

PROJECT MANUAL

Contract Documents and Specifications

Raton Water Works Hospital Drive Lift Station Project

June 6, 2019

Contracting Agency

Raton Water Works
224 Savage Avenue
Post Office Box 99
Raton, New Mexico 87740

Project Engineer

Engineering Analytics, Inc.
219 S. 2nd Street
Raton, New Mexico 87740
Telephone (575) 445-7192
Facsimile (575) 445-9898

INDEX OF DOCUMENTS

Index of Documents.....	i
Engineer Certification	ii
Notice of Invitation for Bid.....	NIB-1
Instructions to Bidders.....	IB-1
Bid Proposal Form.....	BPF-1
Bid Bond Form	C-435 1
Subcontractors Fair Practices Act Compliance	SUB-1
Campaign Contribution Disclosure Form.....	CCD-1
Resident Veterans Preference Certification	VET-1
Wage Rate Decision	WRD-1
Agreement Between Owner and Contractor for Construction Contract.....	C-520 1
Performance Bond	C-610 1
Payment Bond.....	C-615 1
Standard General Conditions of the Construction Contract.....	C-700 i
Supplementary Conditions	SC-1
Description of Bid Items and Technical Specifications.....	TS-1
Drawing Set.....	Sheet G-1.0

**Raton Water Works
Hospital Drive Lift Station Project
2019**

Engineer of Record: Engineering Analytics, Inc.
Karen Stearns, P.E.
219 S. 2nd Street
Raton, New Mexico 87740
Telephone (575) 445-7192

The drawings, specifications, technical materials and related project documents for the Raton Water Works Hospital Drive Lift Station Project were prepared under the supervision and direction of Ms. Karen Stearns, Registered Professional Engineer in the State of New Mexico whose seal is affixed below.



Karen M Stearns

Karen Stearns
New Mexico P.E. License No. 14085

6.4.19

Date

Approval:

Raton Water Works General Manager

Date

NOTICE OF INVITATION FOR BID
Raton Water Works, Hospital Drive Lift Station

Sealed Bids for the construction of the **Hospital Drive Lift Station** will be received by **Raton Water Works**, at the office of the **General Manager**, until **2:00 PM** local time on **July 8, 2019**, at which time the Bids received will be **publicly** opened and read. The work shall generally consists of **lift station wet well, valve vault, pumps, fittings, valves, instrumentation, force main, gravity main, manholes, control panel, and emergency generator**.

The Issuing Office for the Bidding Documents is: **Dan Campbell, (575) 445-3861, Raton Water Works, 224 Savage Avenue, P.O. Box 99, Raton, NM 87740.**

Bidding Documents may be obtained on the QuestCDN Project Bid Management System, which requires bidders to register at no cost at www.questcdn.com. Registered bidders can download the bid documents for this project (QuestCDN Project No. 6387146) for a nonrefundable fee of \$15. Contact QuestCDN at (952) 233-1632 for any questions concerning their website. The QuestCDN Project Q&A will be the official venue for posting questions and answers. Questions posted to the Engineer after **July 1, 2019** will not be answered.

Project Engineer: **Karen Stearns, P.E.**
Engineering Analytics, Inc.
(575) 445-7192
kstearns@enganalytics.com

A pre-bid conference will be held at **11:00 AM** local time on **June 21, 2019** at **224 Savage Avenue, Raton, NM 87740**. Attendance at the pre-bid conference is highly encouraged but is not mandatory. Bid security shall be furnished in accordance with the Instructions to Bidders. Bidders shall submit proof of qualifications to perform the Work as described in the Instructions to Bidders. Bids will be received for a single prime Contract.

