CONSTRUCTED OUT OF MODIFIED POLYETHYLENE MATERIAL FOR MAXIMUM DURABILITY AND CORROSION RESISTANCE. THE BLACK MATERIAL IS FOR MAXIMUM UV PROTECTION. THE BLACK MATERIAL SHALL BE UNIFORM THROUGHOUT THE METER PIT LID FOR MAXIMUM LONGEVITY AND NOT HAVE A FOAMING AGENT THAT CREATES AIR POCKETS WITHIN THE POLYMER LID.

VERTICAL AND LATERAL LOAD RATING:

- COMPLIANT WITH AASHTO, DESIGN LOAD OF H-10; ASTM C857-16, DESIGN LOAD OF A-8, 8,000 LBS. TRANSFERRED THROUGH A 10" X 10" STEEL PLATE CENTERED IN THE COVER AND BODY.
- COMPLIANT WITH AASHTO, DESIGN LOAD OF H-20; ASTM C857-16, DESIGN LOAD OF A-16, 16,000 LBS. TRANSFERRED THROUGH A 10" X 20" STEEL PLATE CENTERED ON THE COVER AND BODY.
- THIS PRODUCT IS DESIGNED TO WITHSTAND H-10 AND H-20 LOADING IN NON-DELIBERATE OR INCIDENTAL TRAFFIC AREAS.

NOT INTENDED TO BE INSTALLED IN ROADWAYS.

POLYMER LID

- THE POLYMER LID SHALL HAVE A MOLDED KEY HOLE AND PLASTIC LOCK UNDERNEATH LID - AS ILLUSTRATED.
- THE POLYMER LID SHALL HAVE ONE (1) MOLDED SLIDE MOUNT FOR PLACEMENT OF AMR/AMI DEVICE - AS ILLUSTRATED.
- THE POLYMER LID SHALL SEAT SECURELY AND EVENLY INSIDE THE METER PIT AND SHALL NOT OVERLAP THE TOP EDGE OF THE METER PIT.
- THE POLYMER LID SHALL HAVE MOLDED TREAD-PATTERN FOR SKID RESISTANCE - TREAD DIMENSIONS SHALL BE 0.188" X 0.938" X 0.150" DEEP.
- THE POLYMER LID SHALL HAVE "WATER METER" MOLDED INTO THE LID - FONT SHALL BE STD FADAL CNC FONT WITH 1" CHARACTERS X 0.150" DEEP.
- THE POLYMER LID SHALL BE BLACK AND HAVE A MOLDED RECYCLED EMBLEM WITH A MINIMUM OF 50% POST CONSUMER RECYCLED AND 50% POST INDUSTRIAL/ PRE CONSUMER RECYCLED CONTENT- VERIFIED WITH A LEED PRODUCT DOCUMENTATION.

POLYMER BODY

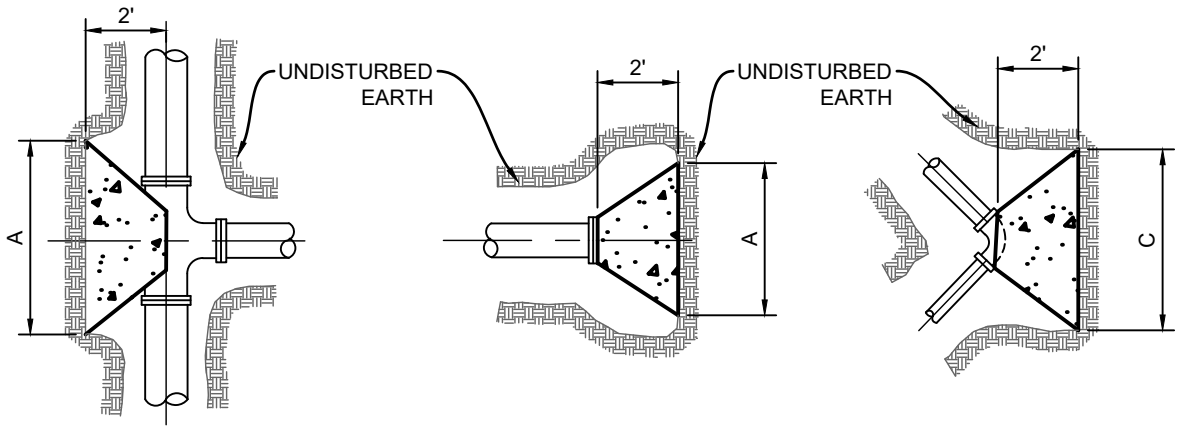
- THE POLYMER BODY SHALL BE BLACK AND HAVE A MINIMUM OF 3/8" WALL THICKNESS - AS ILLUSTRATED.
- THE POLYMER BODY SHALL HAVE MINIMUM INSIDE WORKING ROOM OF (23-1/4") - AS ILLUSTRATED.
- THE POLYMER BODY SHALL HAVE CRUSH RESISTANT RIBBING ALONG THE OUTSIDE OF THE BOX WITH 1-5/8" BASE FOOTING LOCATED AT THE BOTTOM OF THE METER PIT TO HELP ELIMINATE SINKING OR FLOATING ONCE INSTALLED.
- THE POLYMER BODY SHALL HAVE A STRAIGHT WALL DESIGN AND NOT BE FLARED AS TO ALLOW FOR ADJUSTMENT TO GRADE AFTER INSTALLATION.
- THE POLYMER BODY SHALL HAVE ONE PIPE SLOT MOLDED ON EACH END OF THE BODY THAT MEASURES (3" X 5-3/4").
- THE POLYMER BODY SHALL HAVE A MOLDED RECYCLED EMBLEM WITH A MINIMUM OF 35% POST INDUSTRIAL/ PRE CONSUMER RECYCLED CONTENT - VERIFIED WITH A LEED PRODUCT DOCUMENTATION.

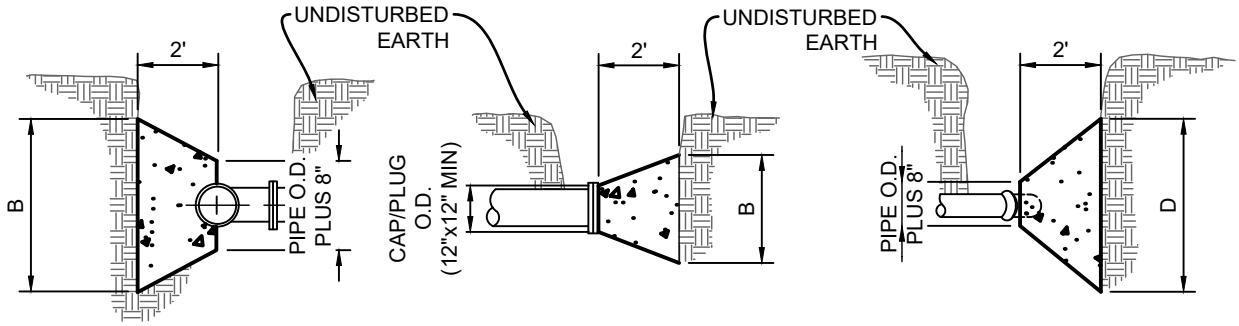
WHENEVER IN THE SPECIFICATIONS, ANY PARTICULAR MATERIALS, PROCESS AND/OR EQUIPMENT IS INDICATED OR SPECIFIED BY PATENT, PROPRIETARY, OR BRAND NAME, OR BY NAME OF MANUFACTURER, SUCH WORDING SHALL BE DEEMED TO BE USED FOR THE PURPOSE OF FACILITATING DESCRIPTION OF THE MATERIAL, PROCESS, AND/OR EQUIPMENT DESIRED, AND SHALL BE DEEMED TO BE FOLLOWED BY THE WORDS "OR EQUAL". THE LISTS OF ACCEPTABLE MATERIAL ARE NOT INTENDED TO BE COMPREHENSIVE LISTS, OR IN ANY ORDER OF PREFERENCE. THE BIDDER MAY OFFER ANY MATERIAL, PROCESS, AND/OR EQUIPMENT WHICH COMPLY WITH THE GOVERNING SPECIFICATIONS WHICH THE BIDDER CONSIDERS TO BE EQUIVALENT TO THAT WHICH IS INDICATED OR SPECIFIED.

THE NOTED METER BOX SIZE IS FOR A TYPICAL FOR 3/4" AND 1" WATER SERVICES. METER BOXES FOR WATER SERVICES LARGER THAN 1 1/2" SHALL BE PRE-APPROVED IN WRITING BY THE PUBLIC WORKS DEPARTMENT AND ENGINEERING DEPARTMENT.

SCALE: NOT TO SCALE

ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	TYPICAL WATER SERVICE INSTALLATION MATERIAL LISTING	REVISION DATE: ---- SHEET NO: W-2





PIPE SIZE	TEE, CAP, PLUG, ELBOW ANGLE	A	B	C	D
4"	TEE OR CAP/PLUG	2'-0"	1'-0"	-	-
4"	90° 45°	-	-	2'-0"	2'-0"
4"	22 1/2" 11 1/4"	-	-	2'-0"	2'-0"
6"	TEE OR CAP/PLUG	2'-0"	2'-0"	-	-
6"	90° 45°	-	-	2'-0"	2'-0"
6"	22 1/2" 11 1/4"	-	-	2'-0"	2'-0"
8"	TEE OR CAP/PLUG	3'-0"	3'-0"	-	-
8"	90°	-	-	3'-0"	3'-0"
8"	45°	-	-	2'-0"	2'-0"
8"	22 1/2" 11 1/4"	-	-	2'-0"	2'-0"

PIPE SIZE	TEE, CAP, PLUG, ELBOW ANGLE	A	B	C	D
10"	TEE OR CAP/PLUG	3'-0"	3'-0"	-	-
10"	90°	-	-	3'-6"	3'-6"
10"	45°	-	-	3'-0"	3'-0"
10"	22 1/2" 11 1/4"	-	-	2'-0"	2'-0"
12"	TEE OR CAP/PLUG	3'-6"	3'-6"	-	-
12"	90°	-	-	4'-0"	4'-0"
12"	45°	-	-	3'-6"	3'-6"
12"	22 1/2" 11 1/4"	-	-	2'-0"	2'-0"
14"	TEE OR CAP/PLUG	4'-0"	4'-0"	-	-
14"	90°	-	-	5'-0"	5'-0"
14"	45°	-	-	3'-6"	3'-6"
14"	22 1/2" 11 1/4"	-	-	3'-0"	3'-0"

GENERAL NOTES:

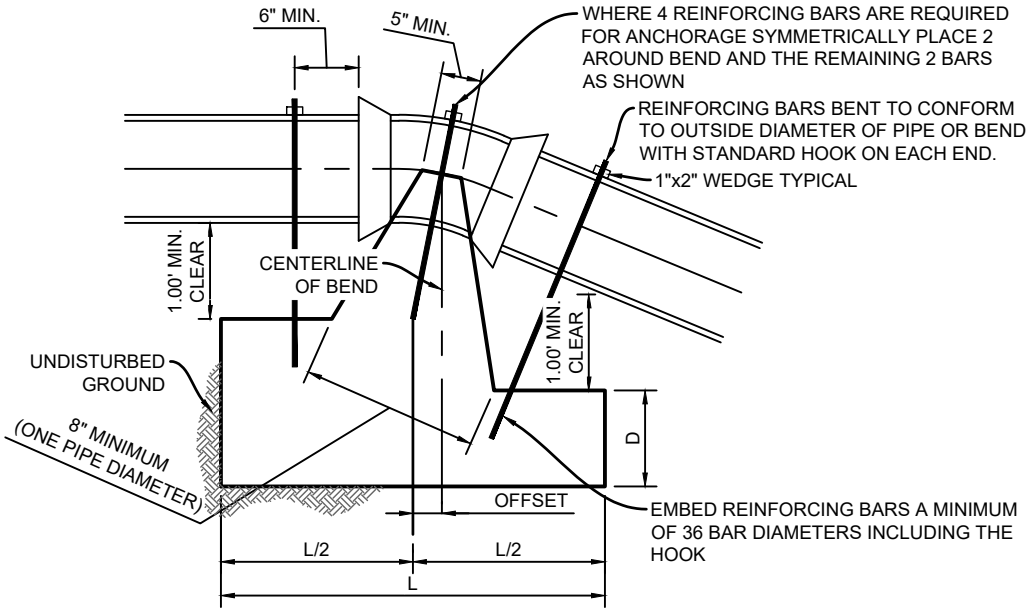
1. ALL FITTINGS AND BURIED DUCTILE IRON PIPE SHALL BE ENCASED IN POLYETHYLENE.
2. ALL VERTICAL BENDS SHALL BE RESTRAINED JOINTS.
3. PIPE SIZES GREATER THAN 14-INCHES REQUIRES DESIGN AND CERTIFICATION BY ENGINEER.

SCALE: NOT TO SCALE

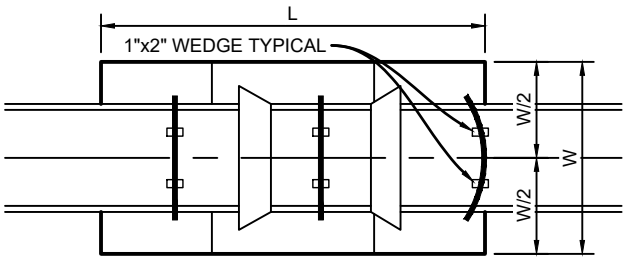
CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

THRUST BLOCK DETAILS

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-3



ELEVATION VIEW



PLAN VIEW

GENERAL NOTES:

1. DESIGN TEST PRESSURE IS 150 PSI.
2. ALL REINFORCING BARS AND WEDGES SHALL BE FACTORY ZINC COATED. REPAIR DAMAGED COATING PER MANUFACTURER'S RECOMMENDATIONS.
3. PIPE SIZES GREATER THAN 14-INCHES REQUIRES DESIGN AND CERTIFICATION BY ENGINEER.

ANCHORAGE BLOCK DIMENSIONS

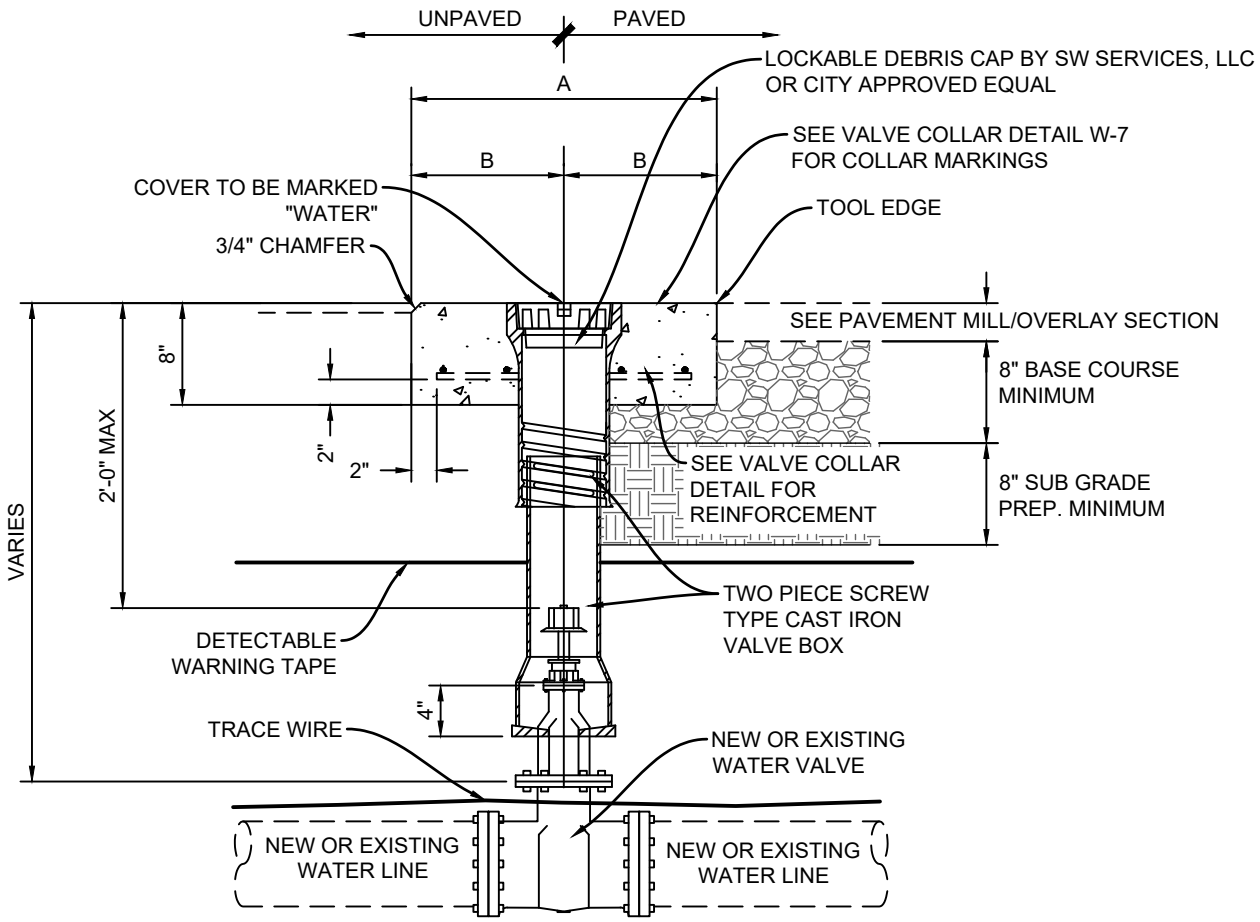
BEND		SIZE					
		4"	6"	8"	10"	12"	14"
11.25° BEND	D	2'-0"	2'-6"	3'-0"	3'-6"	3'-9"	4'-0"
	L	2'-0"	2'-6"	3'-0"	3'-6"	3'-9"	4'-0"
	W	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"
	OFFSET	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"
	REBAR	3 - #3	3 - #3	3 - #3	3 - #3	3 - #3	3 - #3
22.5° BEND	D	2'-6"	3'-0"	3'-9"	4'-3"	4'-9"	5'-0"
	L	2'-6"	3'-0"	3'-9"	4'-3"	4'-9"	5'-0"
	W	2'-0"	2'-9"	3'-3"	4'-0"	4'-6"	5'-0"
	OFFSET	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
	REBAR	3 - #3	3 - #3	3 - #3	3 - #3	3 - #3	3 - #4
45° BEND	D	3'-0"	3'-9"	4'-6"	5'-3"	5'-9"	6'-6"
	L	3'-0"	3'-9"	4'-6"	5'-3"	5'-9"	6'-6"
	W	2'-9"	3'-6"	4'-3"	5'-0"	5'-6"	6'-0"
	OFFSET	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"
	REBAR	3 - #3	3 - #3	3 - #3	3 - #4	3 - #4	3 - #5

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

ANCHORAGE VERTICAL BEND DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-4



CONCRETE COLLAR TABLE		
DIMENSION	PAVED	UNPAVED
A	2'-0"	4'-0"
B	1'-0"	2'-0"

WATER VALVE NOTES:

1. VALVE EXTENSIONS ARE REQUIRED ON ANY VALVE NUT OVER 36-INCHES IN DEPTH. THE EXTENSION SHALL BE WITHIN 18-INCHES OF THE SURFACE.