Owner: **Raton Water Works**

By: **Dan Campbell**

Title: **General Manager**

Date: **June 6, 2019**

INSTRUCTIONS TO BIDDERS

1. 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 in those documents.
- 1.2. **Addendum:** 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.
- 1.3. **Alternate Bid:** Amount stated in the Bid as the sum to be added to or deducted 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.
- 1.4. **Base Bid:** Amount stated in the Bid as the sum for which the Bidder offers to perform the Work, excluding Alternate Bids and applicable taxes.
- 1.5. **Bid:** 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.
- 1.6. **Bid Lot:** A major item of Work for which a separate quotation or bid is requested.
- 1.7. **Bidder:** One who submits a Bid directly to the Owner, as distinct from a subcontractor, who submits a bid to a contractor.

- 1.8. **Bidding Documents:** The Bidding Requirements and the Contract Documents, including drawings.
- 1.9. **Bidding Requirements:** Notice of Invitation for Bid, Prebid 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.
- 1.10. **Invitation for Bid (IFB):** All documents, including those attached or incorporated by reference, utilized for soliciting sealed bids (§13-1-64 NMSA 1978).
- 1.11. **Responsible Bidder:** 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 construction described in the Invitation for Bid (§13-1-82 NMSA 1978).
- 1.12. **Responsive Bid:** A bid which conforms in all material respects to the requirements set forth in the Invitation for Bid (§13-1-84 NMSA 1978).
- 1.13. **Successful Bidder:** 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 is signed with the Owner.

2. EXAMINATION OF BIDDING DOCUMENTS AND SITE

- 2.1. Before submitting a Bid, each Bidder must (a) examine the Bidding Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the Work, (c) 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 (d) 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 lands 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 Section 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. BIDDING DOCUMENTS

3.1. COPIES OF BIDDING DOCUMENTS

- 3.1.1. A complete set of electronic Bidding Documents may be obtained from the location identified in the Invitation for

Bid. No deposit is required for obtaining a copy of electronic Bidding Documents.

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

- 3.1.3. The Owner and the 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 Engineer in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by the Engineer as having received the Bidding Documents. Questions received less than five (5) 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 Subcontractors shall promptly notify the Engineer of any ambiguity, inconsistency, or error, which they may discover upon examination of the Bidding Documents or of the site and local conditions.

3.3. SUBSTITUTE MATERIAL AND EQUIPMENT

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 Engineer, application for such acceptance will not be considered by the Engineer until after the "effective date of the Contract". The procedure for submittal of any such application by the Contractor and consideration by the Engineer is set forth in the Contract Documents.

3.4. ADDENDA

- 3.4.1. Addenda will be mailed or delivered to all who are known by the 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. No Addenda will be issued later than three (3) calendar days prior to the date for receipt of Bids, except an Addendum withdrawing the Invitation for Bids, or one which includes postponement of the date for receipt of Bids.
- 3.4.4. Each Bidder shall ascertain, prior to submitting the Bid, that the Bidder has received all Addenda issued, and shall acknowledge their receipt on the Bid Form.

4. 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 Form, 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. Any interlineation, alteration, or erasure must be initialed by the signer of the Bid.
- 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**" unless otherwise specified. Additionally, the Bidder may submit a lump sum or unit price for all lots for which the Bidder has submitted separate quotations.
- 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 or unit 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. 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 acknowledgement 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.

4.2. BID SECURITY

- 4.2.1. Bid security in an amount equal to at least five percent 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). 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 such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- 4.2.2. 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 bonds have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

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

4.3. PREBID CONFERENCE

- 4.3.1. The Notice of Invitation for Bid will include the schedule, if applicable, of a mandatory or non-mandatory Pre Bid Conference. Individual bidders may contact Project Engineer for information regarding the project and to schedule a site visit with the Project Engineer.
- 4.3.2. Prospective Bidders, Subcontractors, and Vendors are encouraged to request clarification of the Bidding Documents. The failure of a Bidder, Subcontractor, or Vendor to request clarification shall be interpreted to mean that the Bidding Documents are clear and acceptable. Such clarity and acceptability shall be presumed with respect to all Bidders.
- 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. [NOT USED]

4.5. SUBCONTRACTORS

- 4.5.1. The bidder shall list the Subcontractors or material suppliers he proposes to use

- for all trades or items on the Subcontractor Listing form. If awarded the contract, the Bidder shall use the firm listed, or himself if "General Contractor" has been listed, unless a request for a change or substitution is approved by the Engineer and the Owner for any reason as outlined herein.
- 4.5.2. The Engineer or the Owner shall consider any request for a change in the listed firms, if the Bidder can furnish evidence of being able to perform the Work in a manner more satisfactory and beneficial to both the Owner and the Bidder by not using the listed firm. Satisfactory reasons for a substitution may include the inability to bond or lack of evidence of being able to furnish acceptable materials on schedule. Also, if the Bidder has made a legitimate error in listing a low Subcontractor, a request for substitution, made after the Bid opening with the Engineer's and tile Owner's approval, will be considered. The proof of error must be conclusive, based upon the approval of said evidence by the listed Subcontractor or material supplier and/or any other confirmation satisfactory to the Engineer or the Owner.
- 4.5.3. 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 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.
- 4.5.4. Omission or non-compliance with the intent of the Subcontractor Listing form will be grounds for considering a Bid as **nonresponsive**.
- 4.5.5. Prior to the award of the Contract, the Engineer will notify the Bidder in writing if either the Owner or the 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 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, (1) withdraw his Bid, or (2) submit an acceptable substitute Subcontractor with no increase in his Bid Price. In the event of withdrawal under this paragraph, Bid Security **will not** be forfeited.
- 4.5.6. The Successful Bidder shall submit the following information to the Engineer: (a) complete Subcontractor List and Statements of Intent (SOI) to pay Prevailing Wages for each contractor within three (3) calendar days of Notice of Award; and (b) signed list of the proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the Work within fifteen (15) calendar days of Notice of Award.
- 4.5.7. The Successful Bidder will be required to establish to the satisfaction of the 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.
- 4.5.8. Persons and organizations proposed by the Bidder and to whom the Owner and the Engineer have made no reasonable objection under the provisions of paragraph 4.5.7 must be used on the Work for which they were proposed and shall not be changed except with

- the written consent of the Engineer and the Owner.
- 4.5.9. No Successful Bidder shall be required to employ any Subcontractor, other person, or organization against whom he has reasonable objection.
- 4.5.10. The Bidder is specifically advised that any person, for, or other party to whom it is proposed to award a subcontract under this Bid must be acceptable to the Owner after verification of the current eligibility status.
- 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 scaled envelope marked with the Project title and name and address of the Bidder. The following forms shall be submitted, signed, sealed and attested, with and included as part of the bid forms provided or as otherwise described herein:
- Bid Proposal Form;
 - Bid Bond (fully executed);
 - Bidder's List of Subcontractors (if applicable);
 - Campaign Contribution Disclosure Form;
 - Resident Veterans Preference Certification (if applicable).
- 4.6.2. The envelope shall be addressed to the: **GENERAL MANAGER, RATON WATER WORKS** as addressed on the Bid Form. The following information shall be provided on the front lower left corner of the Bid envelope: Project Title, Project No., Invitation for Bid number, date of opening, and time of opening. The sealed envelope shall have the notation "**SEALED BIDS 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 Purchasing Agent's office, including those Bids submitted by mail. Hand-delivered Bids shall be submitted to the Purchasing Agent or his designee 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 shall be in an amount sufficient for the Bid as modified or resubmitted in conformance with paragraph 4.2.
- 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 Document.
- 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 which makes his Bid nonresponsive may be permitted to withdraw his Bid if: (a) The mistake is clearly evident on the face of

the Bid Document; or (b) The Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. 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 (§13-1-106 NMSA 1978).

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 Conditions of the Construction Contract (General, Supplementary, and other Conditions) dealing with federal, state and local requirements which are a part of these Bidding and Contract Documents.

4.8.2. Laws and Regulations: The Bidder's attention is directed to all applicable federal and state laws, local ordinances and regulations and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the contract throughout, and will be deemed to be included in the Contract the same as though herein written out in full.