2. INTERSECTING WATER MAINS SHALL BE EQUIPPED WITH 3 OR 4 ISOLATION CONTROL VALVES.

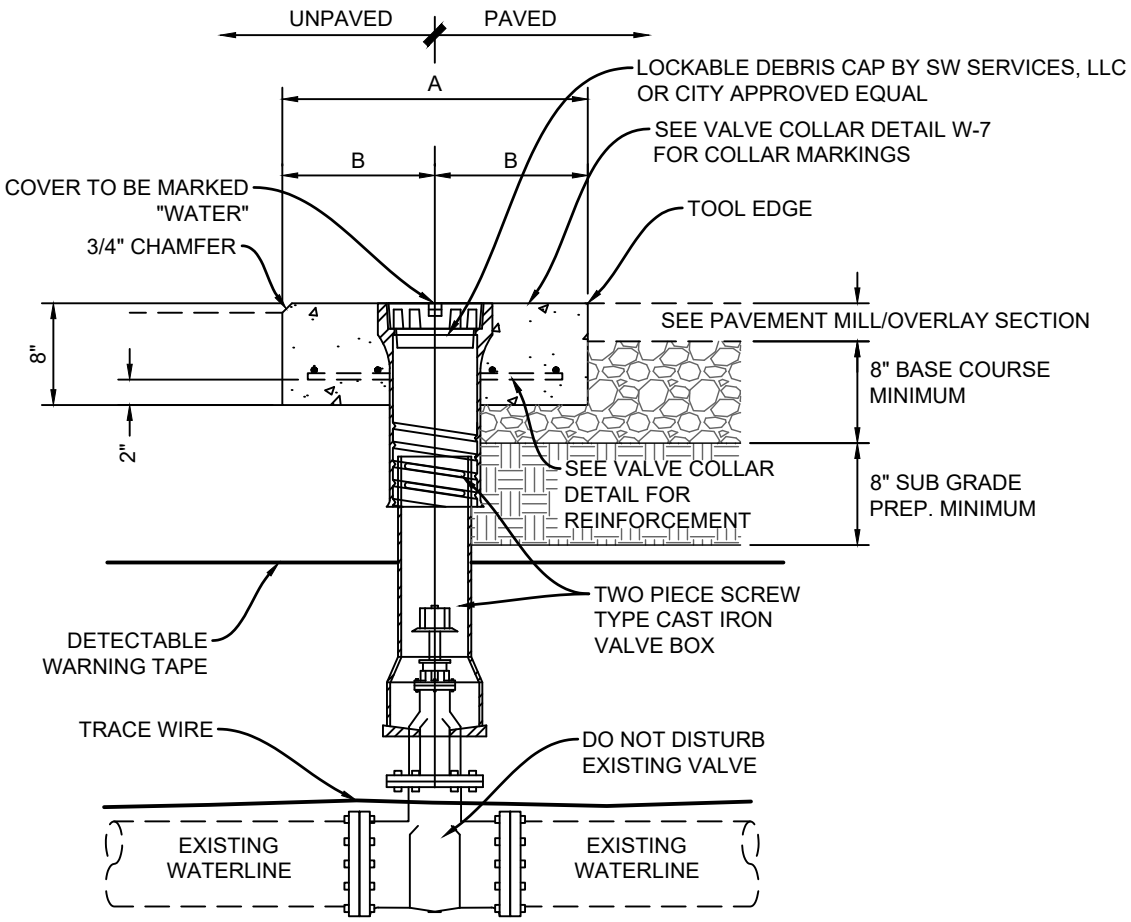
3. VALVE BOX SHALL BE CENTERED ABOUT OPERATING NUT AND BE PLACED TRUE AND VERTICAL.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

VALVE BOX DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-5



CONCRETE COLLAR TABLE		
DIMENSION	PAVED	UNPAVED
A	2'-0"	4'-0"
B	1'-0"	2'-0"

GENERAL NOTES:

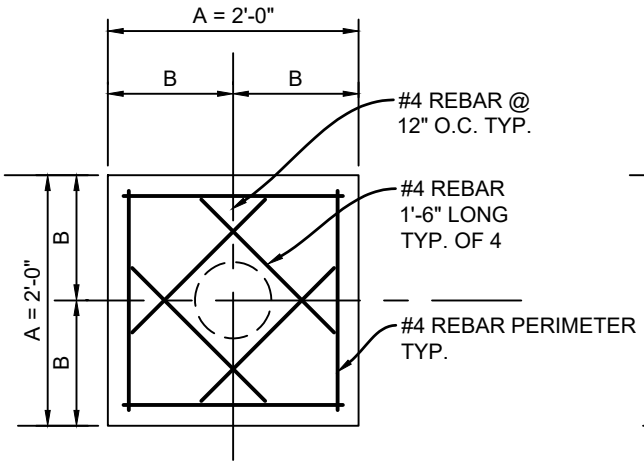
1. SEE TECHNICAL SPECIFICATION FOR BACKFILL MATERIAL SPECIFICATIONS AND COMPACTION REQUIREMENTS.

2. SEE CHAPTER 5, STREET STANDARDS FOR PAVEMENT, BASE COURSE COURSE AND SUB-GRADE PREP. REQUIREMENTS.

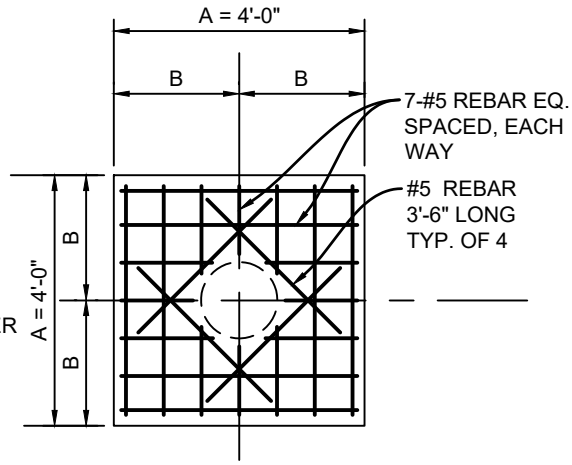
3. SIDES OF CONCRETE COLLAR TOP SHALL BE PARALLEL AND PERPENDICULAR TO THE NORMAL STREET TRAFFIC FLOW.

4. VALVE BOX SHALL BE CENTERED ABOUT OPERATING NUT AND BE PLACED TRUE AND VERTICAL.

SCALE: NOT TO SCALE

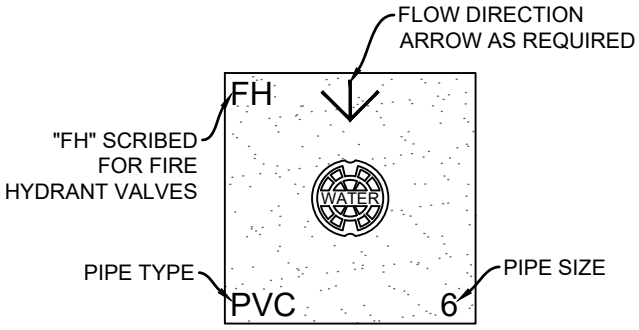


Valve Box Concrete Collar Detail

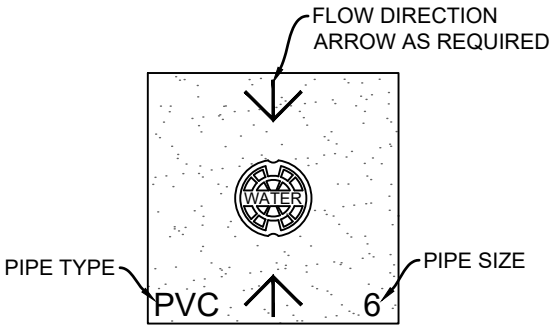


Valve Box Concrete Collar Detail

CONCRETE COLLAR TABLE		
DIMENSION	PAVED	UNPAVED
A	2'-0"	4'-0"
B	1'-0"	2'-0"



Valve Box Collar Marking
Fire Hydrant Valve Detail



Valve Box Collar
Marking Detail

GENERAL NOTES:

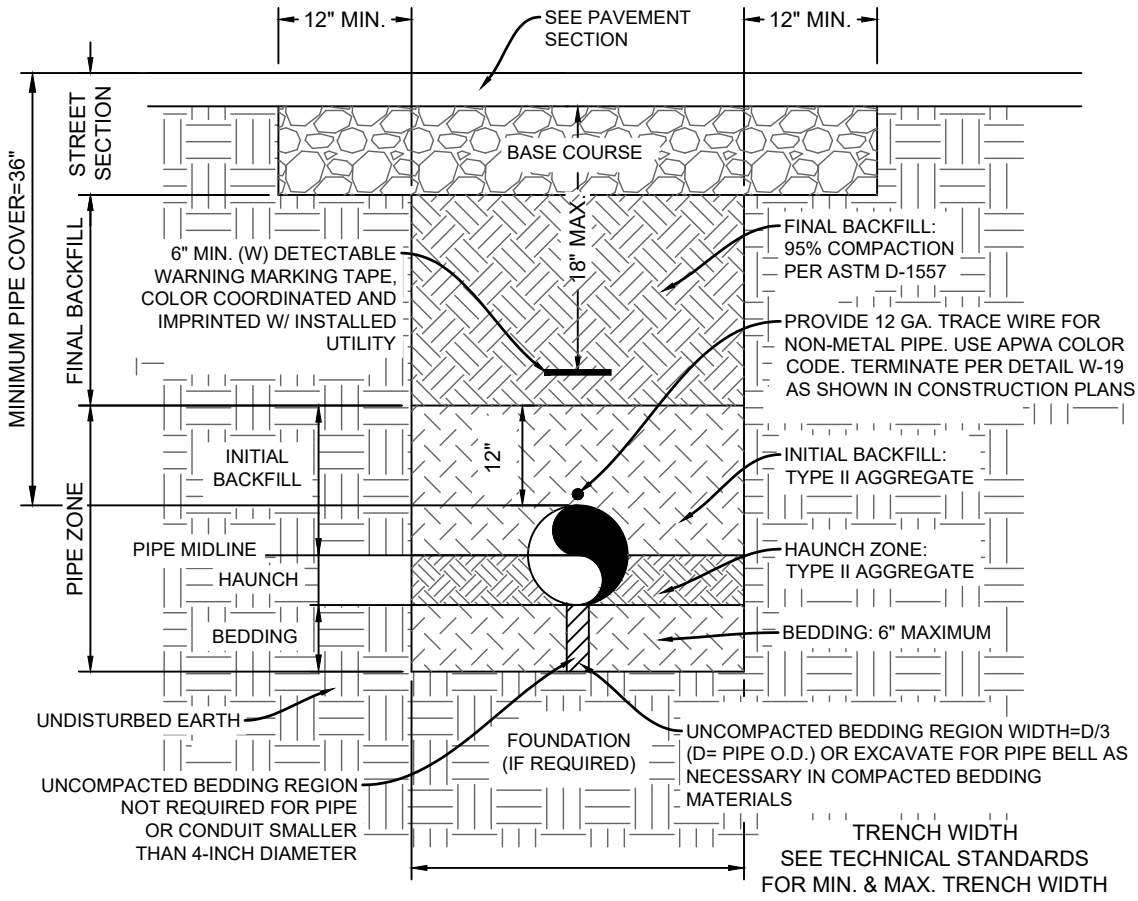
1. SIDES OF CONCRETE COLLAR TOP SHALL BE PARALLEL AND PERPENDICULAR TO THE NORMAL STREET TRAFFIC FLOW.

2. SCRIBE CONCRETE WITH LINE DIRECTIONAL ARROWS, PIPE SIZE AND PIPE TYPE. FIRE HYDRANT VALVES SHALL BE SCRIBED WITH "FH" FOR FIELD IDENTIFICATION.

3. TEXT SIZE SHALL BE 4-INCHES TALL AND SCORED 3/8" DEEP IN A NEAT AND CONSISTENT MANNER, TYPICAL.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	VALVE BOX CONCRETE COLLAR DETAIL	REVISION DATE: ---- SHEET NO: W-7



TYPE II AGGREGATE BASE BACKFILL GRADATION AND REQUIREMENTS	
SIEVE SIZE	PERCENT OF DRY WEIGHT PASSING SIEVE
1-INCH	100
3/4 - INCH	85 - 95
NO. 4	40 - 70
NO. 10	35 - 45
NO. 16	25 - 35
NO. 200	06 - 18
PLASTIC INDEX	12 MAXIMUM
LIQUID LIMITS	35 MAXIMUM
FRACTURED FACES	70% MINIMUM
TOTAL AVAILABLE WATER SOLUBLE SULFATES	35 MAXIMUM

GENERAL NOTES:

1. SEE TECHNICAL STANDARDS FOR BACKFILL MATERIAL SPECIFICATIONS AND COMPACTION REQUIREMENTS.

2. NATIVE SOIL MAY BE USED AS FINAL BACKFILL IF FREE OF ORGANIC MATTER/DEBRIS, MAXIMUM PARTICLE SIZE OF TWO-INCH (2"), LIQUID LIMIT OF <35, AND PLASTICITY INDEX OF <15. COMPACTION REQUIREMENTS FOR NATIVE MATERIAL SHALL REMAIN THE SAME AS IMPORTED MATERIALS AND PLACEMENT SHALL OCCUR WITHIN ±2% OF OPTIMUM MOISTURE CONTENT.

3. COMPACTION OF THE PIPE BEDDING MAY BE ACCOMPLISHED USING MECHANICAL TAMPING DEVICES PRIOR TO PLACEMENT OF THE PIPE OR CONDUIT. MINIMUM EXCAVATION FOR PIPE BELLS MAY BE ACCOMPLISHED AS NECESSARY TO ALLOW PROPER ALIGNMENT AND ELEVATION OF THE PIPE OR CONDUIT.

4. COMPACTION IN THE HAUNCH ZONE SHALL BE COMPLETED BY HAND WITH TAMPERS OR SUITABLE POWER COMPACTORS IN MAXIMUM LIFTS OF SIX-INCHES (6"). TAMPERS SHALL NOT CONTACT PIPE OR CONDUITS DURING THE TAMPING PROCESS.

5. THE CONTRACTOR SHALL NOT EMPLOY THE USE OF IMPACT TAMPERS DIRECTLY ABOVE THE PIPE OR CONDUIT UNTIL THE FULL LOOSE LAYER BACKFILL DEPTH ABOVE THE PIPE IS OBTAINED.

6. TRENCHING AND EXCAVATION OPERATIONS SHALL CONFORM TO THE CURRENT FEDERAL, STATE, AND LOCAL SAFETY ORDINANCES; INCLUDING OSHA REGULATIONS.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