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 therefore 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, Offeror, or Contractor who is aggrieved in connection with this procurement (Bid) may protest to the Owner' and the Administrator/Clerk in accordance with the requirements of the Owner's Procurement Regulations and the State Procurement Code. The protest should be made in writing within 24 hours after the facts or occurrences giving rise thereto, but in no case later than fifteen (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 paragraph 4.10.1, the Owner shall not proceed further with the procurement unless 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 Owner or his designee shall have the authority to take any action reasonably necessary to resolve a protest of an aggrieved Bidder, Offeror, or Contractor concerning procurement. This authority shall be exercised in accordance with adopted regulations, but shall not include the authority to award money damages or attorneys' fees (§13-1-174 NMSA 1978).

4.10.4. The Owner 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.

4.10.5. 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. 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 Bid(s) and Alternate Bids 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

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 construction 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 paragraph 6.5 as to Post-Bid Information that may be required of a Bidder as to qualifications.

5.2.3. If the Base Bid is within the amount of funds available to finance the construction contract, contract award will be made to the responsible Bidder submitting the low Base Bid; except that, if sufficient funds are available to fund Alternate Bids, 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

5.2.4. If the lowest responsible Bid has otherwise qualified, and if there is no change in the original terms and conditions, the lowest bidder may negotiate with the Owner for a lower total bid in order to avoid rejection of all bids for the reason that the lowest bid was up to 10% higher than budgeted project funds. Such negotiation shall not be allowed if the lowest bid was more than 10% over budgeted project funds (§13-1-105 NMSA 1978).

5.2.5. 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. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the correct multiplication sum between the unit of Work and the unit prices.

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

5.2.7. Contracts solicited by competitive sealed bids shall require that the bid amount exclude the applicable state gross receipts taxes or applicable local option tax but that the Owner shall be required to pay the applicable tax including any increase in the applicable tax becoming effective after the date the contract is entered into. The applicable gross receipt tax or applicable local option tax shall be shown as a separate amount on each

billing or request for payment made under the contract (§13-1-108 NMSA 1978).

5.3. NOTICE OF AWARD

A written Notice of Award shall be issued by the Owner 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 Purchasing Agent or the Owner may: (a) Award pursuant to the multiple source award provisions of §13-1-153 and §13-1-154 NMSA 1978; (b) Award by lottery to one of the identical low Bidders; (c) Reject all Bids and re-solicit Bids for the required construction (§13-1-110 NMSA 1978).

Note: Identical Bids for Resident Contractors or Resident Manufacturers are not allowed under federal funding regulations.

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 liability against the Owner.

6. POST-BID INFORMATION

6.1. SUBMITTALS TO ENGINEER

- 6.1.1. Within three (3) calendar days after Notice of Award the following shall be submitted to the Engineer: (a) Complete Subcontractor List; and (b) Statements of Intent (SOI) to pay Prevailing Wages for each contractor.

- 6.1.2. Within fifteen (15) calendar days after Notice of Award, the following shall be submitted to Engineer: (a) The required bonds and certificates of insurance; (b) The requirements under subparagraph 4.5.6; and (c) A brief resume of the successful bidder's Superintendent.

6.2. RETURN OF BID SECURITY

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 fifteen (15) calendar days following the award of the contract. 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 contract 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 Purchasing Agent after the Notice of Award is sent by the Owner.

6.3. EXECUTION AND APPROVAL OF CONTRACT

The Contract shall be signed by the Successful Bidder and returned, together with both the Contract Bonds and Certificate of Insurance, within fifteen (15) calendar days after the date of the Notice of Award. If the Contract is not executed by the Owner within thirty (30) calendar days following receipt from the Bidder of the signed Contract, with Bonds and Certificates, the Bidder shall have the right to withdraw his bid 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 Contract with acceptable Contract Bonds and Certificate of Insurance within fifteen (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. A ward 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 QUALIFICATION 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 construction described in the Bidding Documents (§13-1-82 NMSA 1978).