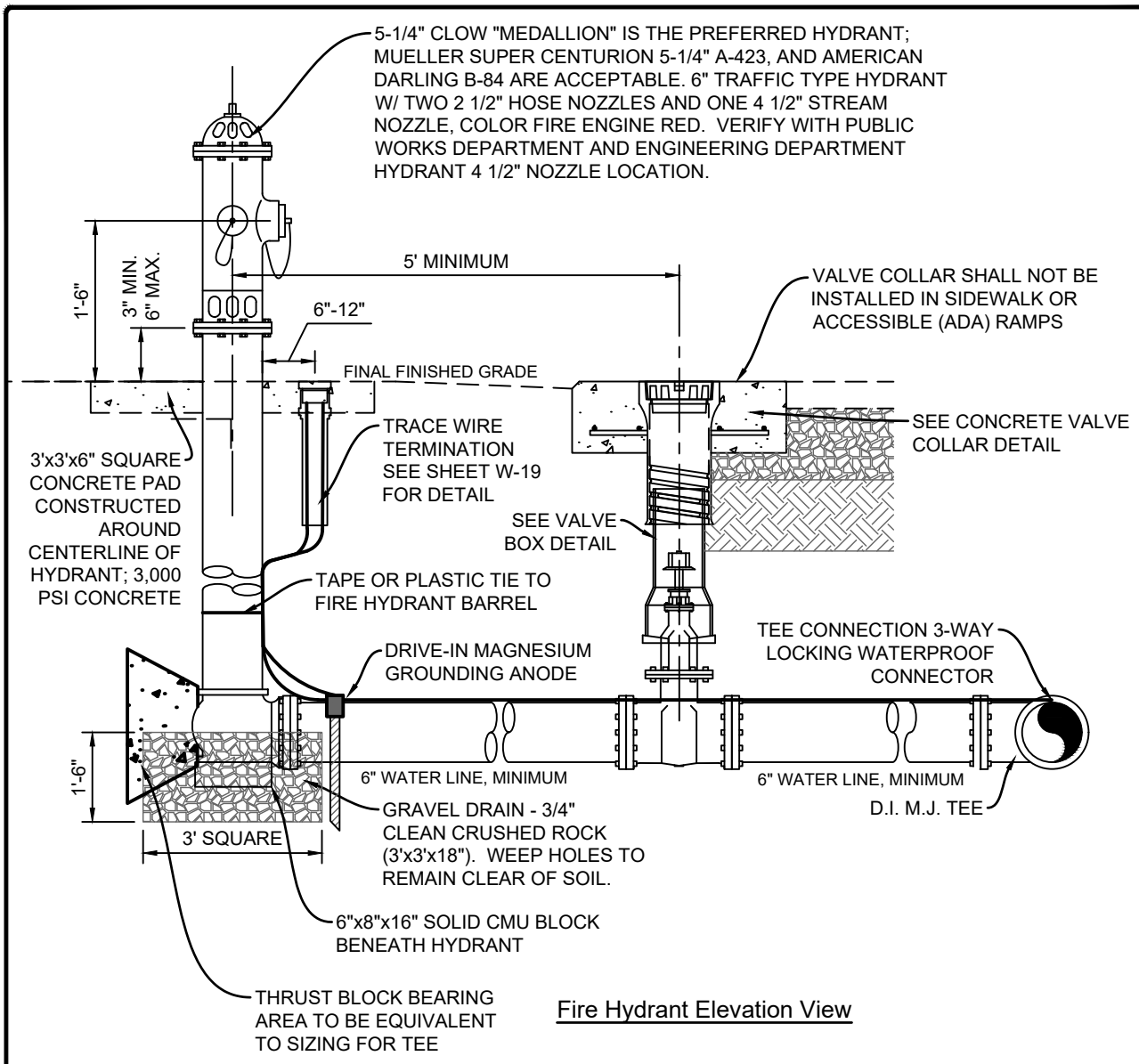
UTILITY TRENCH CROSS-SECTION DETAIL

ISSUE DATE: JUNE 14, 2022

RESOLUTION NO: 2022-28

REVISION DATE: ----

SHEET NO: W-8



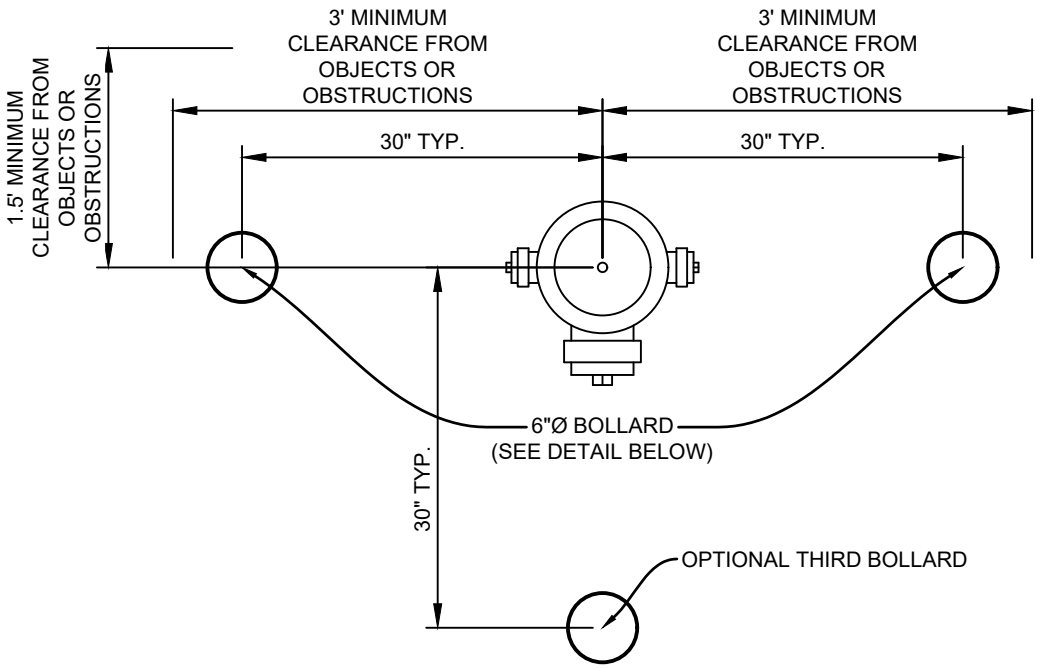
Fire Hydrant Elevation View

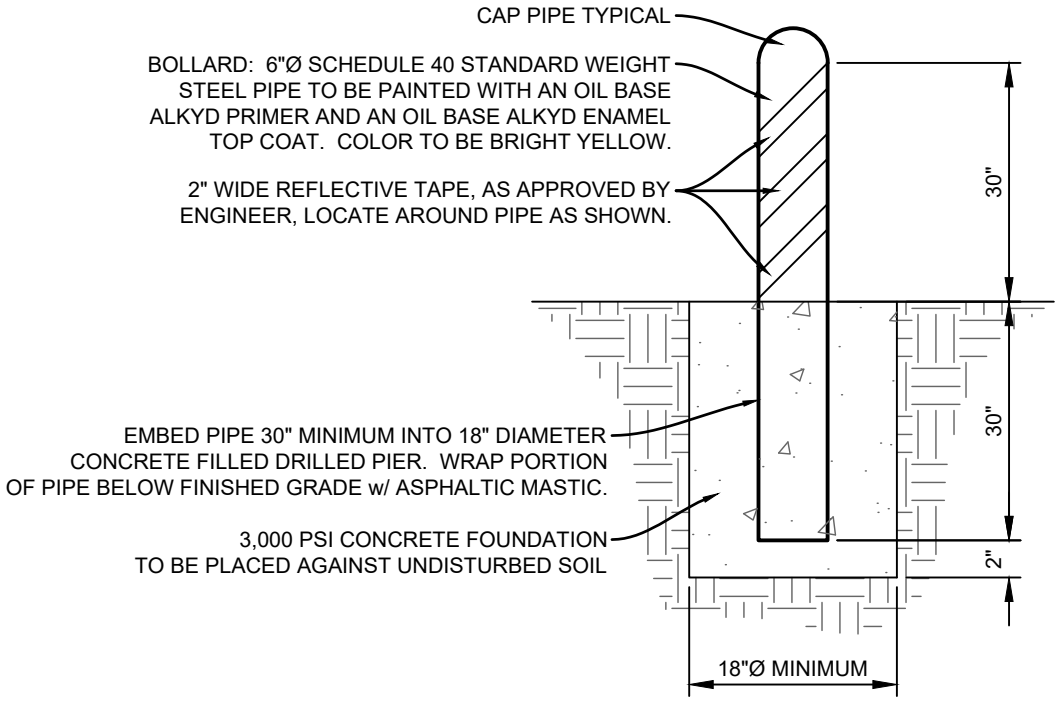
GENERAL NOTES:

1. FIRE HYDRANT SHALL BE INSTALLED 6-FEET FROM BACK OF CURB TO CENTER OF HYDRANT OR AS SPECIFIED BY THE UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT.
2. ALL FITTINGS FROM WATER MAIN LINE TO FIRE HYDRANT SHALL BE M.J. FITTINGS.
3. USE OF RESTRAINED JOINTS IS MANDATORY. ALL FIRE HYDRANT LEG PIPING AND FITTINGS INCLUDING THE TEE AT THE MAIN SHALL BE RESTRAINED JOINT.
4. GRIP RING PIPE RESTRAINT, OR PRE-APPROVED EQUAL, SHALL BE INSTALLED ON PIPE FROM HYDRANT VALVE TO HYDRANT BOOT WHEN VALVE IS LOCATED WITH-IN THE 5-FEET MINIMUM SEPARATION, THIS INSTALLATION MUST BE PRE-APPROVED BY UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT.
5. FIRE HYDRANT VALVE SHALL NOT BE LOCATED IN THE CURB OR THE GUTTER; CONSULT WITH UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT FOR APPROPRIATE LOCATION.

SCALE: NOT TO SCALE

ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	FIRE HYDRANT DETAIL	REVISION DATE: ---- SHEET NO: W-9





SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

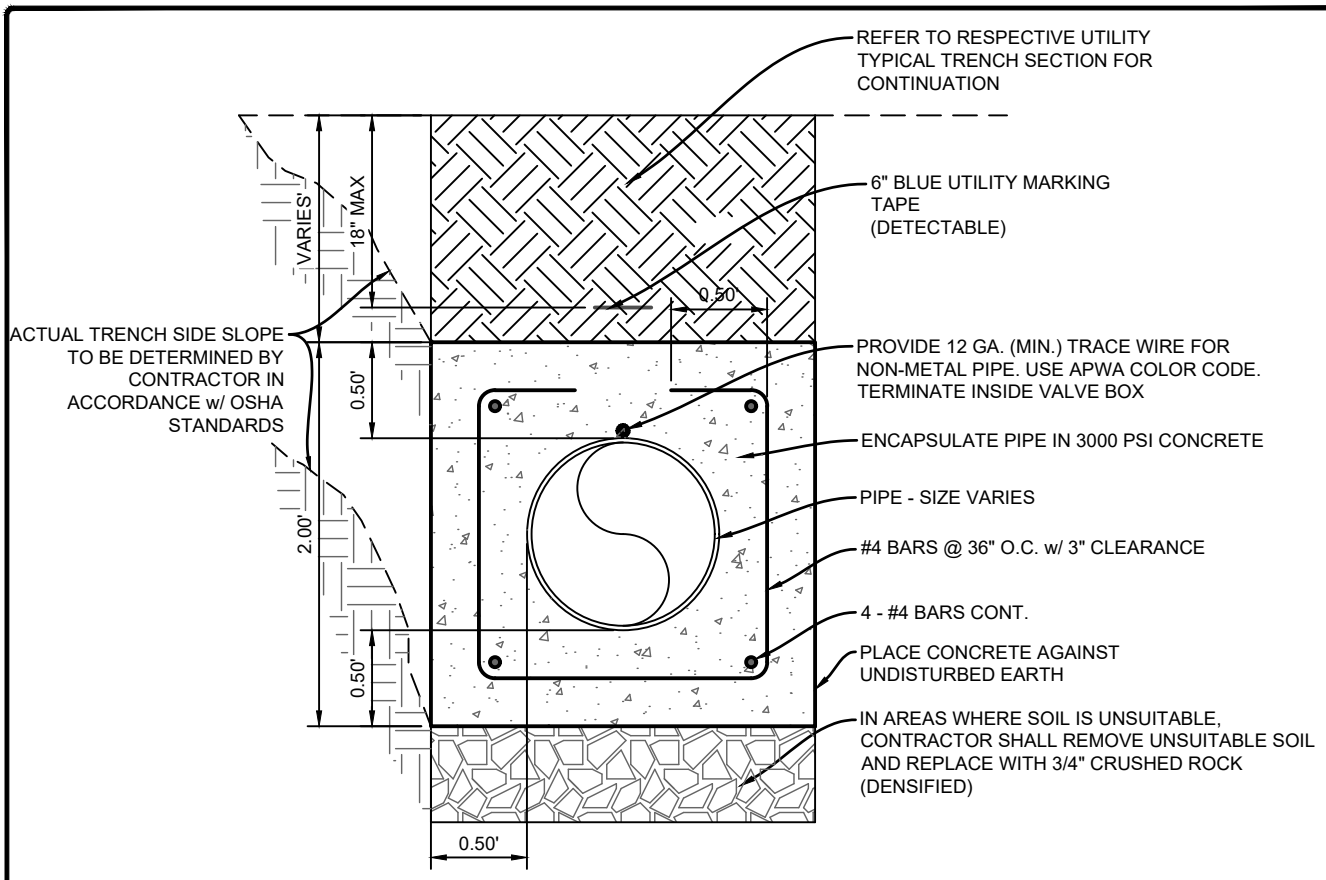
FIRE HYDRANT BOLLARD DETAIL

ISSUE DATE: JUNE 14, 2022

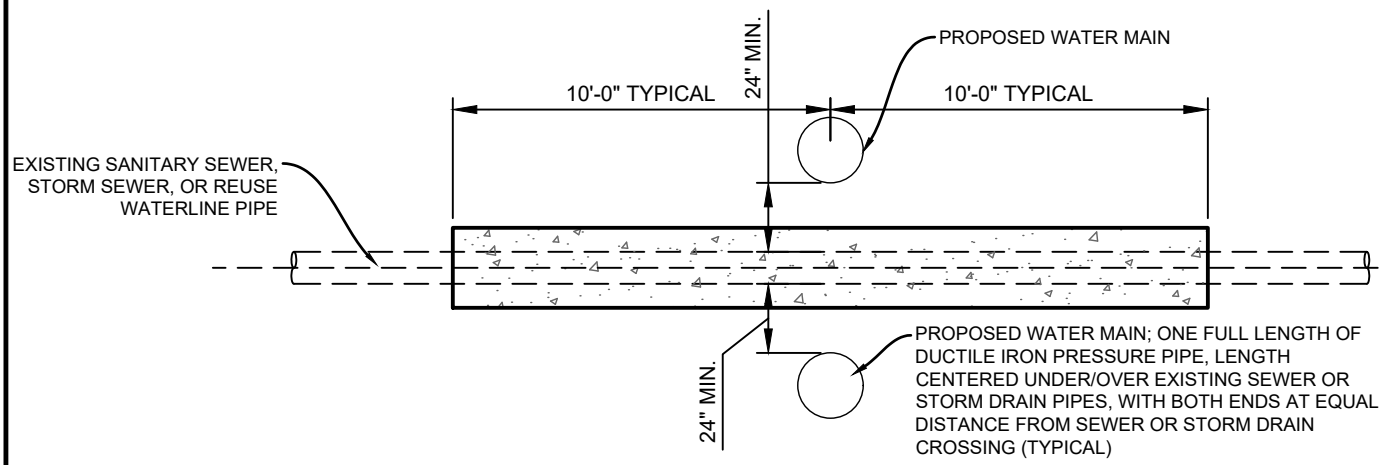
RESOLUTION NO: 2022-28

REVISION DATE: ----

SHEET NO: W-10



CONCRETE ENCASEMENT SECTION



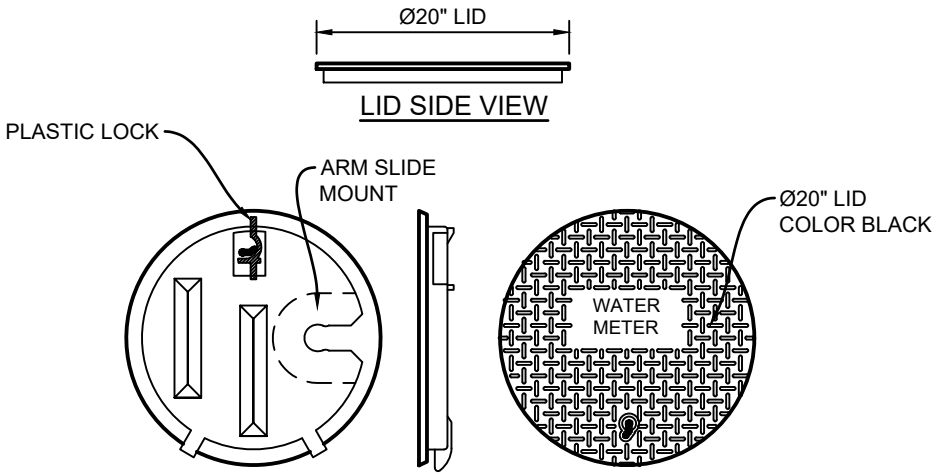
CONCRETE ENCASEMENT ELEVATION VIEW

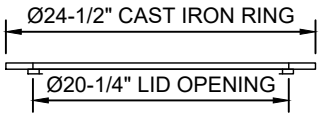
GENERAL NOTES:

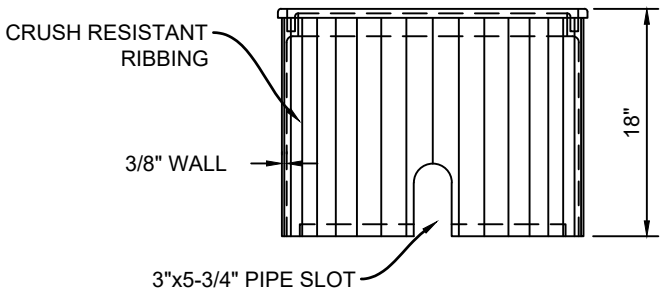
1. PROVIDE AT LOCATIONS WHERE WATERLINE CROSSES SANITARY SEWER LINE, STORM DRAIN LINE, AND/OR REUSE WATERLINE WITH A CLEARANCE LESS THAN 24-INCHES; ENCASE PIPE FOR A MINIMUM OF 10'-0" ON EACH SIDE OF THE CROSSING AND CROSSINGS TO BE ARRANGED SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SANITARY SEWER LINE, STORM DRAIN LINE, AND/OR REUSE WATERLINE JOINTS.
2. WHERE 36-INCH MINIMUM COVER CANNOT BE MAINTAINED CONSULT WITH UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT ON LOWERING OF UTILITY.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	PIPE CONCRETE ENCASEMENT DETAIL	REVISION DATE: ---- SHEET NO: W-11







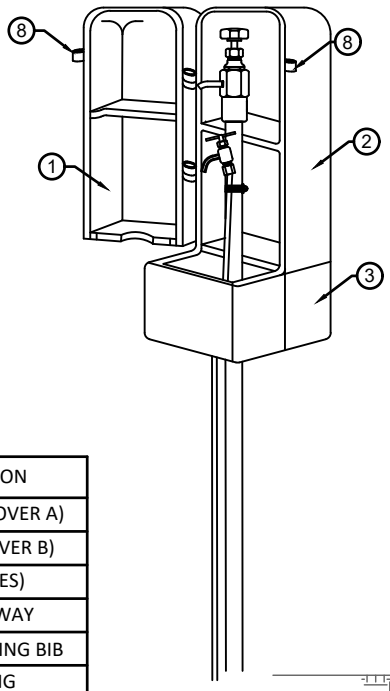
METER CAN SIDE VIEW

GENERAL NOTES:

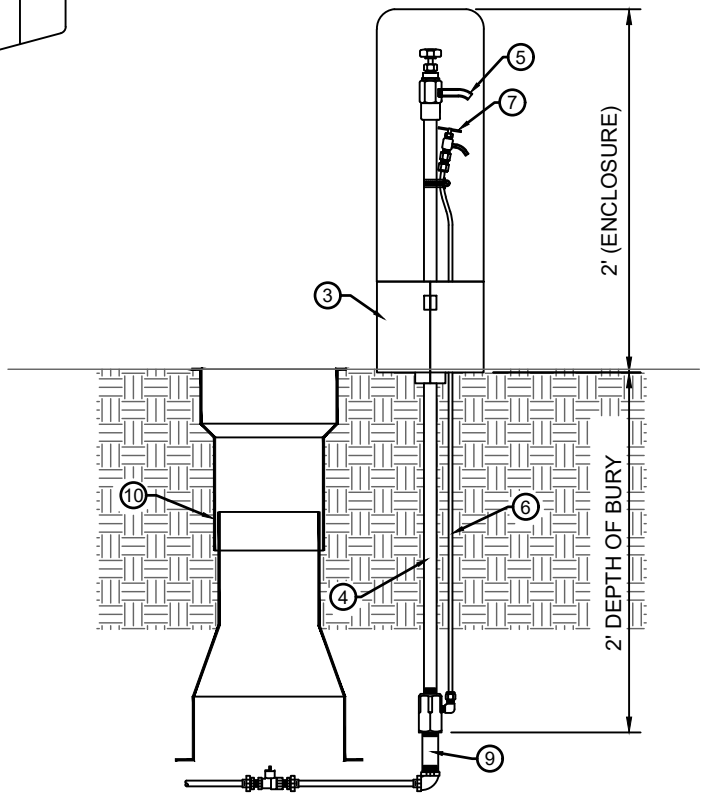
1. DIMENSION'S ±1/8" U.N.O.
2. LID MATERIAL: HDPE
3. BODY MATERIAL: LLDPE
4. WALL THICKNESS: 3/8"± MINIMUM
5. I.W.A. = INSIDE WORK AREA
6. SNAP LOCK POCKET WILL RECEIVE AMR/AMI DEVICE ENDPOINT. SNAP LOCK SLOT IS 1.80"± .015" TO ALLOW FOR A FINGER FORCE INSTALL. POCKET HEIGHT IS 15/16" FOR A MINIMUM 1/8" AIR GAP.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	WATER METER CAN DETAIL	REVISION DATE: ---- SHEET NO: W-12



ITEM	ITEM/DESCRIPTION
1	88 FRONT DOOR (COVER A)
2	88 REAR DOOR (COVER B)
3	88 BASE (2-PIECES)
4	1/2" S.S. WATERWAY
5	BLOW OFF & SAMPLING BIB
6	1/4" S.S. TUBING
7	PET COCK
8	LOCKING HOLE
9	3/4" S.S. NIPPLE
10	VALVE BOX



SAMPLING STATION NOTES:

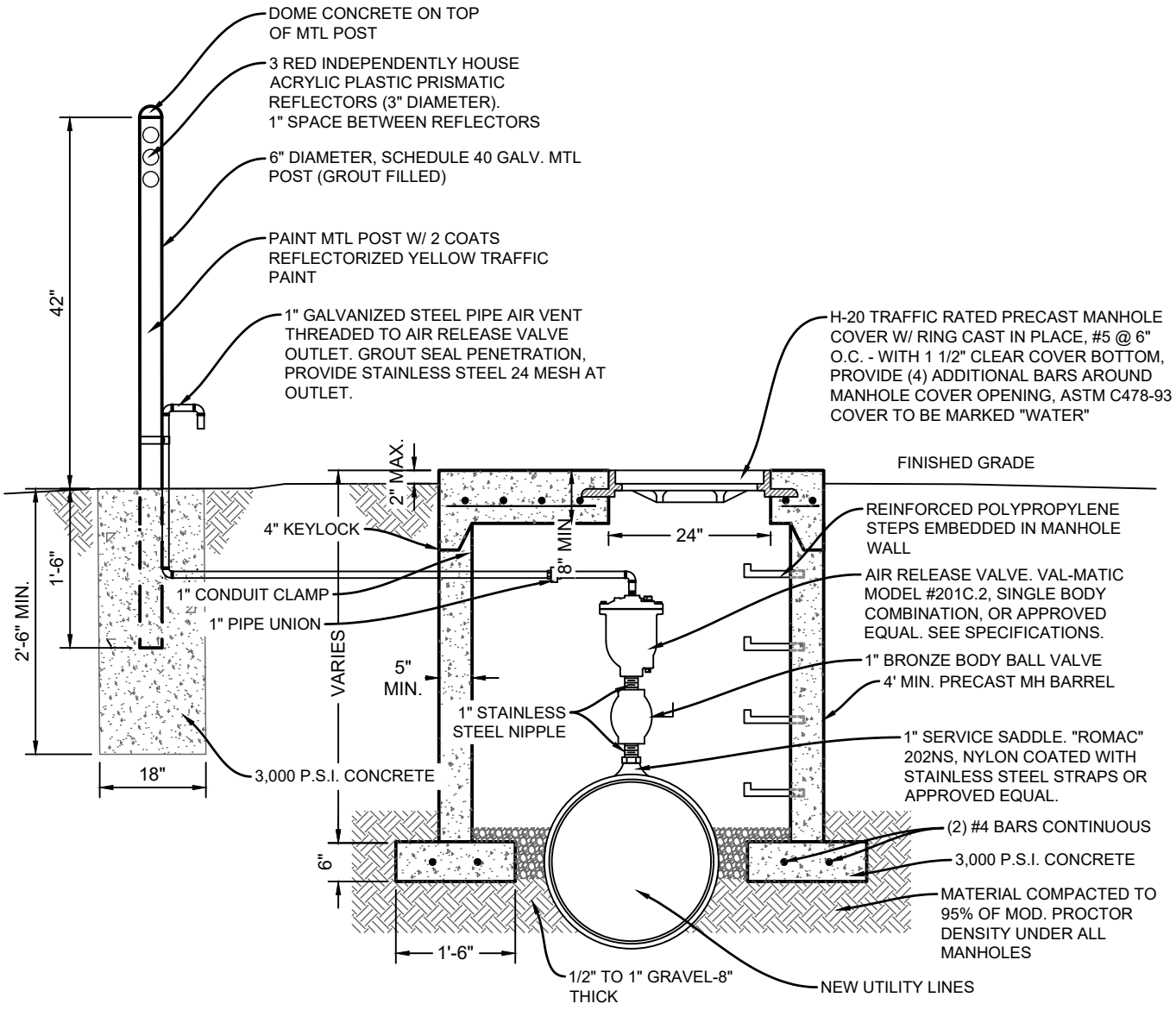
1. ALL NEW SUBDIVISIONS SHALL INCLUDE A MINIMUM OF ONE SAMPLING STATION. TOTAL NUMBER OF SAMPLE STATIONS REQUIRED SHALL BE COORDINATED WITH THE UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

SAMPLING STATION DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-13



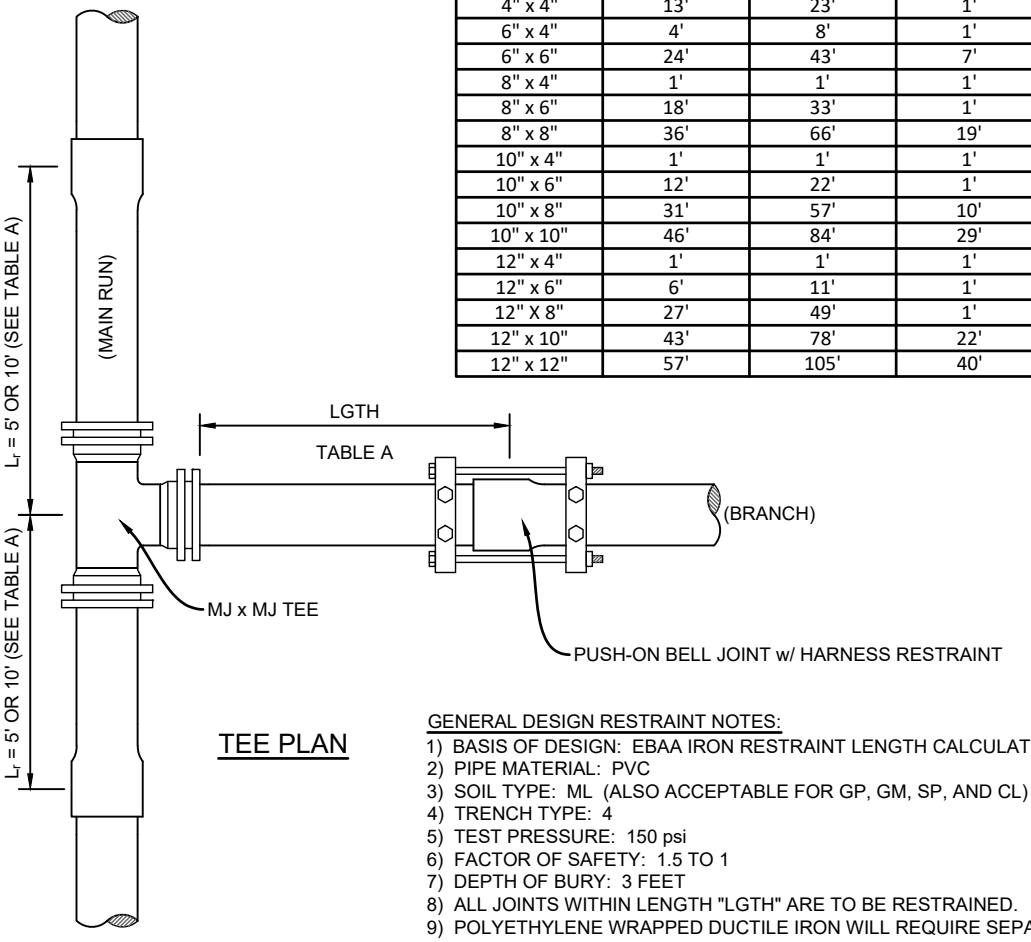
AIR RELEASE VALVE

NOTE:
DETAIL AS SHOWN IS TYPICAL OF 1" COMBINATION AIR & VACUUM VALVE ASSEMBLY. ACTUAL VALVE & ASSOCIATED VENT PIPE SHALL BE SIZED PER PIPELINE BEING DESIGNED.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	COMBINATION AIR & VACUUM RELEASE VALVE DETAIL	REVISION DATE: ---- SHEET NO: W-14

TABLE A				
PIPE SIZE	L_r = 5' MINIMUM		L_r = 10' MINIMUM	
	LGTH (D.I.)	LGTH (PVC)	LGTH (D.I.)	LGTH (PVC)
4" x 4"	13'	23'	1'	1'
6" x 4"	4'	8'	1'	1'
6" x 6"	24'	43'	7'	13'
8" x 4"	1'	1'	1'	1'
8" x 6"	18'	33'	1'	1'
8" x 8"	36'	66'	19'	35'
10" x 4"	1'	1'	1'	1'
10" x 6"	12'	22'	1'	1'
10" x 8"	31'	57'	10'	18'
10" x 10"	46'	84'	29'	53'
12" x 4"	1'	1'	1'	1'
12" x 6"	6'	11'	1'	1'
12" X 8"	27'	49'	1'	1'
12" x 10"	43'	78'	22'	40'
12" x 12"	57'	105'	40'	73'



TEE PLAN

GENERAL DESIGN RESTRAINT NOTES:

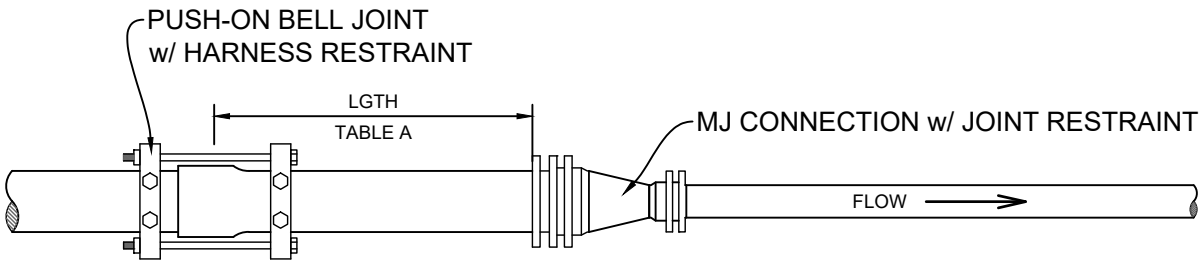
1) BASIS OF DESIGN: EBAA IRON RESTRAINT LENGTH CALCULATOR
2) PIPE MATERIAL: PVC
3) SOIL TYPE: ML (ALSO ACCEPTABLE FOR GP, GM, SP, AND CL)
4) TRENCH TYPE: 4
5) TEST PRESSURE: 150 psi
6) FACTOR OF SAFETY: 1.5 TO 1
7) DEPTH OF BURY: 3 FEET
8) ALL JOINTS WITHIN LENGTH "LGTH" ARE TO BE RESTRAINED.
9) POLYETHYLENE WRAPPED DUCTILE IRON WILL REQUIRE SEPARATE CALCULATIONS.
10) PIPE SIZES LARGER THAN 12" DIAMETER WILL REQUIRE A SEPARATE DESIGN.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

RESTRAINED TEE DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-15

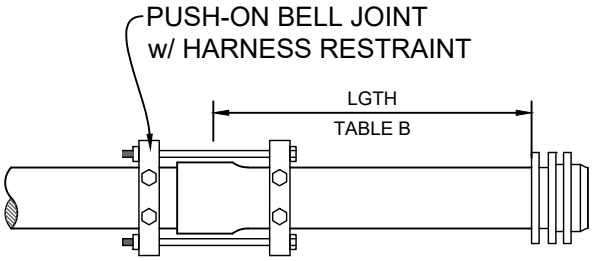


REDUCER PLAN

TABLE A		
PIPE SIZE	D.I.	PVC
6" x 4"	21'	38'
8" x 4"	38'	70'
8" x 6"	22'	41'
10" x 4"	52'	94'
10" x 6"	39'	71'
10" x 8"	22'	39'
12" x 4"	65'	118'
12" x 6"	54'	99'
12" x 8"	40'	73'
12" x 10"	22'	40'

GENERAL DESIGN RESTRAINT NOTES:

1) BASIS OF DESIGN: EBAA IRON RESTRAINT LENGTH CALCULATOR
2) PIPE MATERIAL: PVC
3) SOIL TYPE: ML (ALSO ACCEPTABLE FOR GP, GM, SP, AND CL)
4) TRENCH TYPE: 4
5) TEST PRESSURE: 150 psi
6) FACTOR OF SAFETY: 1.5 TO 1
7) DEPTH OF BURY: 3 FEET
8) ALL JOINTS WITHIN LENGTH "LGTH" ARE TO BE RESTRAINED.
9) POLYETHYLENE WRAPPED DUCTILE IRON WILL REQUIRE SEPARATE CALCULATIONS.
10) PIPE SIZES LARGER THAN 12" DIAMETER WILL REQUIRE A SEPARATE DESIGN.



DEAD END PLAN

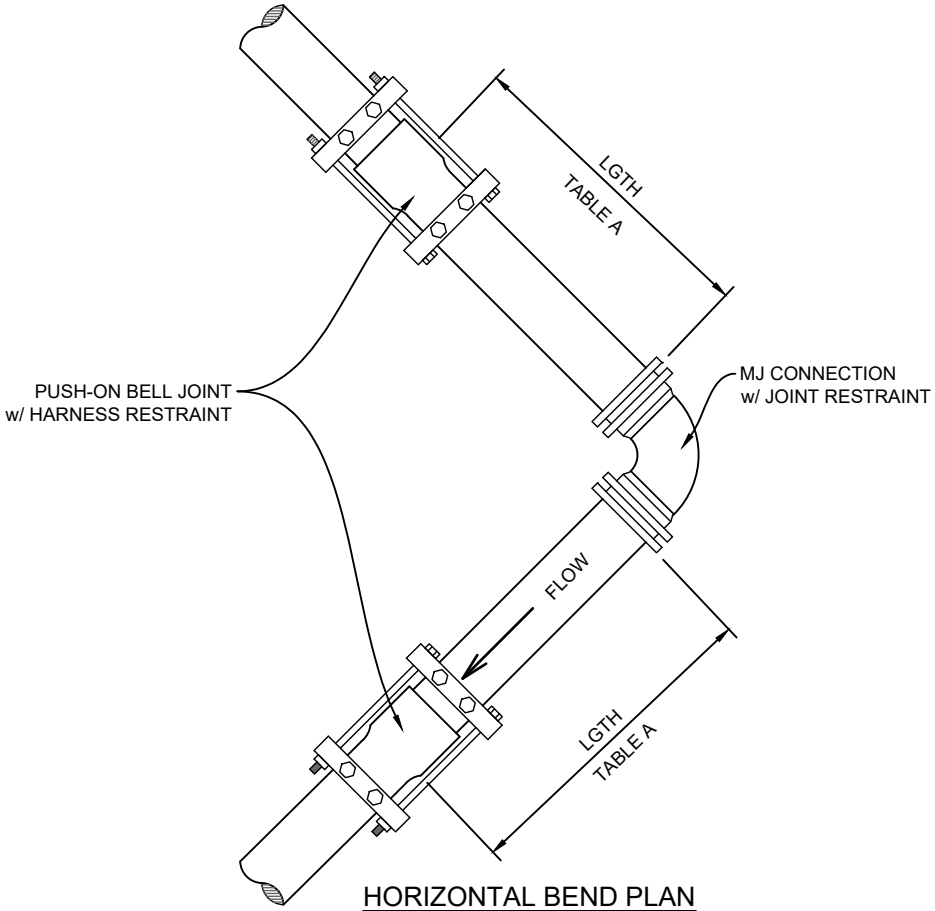
TABLE B		
PIPE SIZE	D.I.	PVC
4"	29'	53'
6"	41'	74'
8"	53'	97'
10"	63'	116'
12"	74'	136'

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

RESTRAINED DEAD END & REDUCER DETAILS

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-16



HORIZONTAL BEND PLAN

TABLE A (RESTRAINED LENGTH [FT] FOR PVC)				
PIPE SIZE	11.25° BEND	22.5° BEND	45° BEND	90° BEND
4"	2'	4'	8'	18'
6"	3'	5'	11'	25'
8"	4'	7'	14'	32'
10"	4'	8'	16'	38'
12"	5'	9'	19'	44'

TABLE A (RESTRAINED LENGTH [FT] FOR DI)				
PIPE SIZE	11.25° BEND	22.5° BEND	45° BEND	90° BEND
4"	2'	3'	6'	14'
6"	2'	4'	8'	19'
8"	3'	5'	11'	25'
10"	3'	6'	13'	30'
12"	4'	7'	15'	35'

GENERAL DESIGN RESTRAINT NOTES:

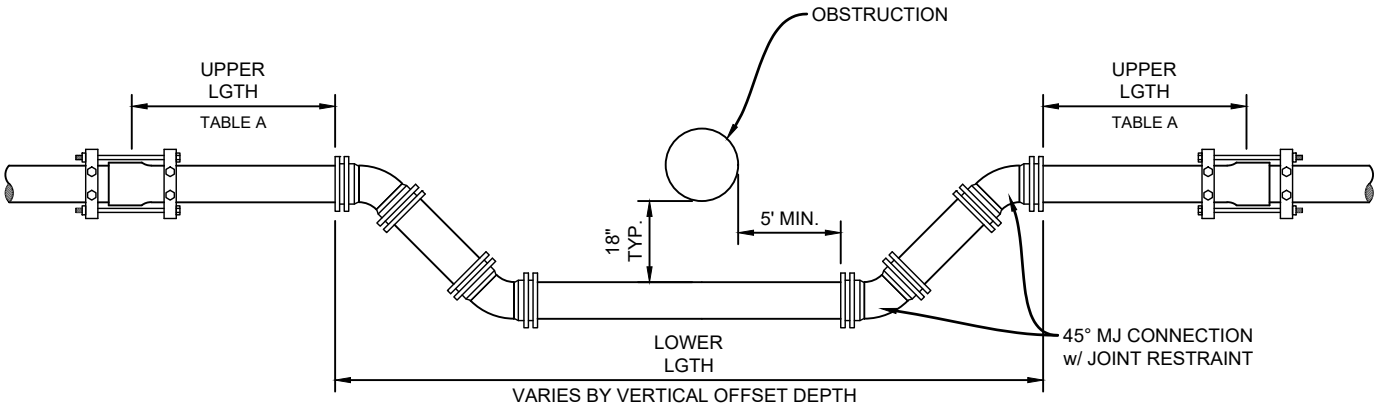
1) BASIS OF DESIGN: EBAA IRON RESTRAINT LENGTH CALCULATOR
2) PIPE MATERIAL: PVC
3) SOIL TYPE: ML (ALSO ACCEPTABLE FOR GP, GM, SP, AND CL)
4) TRENCH TYPE: 4
5) TEST PRESSURE: 150 psi
6) FACTOR OF SAFETY: 1.5 TO 1
7) DEPTH OF BURY: 3 FEET
8) ALL JOINTS WITHIN LENGTH "LGTH" ARE TO BE RESTRAINED.
9) POLYETHYLENE WRAPPED DUCTILE IRON WILL REQUIRE SEPARATE CALCULATIONS.
10) PIPE SIZES LARGER THAN 12" DIAMETER WILL REQUIRE A SEPARATE DESIGN.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

RESTRAINED HORIZONTAL BEND DETAILS

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-17



VERTICAL OFFSET PROFILE

TABLE A		
PIPE SIZE	D.I.	PVC
4"	12'	22'
6"	17'	31'
8"	22'	40'
10"	27'	48'
12"	31'	57'

GENERAL DESIGN RESTRAINT NOTES:

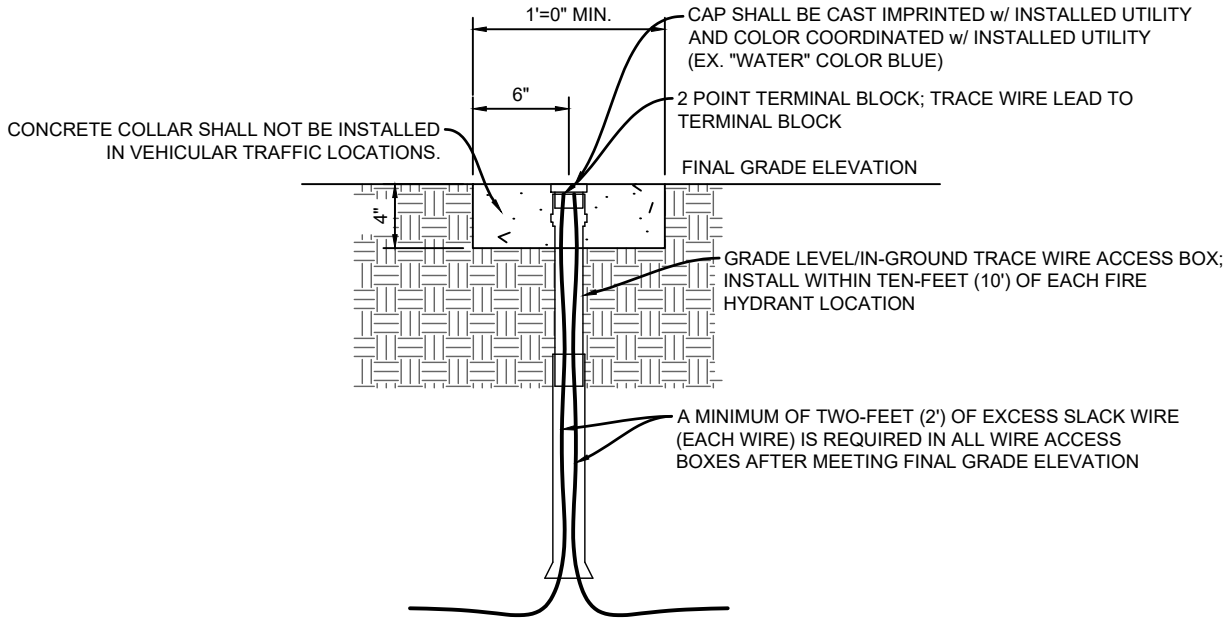
1) BASIS OF DESIGN: EBAA IRON RESTRAINT LENGTH CALCULATOR
2) PIPE MATERIAL: PVC
3) SOIL TYPE: ML (ALSO ACCEPTABLE FOR GP, GM, SP, AND CL)
4) TRENCH TYPE: 4
5) TEST PRESSURE: 150 psi
6) FACTOR OF SAFETY: 1.5 TO 1
7) DEPTH OF BURY: 3 FEET
8) ALL JOINTS WITHIN LENGTH "LGTH" ARE TO BE RESTRAINED.
9) POLYETHYLENE WRAPPED DUCTILE IRON WILL REQUIRE SEPARATE CALCULATIONS.
10) PIPE SIZES LARGER THAN 12" DIAMETER WILL REQUIRE A SEPARATE DESIGN.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

WATER LINE LOWERING DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-18



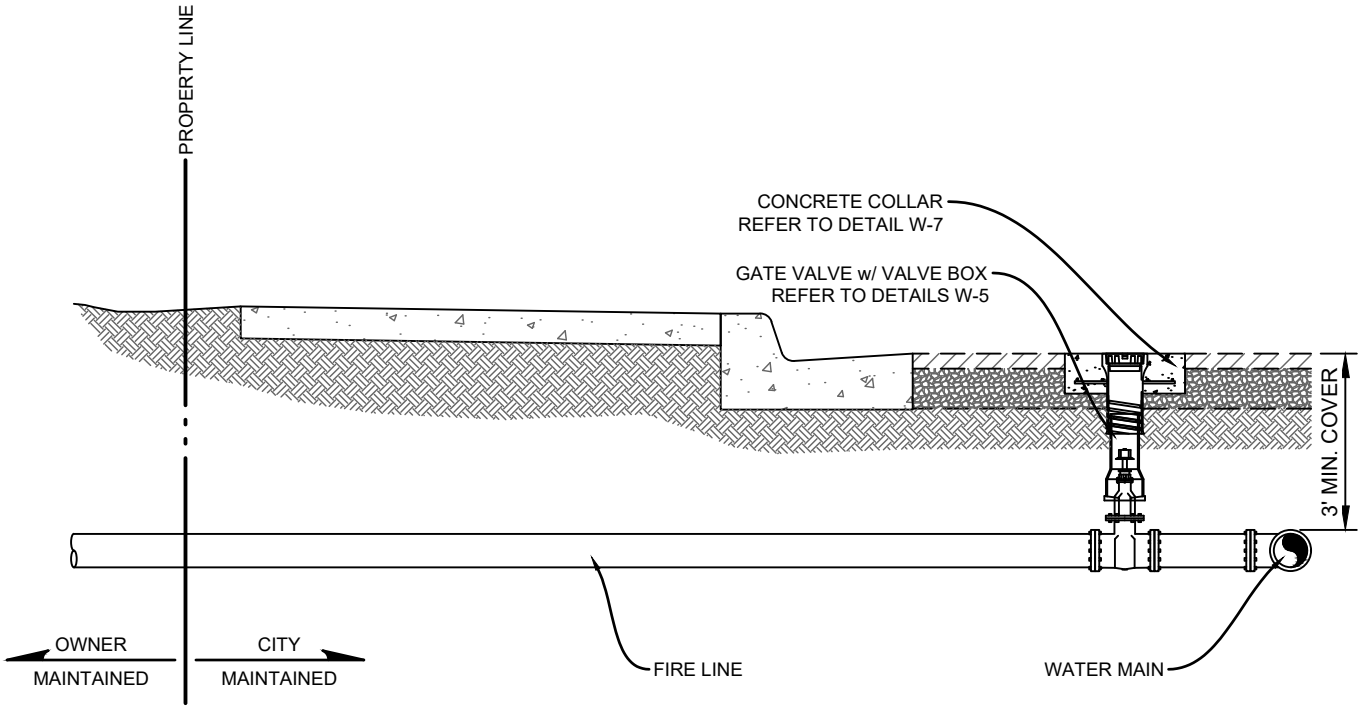
Trace Wire Termination Detail

CONTRACTOR NOTES:

1. TRACE WIRE ACCESS BOXES SHALL BE LOCATED AT ALL FIRE HYDRANT LOCATIONS.
2. TRACE WIRE ACCESS BOXES SPACING SHALL NOT EXCEED 500 LINEAR FEET.
3. COORDINATE WITH UTILITY DEPARTMENT AND/OR ENGINEERING DEPARTMENT FOR TRACE WIRE ACCESS BOXES FINAL LOCATION(S).

SCALE: NOT TO SCALE

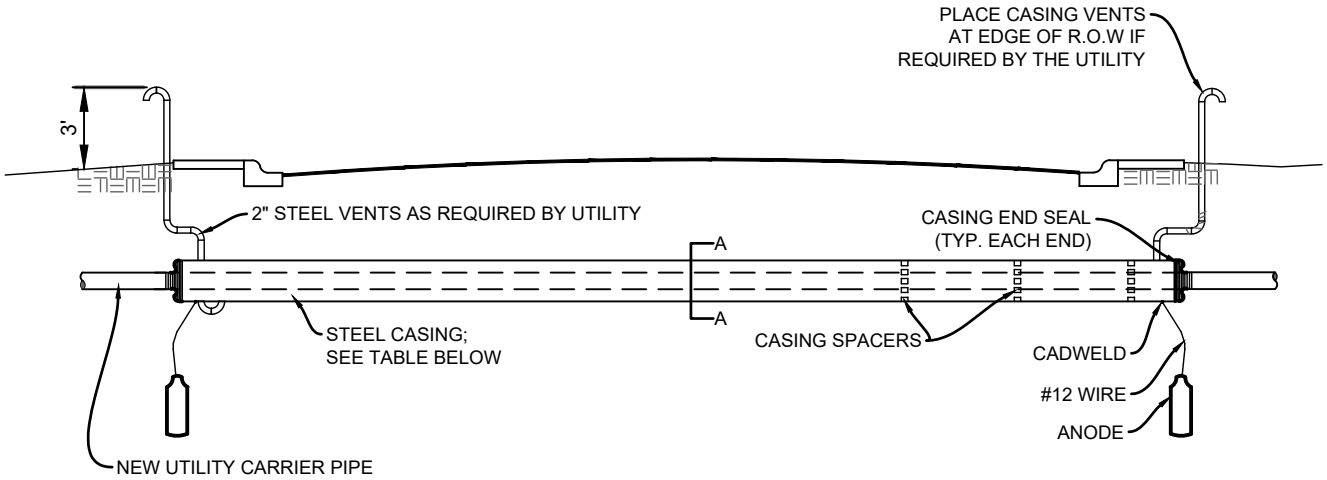
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	TRACE WIRE TERMINATION DETAIL	REVISION DATE: ---- SHEET NO: W-19



MAINTENANCE RESPONSIBILITY NOTE:
THE UTILITY DEPARTMENT WILL BE RESPONSIBLE FOR MAINTENANCE OF THE FIRE LINE FROM THE WATER MAIN TO THE PROPERTY LINE. THE OWNER WILL BE RESPONSIBLE FOR MAINTENANCE OF THE FIRE LINE FROM THE PROPERTY LINE TO THE BUILDING.

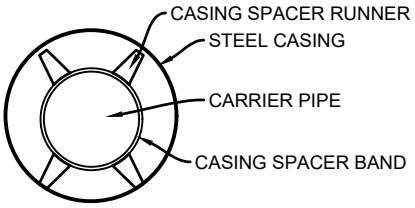
SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	FIRE LINE DETAIL	REVISION DATE: ---- SHEET NO: W-20



GENERAL NOTES:

1. CASING END SEALS SHALL BE T.D. WILLIAMSON, INC Z-SEALS OR ENGINEER APPROVED EQUAL.
2. CASING SPACERS SHALL BE ADVANCE PRODUCTS & SYSTEMS, LLC MODEL SSIM OR ENGINEER APPROVED EQUAL.
3. STEEL CASING PIPE SHALL BE SIZED TO ADEQUATELY ACCOMMODATE CARRIER PIPE AND ADHERE TO THE REQUIREMENTS PROVIDED IN THE TABLE BELOW.
4. PIPE JOINT(S) INSIDE CASING SHALL BE JOINT RESTRAINED.
5. CASING VENTS TO BE PAINTED WITH AN OIL BASE ALKYD PRIMER AND AN OIL BASE ALKYD ENAMEL TOP COAT. COLOR SHALL BE PER APWA UNIFORM COLOR CODE FOR RESPECTIVE UTILITY.



SECTION A-A

STEEL CASING MINIMUM WALL THICKNESS		
NOMINAL DIAMETER (INCHES)	MIN. WALL THICKNESS FOR COATED (INCHES)	MIN. WALL THICKNESS NON-COATED (INCHES)
14 AND UNDER	0.1880	0.1880
16	0.2190	0.2810
18	0.2500	0.3120
20 AND 22	0.2810	0.3440
24	0.3120	0.3750
26	0.3440	0.4060
28	0.3750	0.4380
30	0.4060	0.4690
32	0.4380	0.5000
34 AND 36	0.4690	0.5310
42	0.5000	0.5630
48	0.5630	0.6250

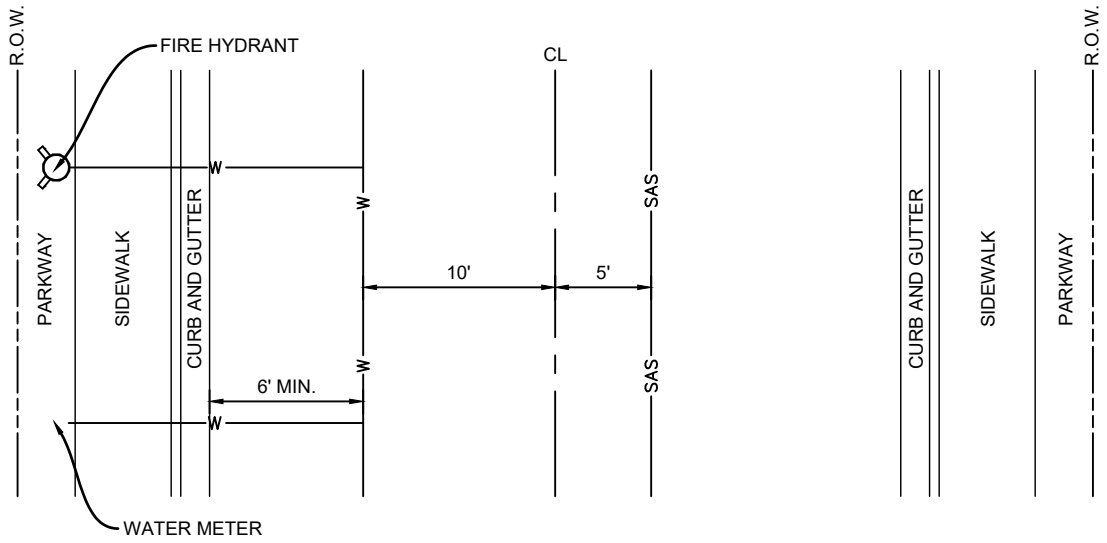
1. WALL THICKNESS DESIGNATIONS FOR STEEL CASING PIPE FOR E-80.
2. STEEL PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.
3. CORROSION CONTROL MEASURES MUST INCLUDE CATHODIC PROTECTION.

SCALE: NOT TO SCALE

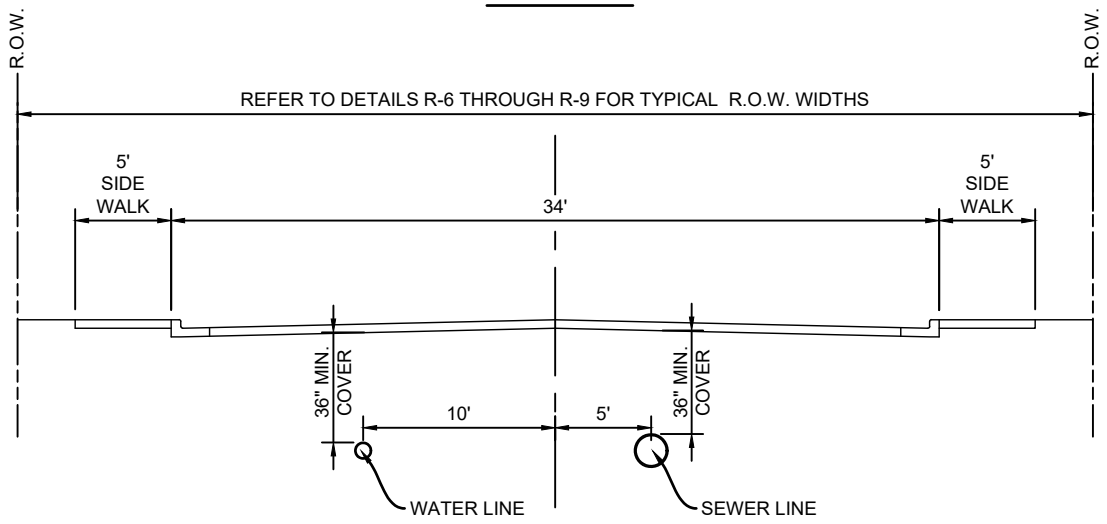
CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

WATER LINE BORE & CASE DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-21



PLAN VIEW



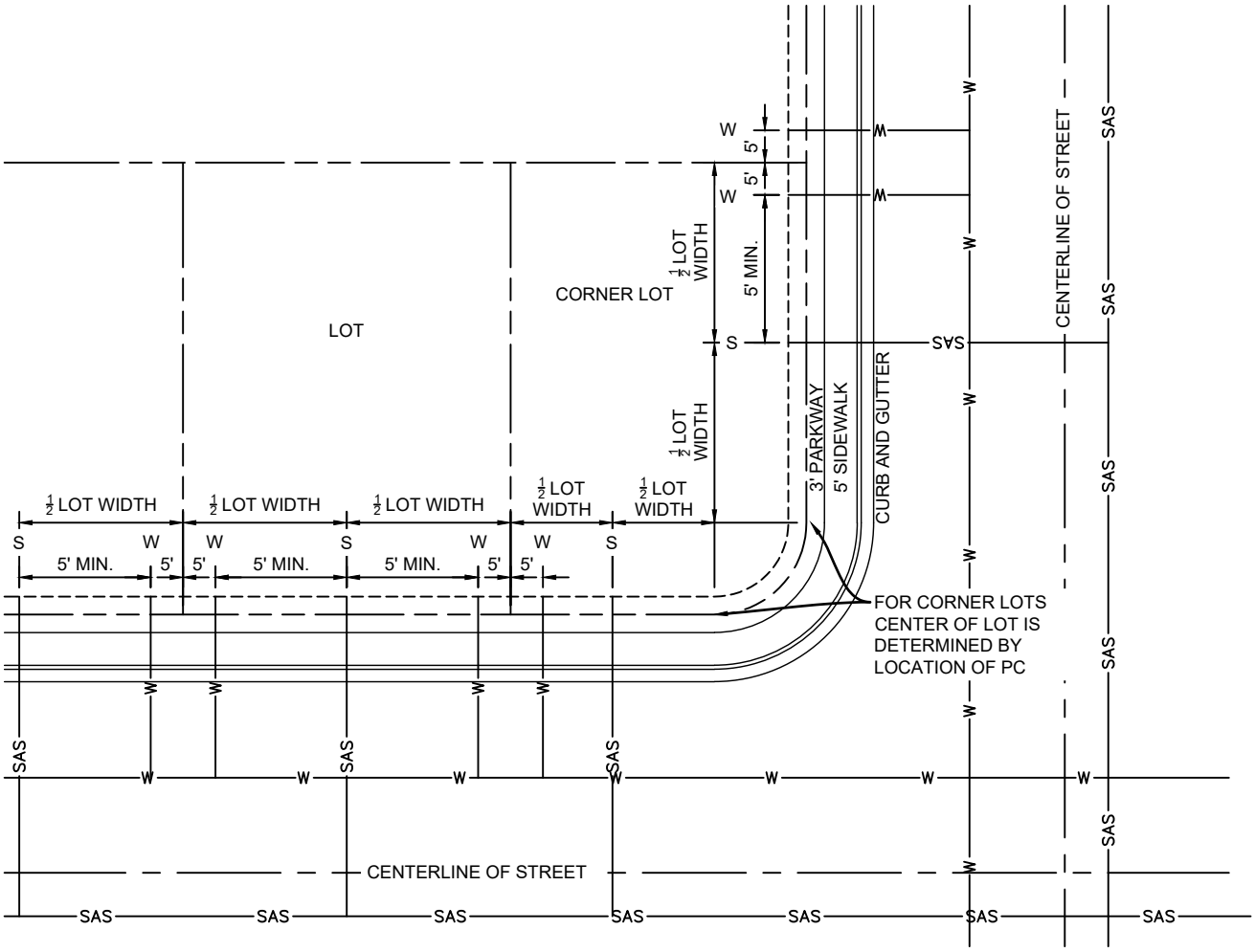
SECTION VIEW

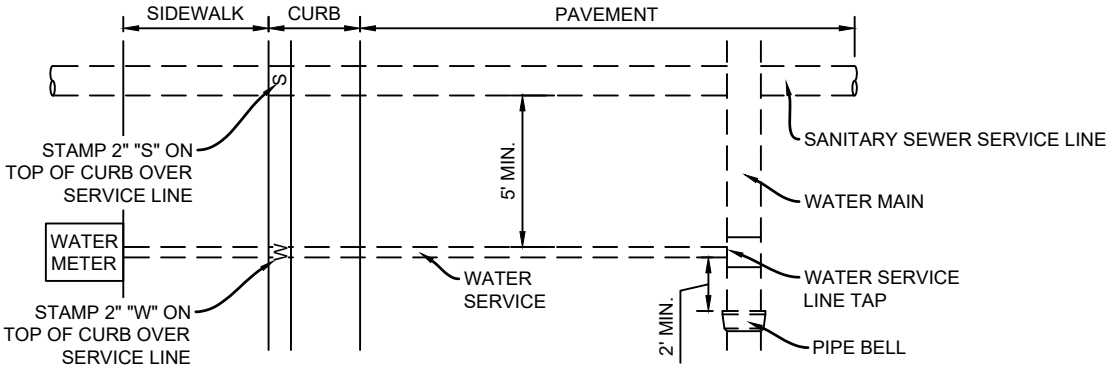
CONTRACTOR NOTES:

1. WATER LINE WILL BE LOCATED 10' NORTH OF STREET CENTERLINE ON EAST TO WEST STREETS AND 10' WEST OF STREET CENTERLINE ON NORTH AND SOUTH STREETS.
2. WATER LINE MINIMUM COVER SHALL BE 36".
3. SANITARY SEWER MINIMUM COVER SHALL BE 36".
4. SANITARY SEWER WILL BE LOCATED 5' SOUTH OF STREET CENTERLINE ON EAST AND WEST STREETS AND 5' EAST OF STREET CENTERLINE ON NORTH AND SOUTH STREETS.
5. NONSTANDARD LOCATIONS REQUIRE WRITTEN APPROVAL OF THE CITY OF ALAMOGORDO .
6. UTILITY EASEMENT WILL BE AT THE DISCRETION OF THE CITY OF ALAMOGORDO.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	TYPICAL UTILITY LOCATIONS	REVISION DATE: ----
		SHEET NO: W-22





CONTRACTOR NOTES:

1. THE WATER SERVICE WILL ENTER 5' FROM THE PROPERTY LINE AS SHOWN. THE SEWER SERVICE WILL ENTER AT THE CENTER OF THE LOT; A MINIMUM WATER SERVICE TO SANITARY SEWER SERVICE SEPARATION OF 5' SHALL BE MAINTAINED.
2. FOR CORNER LOTS UTILITY STANDARD LOCATIONS AS SHOWN.
3. UTILITY EASEMENTS WILL BE AT THE DISCRETION OF THE CITY OF ALAMOGORDO.
4. STAMPED/INSCRIBED SERVICE LINE MARKS AT TOP OF CURB SHALL BE PLACED ON PROPOSED OR EXISTING CURB & GUTTER AT THE TIME OF SERVICE LINE INSTALLATION.

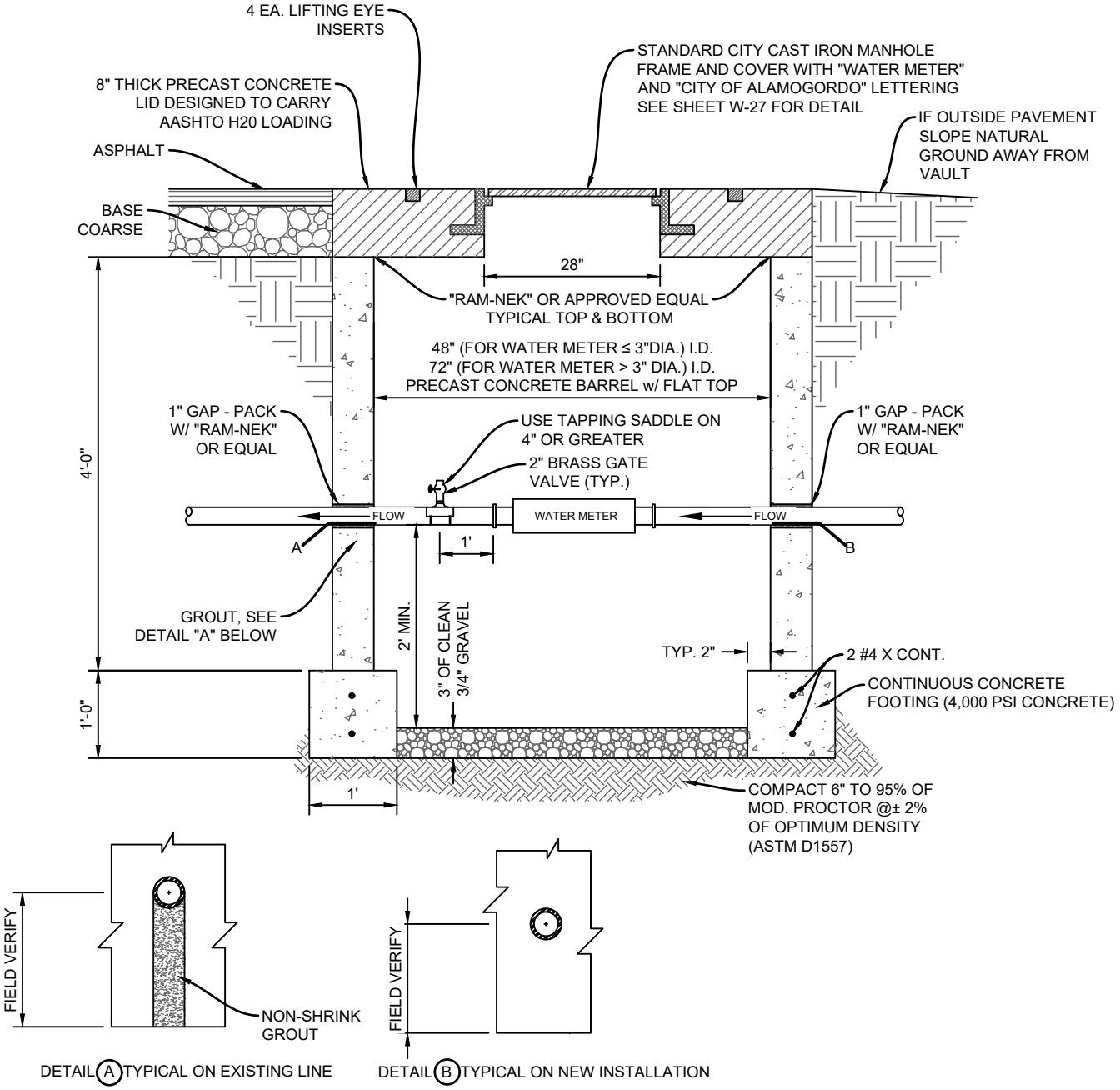
SCALE: NOT TO SCALE

ALAMOGORDO NEW MEXICO	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	TYPICAL LOT UTILITY LOCATIONS	REVISION DATE: ---- SHEET NO: W-23

TYPICAL MINIMUM HORIZONTAL UTILITY SEPARATION						
	GAS MAIN	GAS SERVICE	SEWER MAIN	SEWER SERVICE	WATER MAIN	WATER SERVICE
GAS MAIN	5 FEET	5 FEET	10 FEET	5 FEET	10 FEET	5 FEET
GAS SERVICE	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET
SEWER MAIN	10 FEET	5 FEET	10 FEET	5 FEET	10 FEET	5 FEET
SEWER SERVICE	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET
WATER MAIN	10 FEET	5 FEET	10 FEET	5 FEET	5 FEET	5 FEET
WATER SERVICE	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET	5 FEET
STORM SEWER	10 FEET	5 FEET	10 FEET	5 FEET	5 FEET	5 FEET
WIRE UTILITY	5 FEET	5FEET	5 FEET	5 FEET	5 FEET	5 FEET
MANHOLE	10 FEET	5 FEET	N/A	N/A	10 FEET	5 FEET
SEPARATION TYPICALLY MEASURED FROM CENTER OF UTILITY						
10 FOOT SEPARATION BETWEEN WATER AND SEWER MAINS SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE						
SEPARATION MAY VARY WITH FIELD CONDITIONS AND WITH SUBSEQUENT CITY APPROVAL						

TYPICAL MINIMUM VERTICAL UTILITY SEPARATION						
	GAS MAIN	GAS SERVICE	SEWER MAIN	SEWER SERVICE	WATER MAIN	WATER SERVICE
GAS MAIN	NMGCO	NMGCO	NMGCO	NMGCO	NMGCO	NMGCO
GAS SERVICE	NMGCO	NMGCO	NMGCO	NMGCO	NMGCO	NMGCO
SEWER MAIN	12 INCHES	6 INCHES	12 INCHES	6 INCHES	24 INCHES	6 INCHES
SEWER SERVICE	6 INCHES	6 INCHES	6 INCHES	6 INCHES	6 INCHES	6 INCHES
WATER MAIN	12 INCHES	12 INCHES	24 INCHES	6 INCHES	12 INCHES	6 INCHES
WATER SERVICE	12 INCHES	12 INCHES	6 INCHES	6 INCHES	6 INCHES	6 INCHES
STORM SEWER	12 INCHES	6 INCHES	12 INCHES	6 INCHES	12 INCHES	6 INCHES
WIRE UTILITY	PNM/CITY	PNM/CITY	PNM/CITY	PNM/CITY	PNM/CITY	PNM/CITY
NMGCO - VERTICAL SEPARATION OF GAS MAINS AND GAS SERVICES SHALL BE PER REQUIREMENTS OF NEW MEXICO GAS COMPANY.						
PNM/CITY - VERTICAL SEPARATION OF WIRE UTILITIES SHALL BE DISCUSSED AND APPROVED WITH THE WIRE UTILITY PROVIDER.						
VERTICAL SEPARATION FROM GAS MAINS MAY VARY DEPENDING ON OPERATIONAL PRESSURES AND MAIN LINE MATERIAL (STEEL OR POLY); REQUIRED SEPARATION SHALL BE DISCUSSED WITH GAS PROVIDER.						
SEPARATION MAY VARY WITH FIELD CONDITIONS AND WITH SUBSEQUENT CITY APPROVAL						
WHEN REQUIRED VERTICAL SEPARATION OF SEWER MAINS AND WATER/REUSE MAINS CANNOT BE OBTAINED REFER TO DETAIL W-11 FOR ADDITIONAL GUIDANCE.						
WHEN WATER MAINS CROSS SEWER MAINS THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.						

SCALE: NOT TO SCALE



GENERAL NOTES:

1. BYPASS IS REQUIRED ON ALL METERS LARGER THAN 2" (SEE W-26) FOR NON TRAFFIC BEARING APPLICATIONS, MANHOLE FRAME & COVER EAST JORDAN.

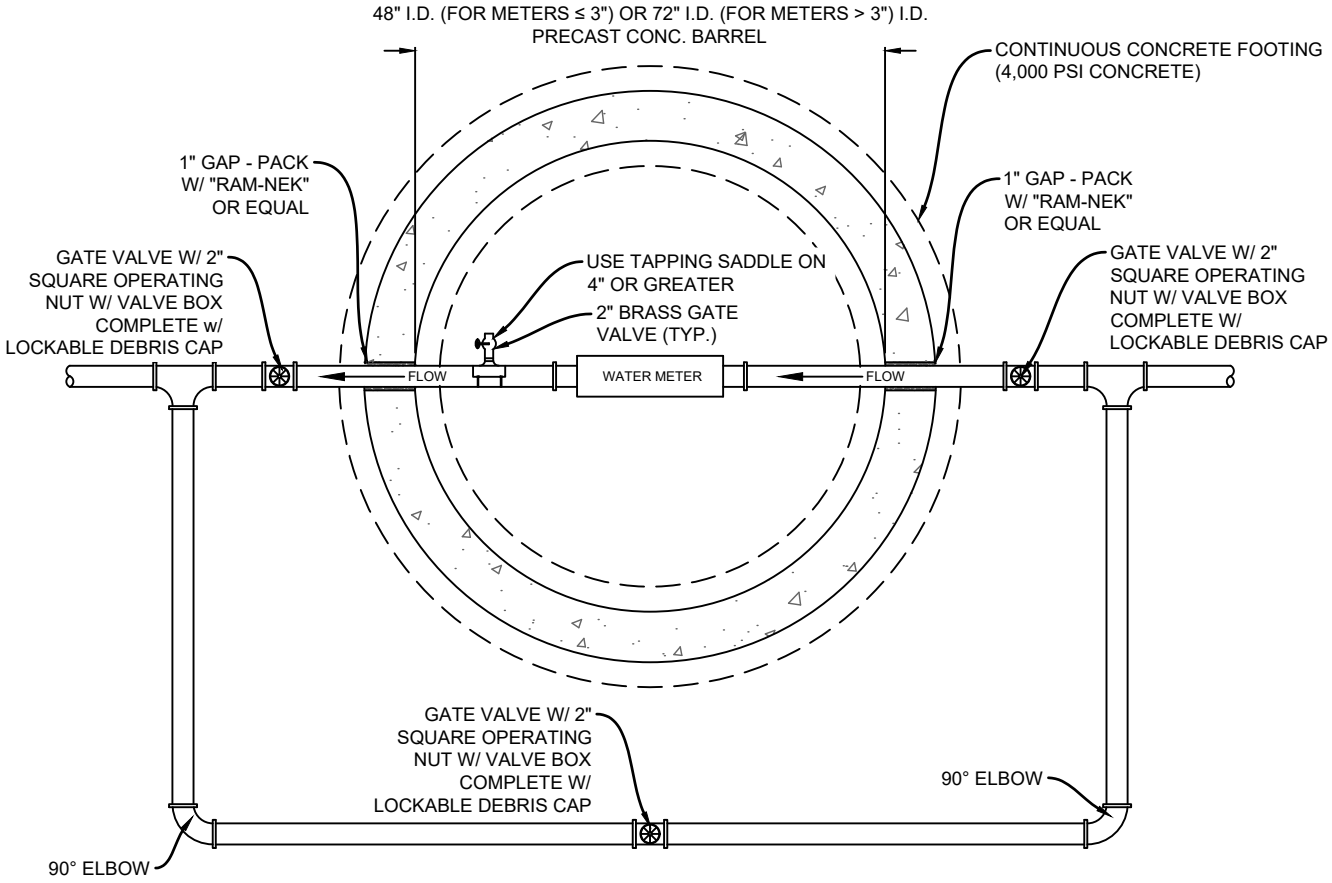
2. PRECAST PORTIONS OF MANHOLE, EXCLUDING CAST IN PLACE FOOTING, SHALL CONFORM TO ASTM C478, LATEST REVISION.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

2-INCH & LARGER TRAFFIC RATED WATER METER

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-25



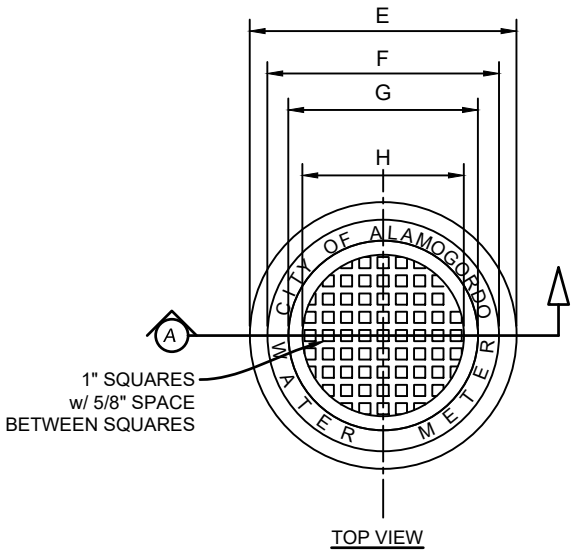
CONTRACTOR NOTES:

1. C-900 PVC PIPE OR DUCTILE IRON PIPE ON 3" OR GREATER.
2. MAINTENANCE BY CITY OF ALAMOGORDO UP TO AND INCLUDING THE METER, BYPASS PIPING, AND THE BYPASS VALVES.
3. ALL CITY OF ALAMOGORDO MAINTAINED WATER PIPING SHALL BE EVEN PIPE SIZES WITH MINIMUM DIAMETER OF 4-INCHES.
4. DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, LLC OR CITY APPROVED EQUAL. LOCKS SHALL BE SUPPLIED BY THE CITY.

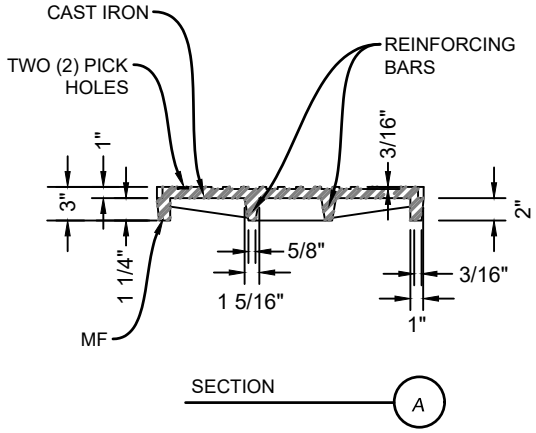
SCALE: NOT TO SCALE

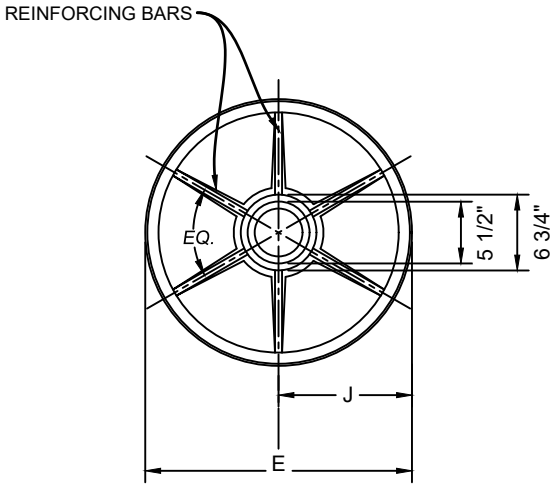
	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	TYPICAL TRAFFIC WATER METER VAULT & BYPASS LINE	REVISION DATE: ----
		SHEET NO: W-26

MANHOLE RING	48" MANHOLE	72" MANHOLE
WEIGHT	175 LBS.	310 LBS.
E	23 3/4"	31 1/4"
F	20 5/8"	28 1/8"
G	16 7/8"	24 3/8"
H	14 3/8"	21 7/8"
J	11 7/8"	15 5/8"



TOP VIEW





BOTTOM VIEW

TYPICAL LID DETAIL

GENERAL NOTES:

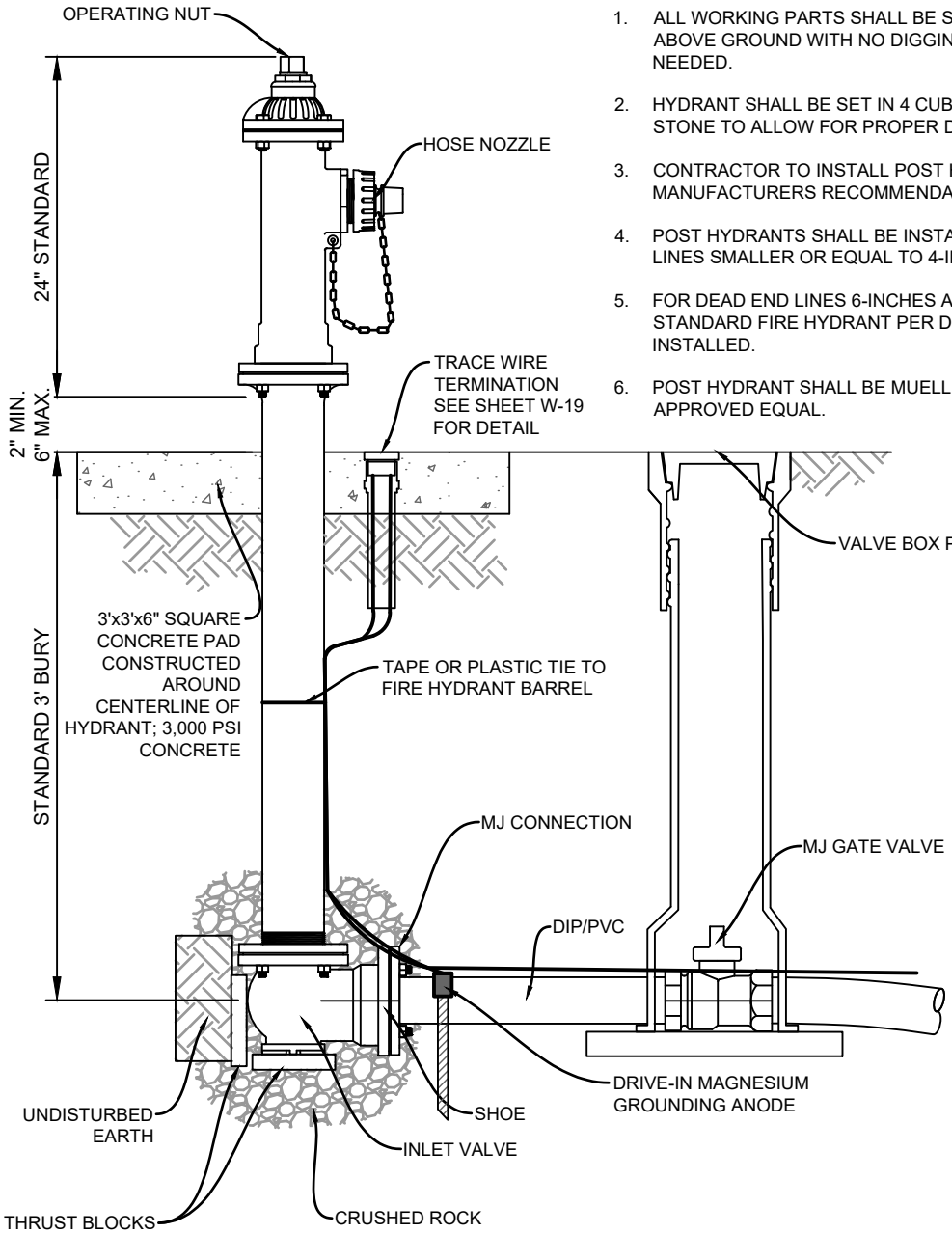
1. MATCHING SURFACES MARKED "MF" TO BE MACHINE FINISHED AND BE FREE OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND FREE OF AIR VOIDS.
3. MANHOLE RING AND LID SHALL BE DESIGNED FOR H-20 WHEEL LOADING.
4. MINIMUM TOTAL WEIGHT (RING AND LID) SHALL BE 300 LBS.
5. TOP OF LID MAY VARY FROM DETAIL SHOWN. LID SHALL BE MARKED FOR APPROPRIATE UTILITY.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

WATER METER LID DETAIL

ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-27



NOTES:

1. ALL WORKING PARTS SHALL BE SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.
2. HYDRANT SHALL BE SET IN 4 CUBIC FEET OF CRUSHED STONE TO ALLOW FOR PROPER DRAINAGE.
3. CONTRACTOR TO INSTALL POST HYDRANT PER MANUFACTURERS RECOMMENDATIONS.
4. POST HYDRANTS SHALL BE INSTALLED ON DEAD END LINES SMALLER OR EQUAL TO 4-INCHES.
5. FOR DEAD END LINES 6-INCHES AND LARGER STANDARD FIRE HYDRANT PER DETAIL W-9 SHALL BE INSTALLED.
6. POST HYDRANT SHALL BE MUELLER MODEL A-411 OR APPROVED EQUAL.

SCALE: NOT TO SCALE

CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

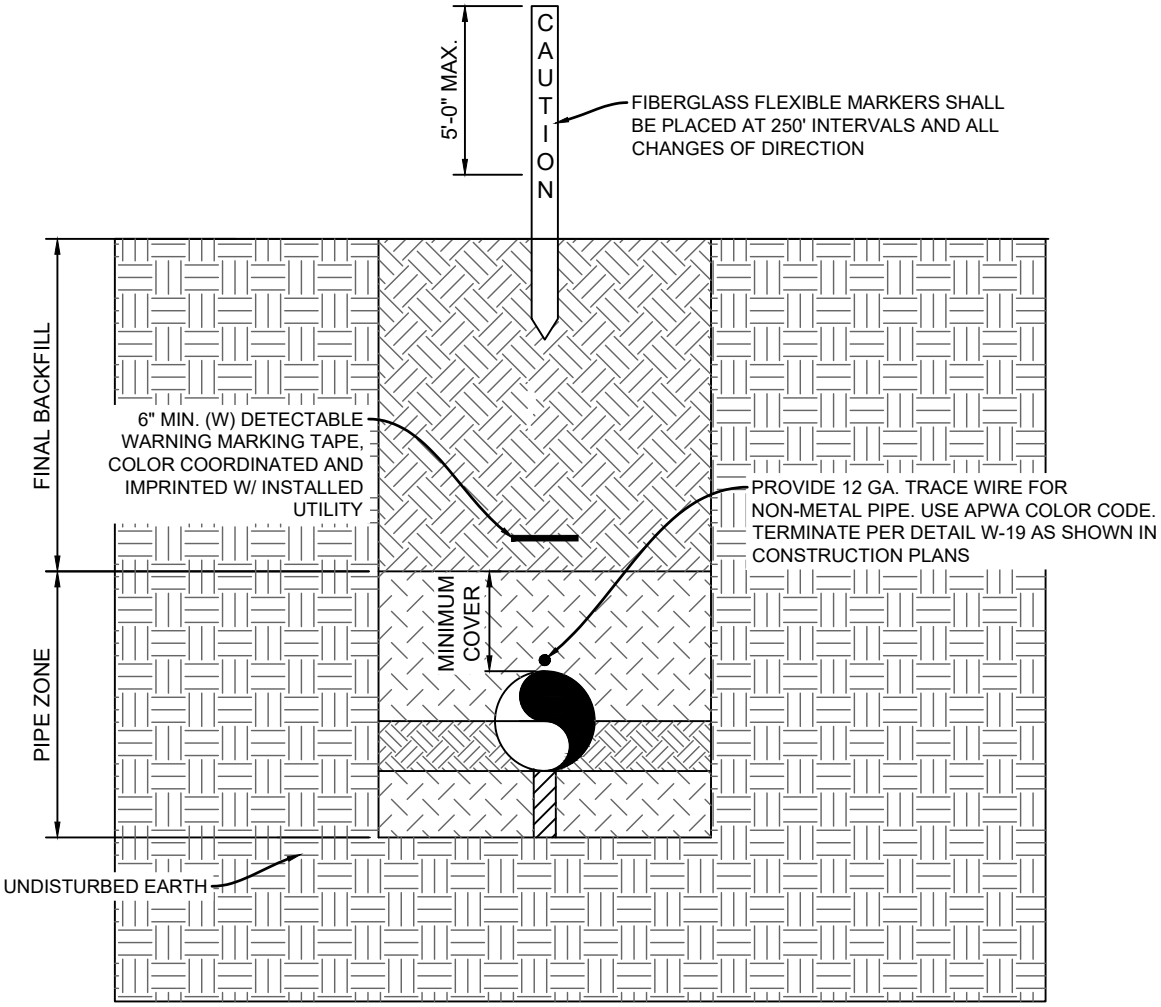
POST TYPE FLUSH HYDRANT DETAIL

ISSUE DATE: JUNE 14, 2022

RESOLUTION NO: 2022-28

REVISION DATE: ----

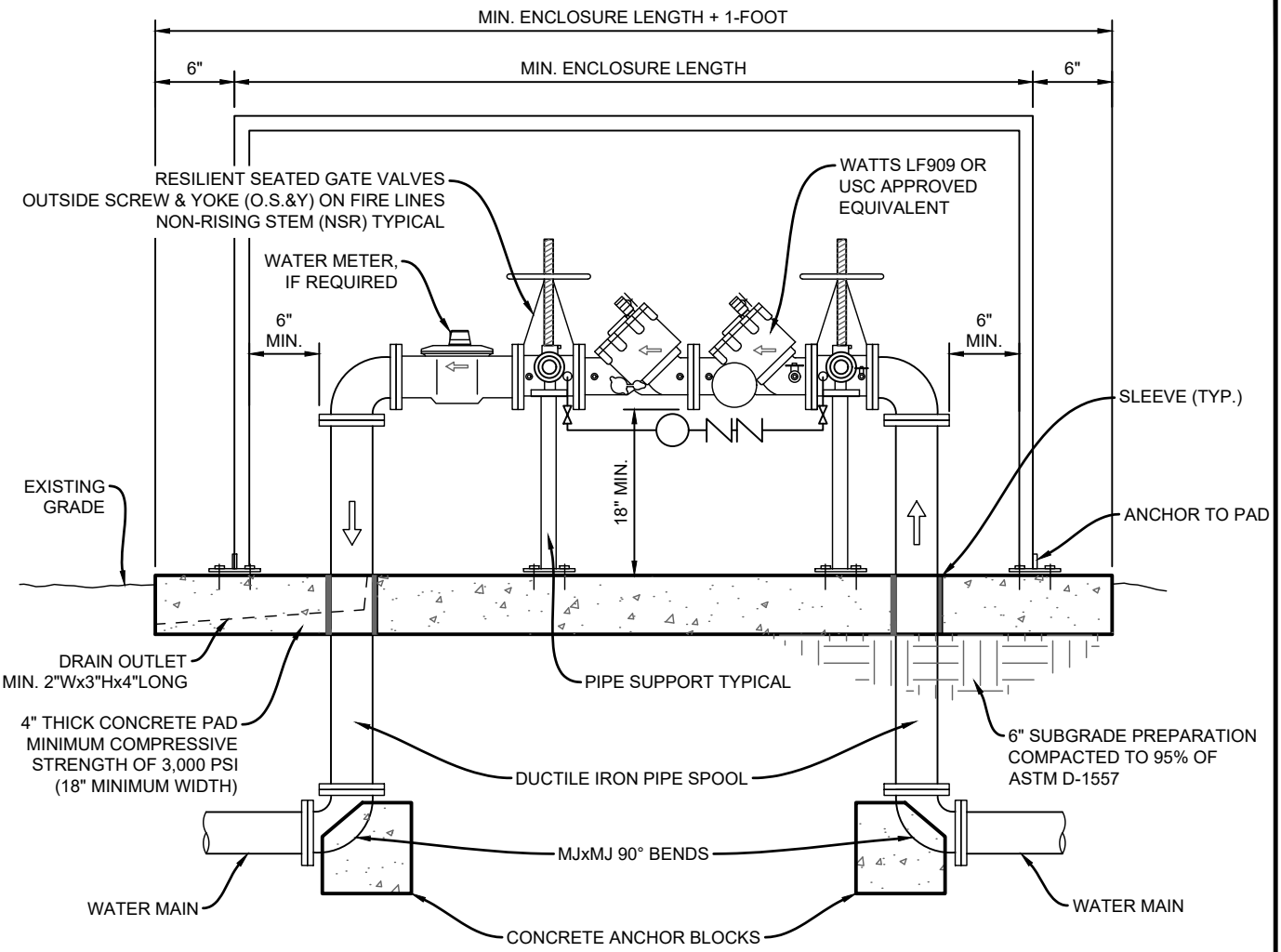
SHEET NO: W-28



UNPAVED AREAS

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	WATER LINE FLEXIBLE MARKER DETAIL	REVISION DATE: ---- SHEET NO: W-29

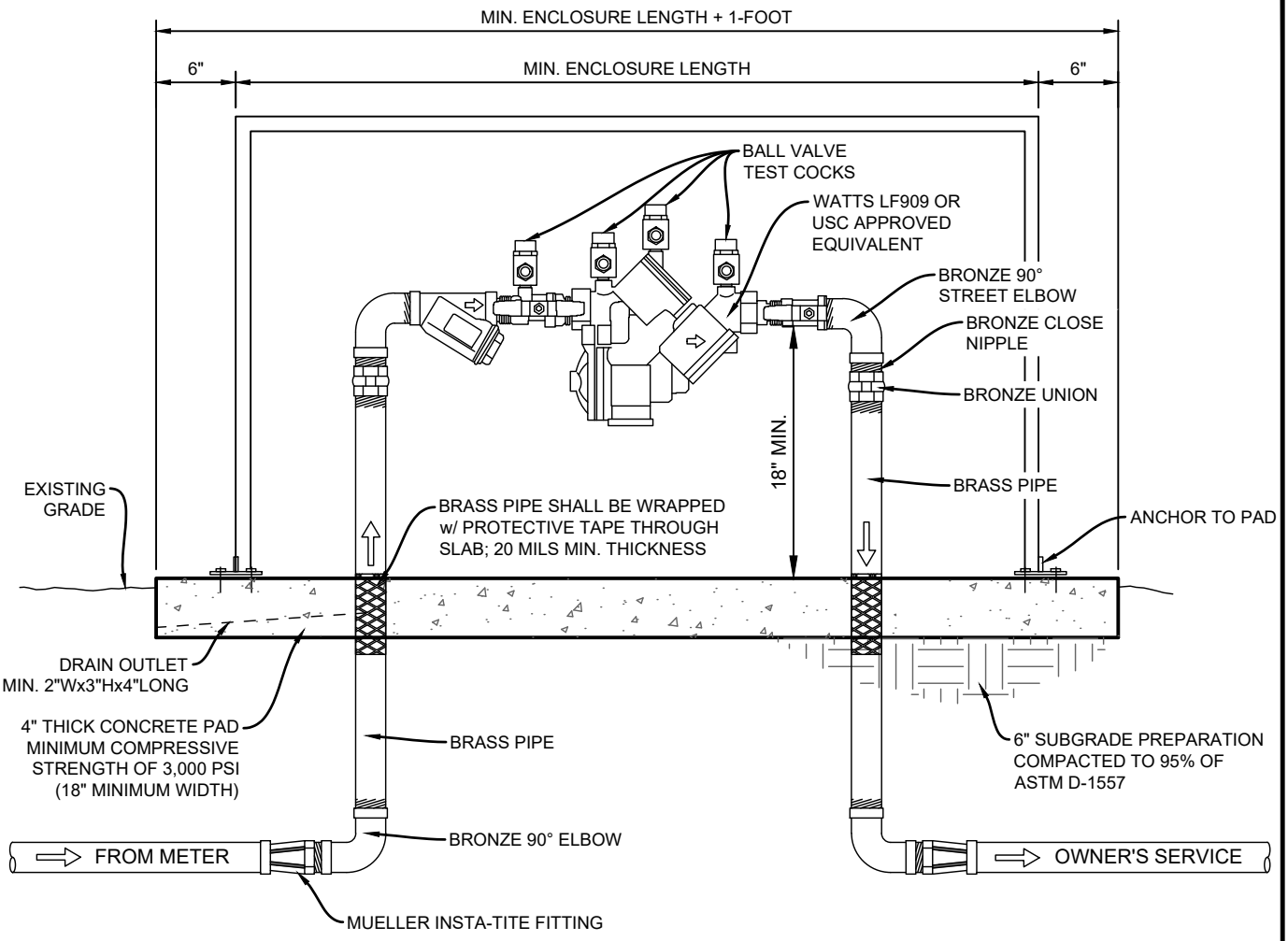


NOTES:

1. ALL ABOVE GROUND FITTINGS, VALVES, WATER METERS, BACKFLOW ASSEMBLY SHALL BE FLANGE-BY-FLANGE (FLxFL) CONSTRUCTION.
2. BOLLARDS MAY BE REQUIRED BY THE CITY FOR ADDITIONAL PROTECTION.
3. THE BACKFLOW PREVENTION DEVICE SHALL BE LOCATED ON PRIVATE PROPERTY AND A MAXIMUM OF FIVE-FEET (5') FROM THE METER VAULT OR AS DIRECTED BY THE UTILITY AND/OR ENGINEERING DEPARTMENT.
4. BACKFLOW ASSEMBLIES INSTALLED ON POTABLE WATER SERVICES SHALL BE LEAD FREE.
5. BACKFLOW ASSEMBLIES SHALL BE THE SAME SIZE AS THE WATER METER.
6. BACKFLOW ASSEMBLIES SHALL BE EQUIPPED WITH FOUR (4) TEST COCKS.
7. BACKFLOW ASSEMBLIES MUST BE TESTED ANNUALLY PER CITY OF ALAMOGORDO ORDINANCE NO. 1604.
8. ENCLOSURES OR SCREENING MEASURES FOR BACKFLOW ASSEMBLIES SHALL BE PRE-APPROVED BY THE UTILITY AND/OR ENGINEERING DEPARTMENT.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	REDUCED PRESSURE BACKFLOW PREVENTION - 3IN AND OVER DETAIL	REVISION DATE: ---- SHEET NO: W-30

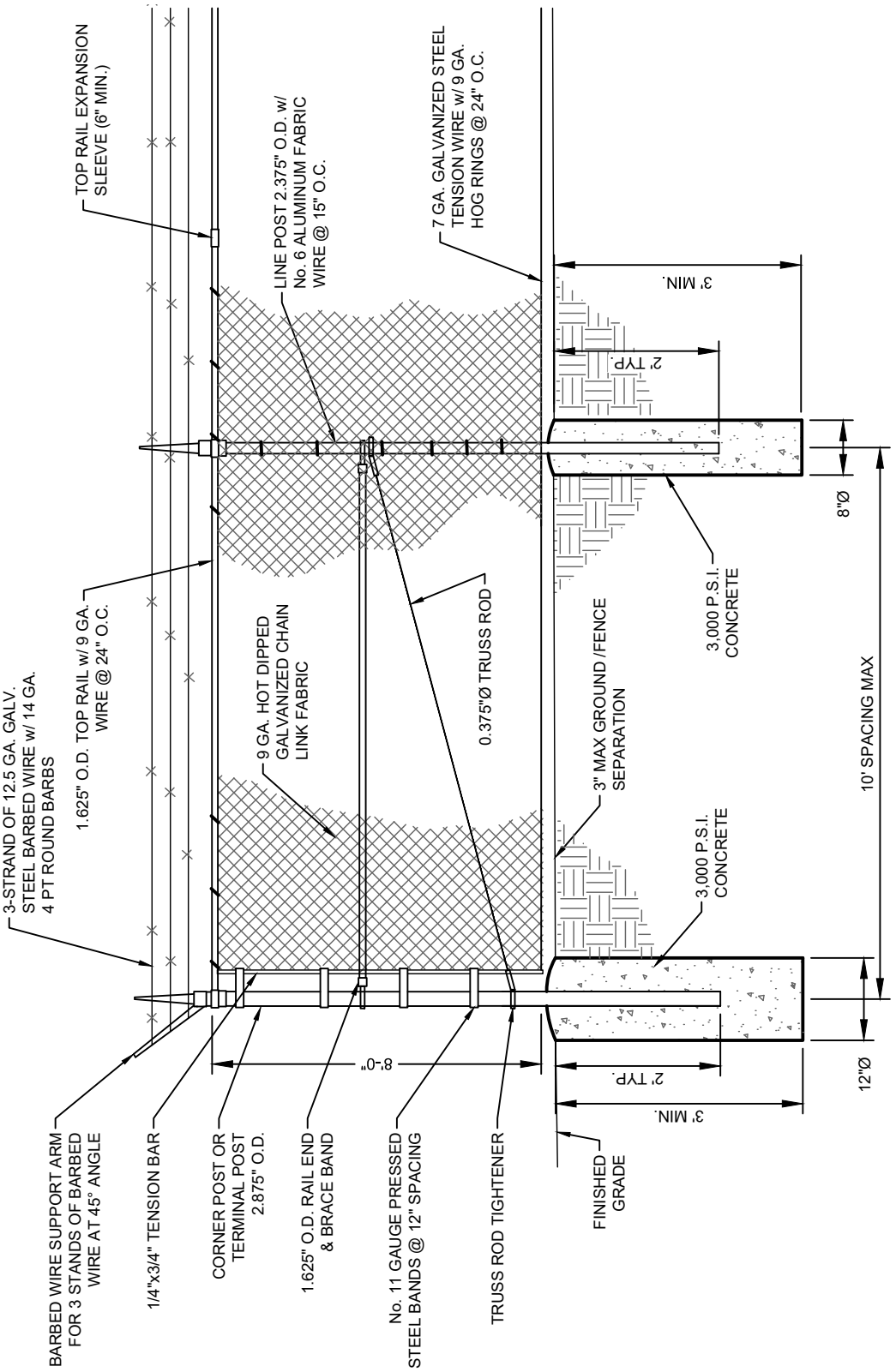


NOTES:

1. BOLLARDS MAY BE REQUIRED BY THE CITY FOR ADDITIONAL PROTECTION.
2. THE BACKFLOW PREVENTION DEVICE SHALL BE LOCATED ON PRIVATE PROPERTY AND A MAXIMUM OF FIVE-FEET (5') FROM THE WATER METER OR AS DIRECTED BY THE UTILITY AND/OR ENGINEERING DEPARTMENT.
3. BACKFLOW ASSEMBLIES INSTALLED ON POTABLE WATER SERVICES SHALL BE LEAD FREE.
4. BACKFLOW ASSEMBLIES SHALL BE THE SAME SIZE AS THE WATER METER.
5. BACKFLOW ASSEMBLIES SHALL BE EQUIPPED WITH FOUR (4) TEST COCKS.
6. BACKFLOW ASSEMBLIES MUST BE TESTED ANNUALLY PER CITY OF ALAMOGORDO ORDINANCE NO. 1604.
7. ENCLOSURES OR SCREENING MEASURES FOR BACKFLOW ASSEMBLIES SHALL BE PRE-APPROVED BY THE UTILITY AND/OR ENGINEERING DEPARTMENT.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022 RESOLUTION NO: 2022-28
	REDUCED PRESSURE BACKFLOW PREVENTION - 2IN AND UNDER DETAIL	REVISION DATE: ---- SHEET NO: W-31



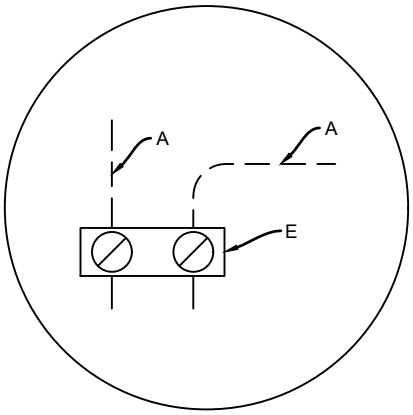
CHAIN LINK FENCE DETAIL

SCALE: NOT TO SCALE

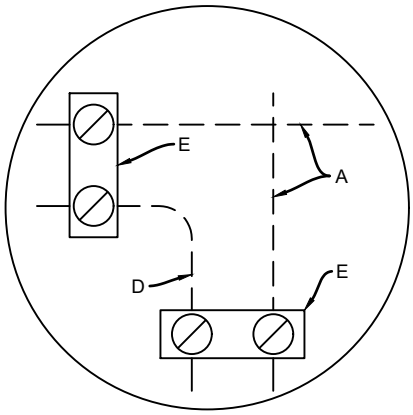
CITY OF ALAMOGORDO
TECHNICAL STANDARD DRAWINGS

FACILITY SECURITY CHAIN LINK FENCE DETAIL

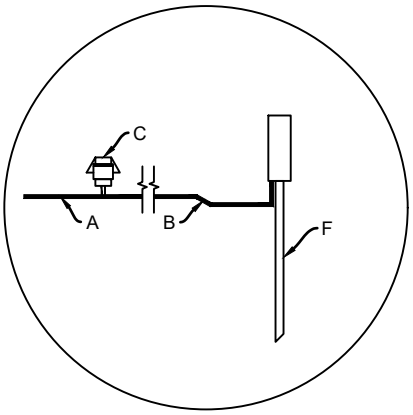
ISSUE DATE: JUNE 14, 2022
RESOLUTION NO: 2022-28
REVISION DATE: ----
SHEET NO: W-32



Tee Connection Detail



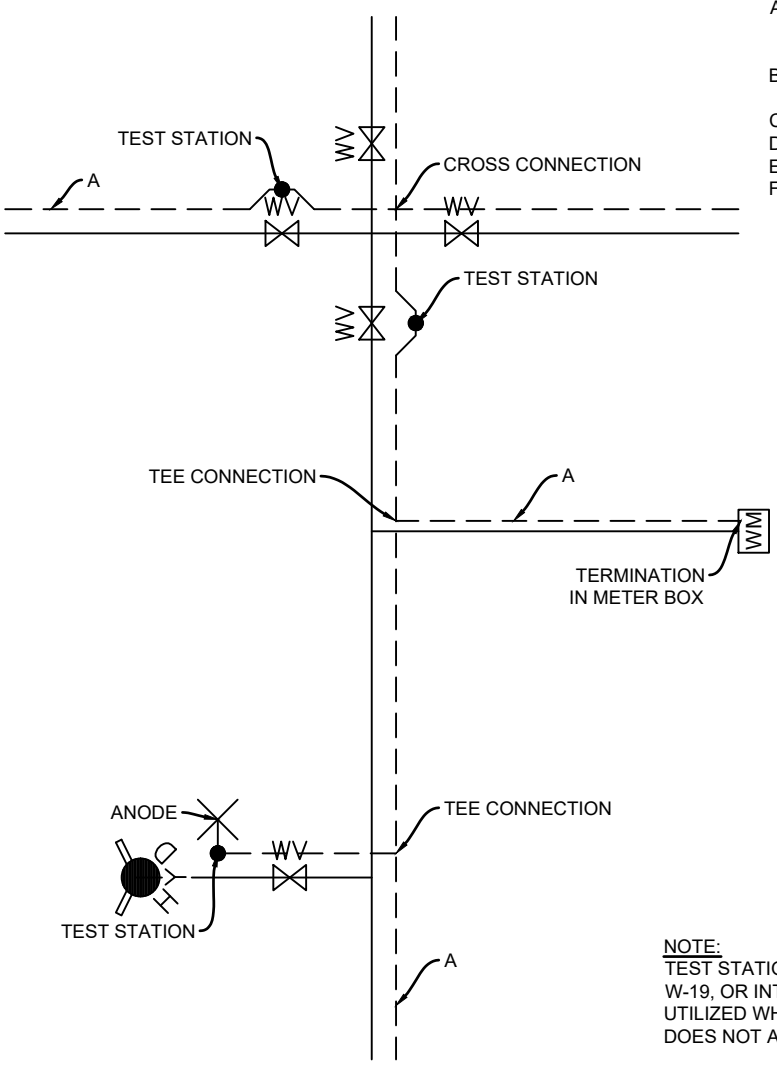
Cross Connection Detail



Anode Detail

CONSTRUCTION NOTES:

A. TRACE WIRE #12 AWG COPPER CLAD STEEL, TAPED TO TOP OF PIPE; HDPE INSULATION APWA COLOR CODED FOR RESPECTIVE UTILITY
B. TRACE WIRE #12 AWG COPPER CLAD STEEL - RED FACTORY CONNECTED TO GROUND ANODE
C. SPLICE CONNECTION
D. TRACE WIRE JUMPER
E. LOCKING WATERPROOF CONNECTOR
F. DRIVE-IN MAGNESIUM GROUNDING ANODE AT ALL TERMINATION/DEAD ENDS (INCLUDING EDGE OF RIGHT-OF-WAY AND CONNECTION POINTS/TERMINAL ENDS OF REHABBED SECTIONS). CONNECT TO MAIN LINE TRACE WIRE USING SPLICE CONNECTIONS



NOTE:
TEST STATIONS OUTSIDE THE ROADWAY SECTION, DETAIL W-19, OR INTEGRAL WITH VALVE BOX COLLAR SHALL ONLY BE UTILIZED WHERE FIRE HYDRANT SPACING w/ TEST STATION DOES NOT ALLOW FOR CONTINUITY OF TRACE WIRE.

SCALE: NOT TO SCALE

	CITY OF ALAMOGORDO TECHNICAL STANDARD DRAWINGS	ISSUE DATE: JUNE 14, 2022
		RESOLUTION NO: 2022-28
	WATERLINE OR RECLAIMED WATER TRACE WIRE DETAILS	REVISION DATE: ----
		SHEET NO: W-33

CITY OF ALAMOGORDO
UTILITIES DEPARTMENT

SEWER TAP INSPECTION FORM

Inspector Name: _____ Date: _____

Date of Notification: _____ Date Tap was Performed: _____

Applicant / Owner: _____

Address / Parcel ID #: _____

Tap Information

Is location consistent with initial site visit? ☐Yes ☐No

Depth to connection invert: Method of connection: ☐Wye ☐Tee ☐Saddle ☐Manhole

Diameter of Sewer Main being tapped: ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other

Material of Sewer Main being tapped:

Tap Type	Tap Size
☐Commercial	☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Residential	☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Other	Other:

Material of Sewer Service Line:

Sewer Service installed per current standard? ☐Yes ☐No

Is bedding material acceptable? ☐Yes ☐No GIS Data Collected? ☐Yes ☐No

☐FSE? Grease Pumping Schedule Established? ☐Yes ☐No ☐N/A

Sketch of Tap / Notes

Contractor Signature: _____ Date _____

Inspector Signature: _____ Date: _____

CITY OF ALAMOGORDO
UTILITIES DEPARTMENT

MANHOLE VACUUM TEST DATA FORM

Inspector Name: ______________________ Date: __________

Contractor: ______________________ Test # __________

Project Location: ______________________

Sewer Test Information

Manhole Number	Manufacturer	Diameter (inch)	Height (inch)	Specified Test Time (min:sec)	Test Time Data Pressure Drop = 10 inHg to 9 inHg		Pass or Fail	Test	Re-Test
					(Min)	(Sec)			
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
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							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐
							☐Pass ☐Fail	☐	☐

If a Manhole Vacuum Test Fails, the Following Items Shall be Completed:

Identify manholes(s) that failed:

Description of corrective action taken:

Contractor Signature: ______________________ Date __________

Inspector Signature: ______________________ Date: __________

Reference Table

Minimum Test Times for Various Manhole Diameters 30-120 in, [750 – 3000 mm] in Seconds																	
Diameter, in. [mm]																	
Depth ft	30	33	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
[m]	[750]	[825]	[900]	[1050]	[1200]	[1350]	[1500]	[1650]	[1800]	[1950]	[2100]	[2250]	[2400]	[2550]	[2700]	[2850]	[3000]
<4 [1.2]	6	7	7	9	10	12	13	15	16	18	19	21	23	24	25	27	29
6 [1.8]	9	10	11	13	15	18	20	22	25	26	29	31	34	36	38	41	43
8 [2.4]	11	12	14	17	20	23	26	29	33	35	38	41	45	48	51	54	57
10 [3.0]	14	15	18	21	25	29	33	36	41	44	48	52	56	60	63	67	71
12 [3.7]	17	18	21	25	30	35	39	43	49	53	57	62	67	71	76	81	85
14 [14.3]	20	21	25	30	35	41	46	51	57	62	67	72	78	83	89	94	100
16 [4.9]	22	24	29	34	40	46	52	58	67	70	76	83	89	95	101	108	114
18 [5.5]	25	27	32	38	45	52	59	65	73	79	86	93	100	107	114	121	128
20 [6.1]	28	30	35	42	50	53	65	72	81	88	95	103	111	119	126	135	142
22 [6.7]	31	33	39	46	55	64	72	79	89	97	105	114	122	131	139	148	156
24 [7.3]	33	36	42	51	59	64	78	87	97	106	114	124	133	143	152	161	170
26 [7.9]	36	39	46	55	64	75	85	94	105	114	124	134	144	155	164	175	185
28 [8.5]	39	42	49	59	69	81	91	101	113	123	133	145	155	167	177	188	199
30 [9.1]	42	45	53	63	74	87	98	108	121	132	143	155	166	178	189	202	213

CITY OF ALAMOGORDO
UTILITIES DEPARTMENT

SEWER LINE AIR TEST DATA FORM

Inspector Name: _____ Date: _____

Specified Maximum Pressure Drop: _____ Test # _____

Contractor: _____

Project Location: _____

Sewer Test Information

Diameter of Sewer Main being tested: ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other

Material of Sewer Main being tested:

Pipe Under Test				Specification Time	Field Test Operations Data			
Upstream MH STA	Downstream MH STA	Diameter D (in.)	Length L (ft.)	Refer To Minimum Time Reference Sheet	Start Time Pressure (psig)	Stop Test Pressure (psig)	Elapsed Time (min:sec)	Pass or Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail
								☐Pass ☐Fail

If a Section Fails, the Following Items Shall be Completed:

Identify section(s) that failed:

Leak located? ☐Yes ☐No For test results after repair refer to test #

Method used to locate leak:

Description of leakage found:

Description of corrective action taken:

Contractor Signature: _____ Date _____

Inspector Signature: _____ Date: _____

Reference Tables

Minimum Specified Time for a 0.5 PSIG Pressure Drop for Size and Length of Pipe Indicated for Q = 0.0015

Pipe Diameter (in.)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (hr:min:sec)								
				100	150	200	250	300	350	400	450	500
				ft	ft	ft	ft	ft	ft	ft	ft	ft
4	1:53	597	0.190 L	0:01:53	0:01:53	0:01:53	0:01:53	0:01:53	0:01:53	0:01:53	0:01:53	0:01:53
6	2:50	398	0.427 L	0:02:50	0:02:50	0:02:50	0:02:50	0:02:50	0:02:50	0:02:51	0:03:12	0:03:34
8	3:47	298	0.760 L	0:03:47	0:03:47	0:03:47	0:03:47	0:03:48	0:04:26	0:05:04	0:05:42	0:06:20
10	4:43	239	1.187 L	0:04:43	0:04:43	0:04:43	0:04:57	0:05:56	0:06:56	0:07:55	0:08:54	0:09:54
12	5:40	199	1.709 L	0:05:40	0:05:40	0:05:42	0:07:07	0:08:33	0:09:58	0:11:24	0:12:49	0:14:15
15	7:05	159	2.671 L	0:07:05	0:07:05	0:08:54	0:11:08	0:13:21	0:15:35	0:17:48	0:20:02	0:22:16
18	8:30	133	3.846 L	0:08:30	0:09:37	0:12:49	0:16:02	0:19:14	0:22:26	0:25:39	0:28:51	0:32:03
21	9:55	114	5.235 L	0:09:55	0:13:05	0:17:27	0:21:49	0:26:11	0:30:32	0:34:54	0:39:16	0:43:38
24	11:20	99	6.837 L	0:11:24	0:17:06	0:22:48	0:28:30	0:34:11	0:39:53	0:45:35	0:51:17	0:56:59
27	12:45	88	8.653 L	0:14:25	0:21:38	0:28:51	0:36:04	0:43:16	0:50:29	0:57:42	1:04:55	1:12:07
30	14:10	80	10.683 L	0:17:48	0:26:43	0:35:37	0:44:31	0:53:25	1:02:20	1:11:14	1:20:08	1:29:02

Minimum Specified Time for a 1.0 PSIG Pressure Drop for Size and Length of Pipe Indicated for Q = 0.0015

Pipe Diameter (in.)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (hr:min:sec)								
				100	150	200	250	300	350	400	450	500
				ft	ft	ft	ft	ft	ft	ft	ft	ft
4	3:46	597	0.380 L	0:03:47	0:03:47	0:03:47	0:03:47	0:03:47	0:03:47	0:03:47	0:03:47	0:03:47
6	5:40	398	0.854 L	0:05:40	0:05:40	0:05:40	0:05:40	0:05:40	0:05:40	0:05:42	0:06:25	0:07:07
8	7:34	298	1.520 L	0:07:33	0:07:33	0:07:33	0:07:33	0:07:36	0:08:52	0:10:08	0:11:24	0:12:40
10	9:26	239	2.374 L	0:09:27	0:09:27	0:09:27	0:09:54	0:11:52	0:13:51	0:15:50	0:17:48	0:19:47
12	11:20	199	3.418 L	0:11:20	0:11:20	0:11:24	0:14:15	0:17:06	0:19:57	0:22:48	0:25:39	0:28:30
15	14:10	159	5.342 L	0:14:10	0:14:10	0:17:48	0:22:16	0:26:43	0:31:10	0:35:37	0:40:04	0:44:31
18	17:00	133	7.692 L	0:17:00	0:19:14	0:25:39	0:32:03	0:38:28	0:44:52	0:51:17	0:57:42	1:04:06
21	19:50	114	10.470 L	0:19:50	0:26:11	0:34:54	0:43:38	0:52:21	1:01:05	1:09:48	1:18:32	1:27:15
24	22:40	99	13.674 L	0:22:48	0:34:11	0:45:35	0:56:59	1:08:23	1:19:47	1:31:10	1:42:34	1:53:58
27	25:30	88	17.306 L	0:28:51	0:43:16	0:57:42	1:12:07	1:26:33	1:40:58	1:55:24	2:09:49	2:24:14
30	28:20	80	21.366 L	0:35:37	0:53:25	1:11:14	1:29:02	1:46:51	2:04:39	2:22:28	2:40:16	2:58:04

Note: If there has been no leakage (zero psig drop) after one hour of testing, the test section shall be accepted and the test complete.

CITY OF ALAMOGORDO
UTILITIES DEPARTMENT

WATER TAP INSPECTION FORM

Inspector Name: _____ Date: _____

Date of Notification: _____ Date Tap was Performed: _____

Applicant / Owner: _____

Address / Parcel ID #: _____

Tap Information

Is location consistent with initial site visit? ☐Yes ☐No

Tap Type: ☐Utility Extension ☐General Service

Diameter of Water Main being tapped: ☐2" ☐3" ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other

Material of Water Main being tapped:

Tap Type	Tap Size
☐Fire Hydrant ☐Fire Line	☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Irrigation	☐¾" ☐1" ☐2" ☐3" ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Commercial	☐¾" ☐1" ☐2" ☐3" ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Residential	☐¾" ☐1" ☐2" ☐3" ☐4" ☐6" ☐8" ☐10" ☐12" ☐Other
☐Other	Other:

Material of Service Line or New Water Main:

Water Service Installed per Current Standard? ☐Yes ☐No ☐N/A

Is bedding material acceptable? ☐Yes ☐No GIS Data Collected? ☐Yes ☐No

Water Meter Serial Number: Water Meter Model:

☐FSE? Cross-Connection Hazard(s):

PRV Installed? ☐Yes ☐No ☐N/A Double Check Valve Installed? ☐Yes ☐No ☐N/A

Sketch of Tap / Notes

Contractor Signature: _____ Date: _____

Inspector Signature: _____ Date: _____

CITY OF ALAMOGORDO
UTILITIES DEPARTMENT

HYDROSTATIC TEST REPORT FORM

Inspector Name: _____ Date: _____

Specified Maximum Pressure Drop: _____ Test # _____

Contractor: _____

Location of Test: _____

Pressure Test Information

Test shall be of at least 2-hour duration. Test pressure shall not vary by more than ± 5 psi for the duration of the test.

Start Time:	Initial Pressure (PSI):
End Time:	Final Pressure (PSI):

☐Pass ☐Fail

Leakage Test Information

Allowable Leakage in Gallons per Hour =	(DI Pipe) $L_{ALL} = \frac{SD\sqrt{P}}{133{,}200}$ (PVC Pipe) $L_{ALL} = \frac{ND\sqrt{P}}{7{,}400}$
S = Length of Pipe Tested =	ft
N = Number of Joints in Length =	number
D = Pipe Diameter =	Inches
P = Average Test Pressure =	psi
Allowable Leakage * 2 Hours =	Gallons
Water Added to Maintain 150 PSI ± 5 PSI for Two Hours =	Gallons

*** If actual amount of water added is LESS THAN total leakage allowed, test PASSED.

*** If actual amount of water added is GREATER THAN total leakage allowed, test FAILED.

☐Pass ☐Fail

Comments

Contractor Signature: _____ Date _____

Inspector Signature: _____ Date: _____

Reference Tables

Allowable Leakage (GPH) Per1,000 Feet of Ductile Iron (DI) Pipeline									
Average Test Pressure	6	8	10	12	14	16	18	24	30
PSI	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
350	0.84	1.12	1.40	1.69	1.97	2.25	2.53	3.37	4.21
300	0.78	1.04	1.30	1.56	1.82	2.08	2.34	3.12	3.90
275	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.99	3.73
250	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.85	3.56
225	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.70	3.38
200	0.64	0.85	1.06	1.27	1.49	1.70	1.91	2.55	3.19
175	0.60	0.79	0.99	1.19	1.39	1.59	1.79	2.38	2.98
150	0.55	0.74	0.92	1.10	1.29	1.47	1.66	2.21	2.76

Allowable Leakage (GPH) Per 1,000 Feet of Polyvinyl Chloride (PVC) Pipeline									
Average Test Pressure	6	8	10	12	14	16	18	24	30
PSI	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
300	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.81	3.51
275	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.69	3.36
250	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.56	3.21
225	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.43	3.04
200	0.57	0.76	0.96	1.15	1.34	1.53	1.72	2.29	2.87
175	0.54	0.72	0.89	1.07	1.25	1.43	1.61	2.15	2.68