**BID FORM
RATON WATER WORKS
HOSPITAL DRIVE LIFT STATION**

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to the Owner:

**Raton Water Works
224 Savage Avenue
P.O. Box 99
Raton, NM 87740
Dan Campbell, General Manager
Work: (575) 445-3861**

The Bid deadline is:

July 8, 2019 **by 2:00 pm**

- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- 1.03 The Owner reserves the right to increase or decrease any or all quantities as in the best interest of the Owner.
- 1.04 The Owner reserves the right to reject any or all bids, to waive any informalities, or to accept any portion of the bid as is in the best interest of the Owner.
- 1.05 The Owner shall consider and apply provisions of NMSA 13-4-2 regarding Certified New Mexico Resident Contractor and NMSA 13-1-21/ 13-1-22 regarding Certified Veterans Preference in this procurement.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports, if any, of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.
- K. Bidder agrees to execute the standard form of contract and to furnish Performance Bond in the amount of One Hundred Percent (100%) of the total bid amount, Payment Bond in the amount of One Hundred Percent (100%) of the total bid amount and Certificates of Insurance within fifteen (15) days following receipt of Notice of Award, and failing to do so, to forfeit the accompanying bid bond to the Owner as liquidated damages, and the Owner may proceed to award the contract to others.
- L. In accordance with NMSA 13-4-13.1.1., the contractor or subcontractor(s) for a public works project that is subject to the Public Works Minimum Wage Act [13-4-10 NMSA 1978], serving as a prime contractor or not, shall be registered with the Labor and Industrial Division of the Labor Department in order to submit a bid valued at more than sixty thousand dollars (\$60,000). Sealed bids received that are not compliant with this provision shall be subject to rejection by the Owner.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

- A. For all Work other than Unit Price Work, an amount equal to the sum of Lump Sums:

Lump Sum Bid Items		
Item No.	Description	Bid Amount
Base Bid:		
1	Mobilization, Preparatory Work and Demobilization	\$
2	Potholing and Protection of Existing Utilities	\$
3	Wet Well	\$
4	Valve Vault	\$
5	Electrical System, Wiring, and Instrumentation	\$
6	Emergency Generator	\$
7	Convert Existing Manhole (MH-2) to Overflow Well	\$
8	Abandon Existing Lift Station and Pipeline	\$
Subtotal of Lump Sum Base Bid Items 1 to 8, Excluding New Mexico Gross Receipts Tax⁽¹⁾		\$

Lump Sum Bid Items		
Item No.	Description	Bid Amount
Additive Alternate Bid:		
A	Phase 2 – New Sanitary Sewer Main	\$

B. For all Work as Unit Price Work, an amount equal to the sum of extended prices:

Unit Price Bid Items					
Item No.	Description	Units	Estimated Quantity	Unit Bid Price	Extended Price
Additive Alternate Bid:					
B	Epoxy Line New Wet Well	VF	28	\$	\$
C	Epoxy Line Existing Brick Manholes	VF	21	\$	\$
Subtotal of All Unit Price Bid Items B and C, Excluding New Mexico Gross Receipts Tax⁽¹⁾					\$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Subtotal of Lump Sum + Unit Price Bids = Total Bid Price⁽¹⁾ = \$

Note:

- 1) The basis for award of the Bid shall be the lowest responsive Base Bid Price amount without New Mexico Gross Receipts Tax (NMGRT). NMGRT shall be applied during invoicing throughout the project payment period.
- 2) Bidder to include in other Bid item(s) the other costs (if any) associated with accepting such assignment and administering the assigned contract.

3)

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Bid Form (mandatory);

- B. Required Bid Security (mandatory);
- C. Bidder's List of Subcontractors and Suppliers (mandatory for compliance with the Subcontractors Fair Practices Act);
- D. Campaign Contribution Disclosure Form (mandatory);
- E. New Mexico Resident Veterans Preference Certification No.: _____ (if applicable);
- F. New Mexico Resident Business Preference Certification No.: _____ (if applicable);
- G. List of Project References (preferred);
- H. New Mexico CRS No.: _____ (mandatory);
- I. New Mexico Contractor's License No. and Classification: _____
[or] Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids (mandatory);
- J. New Mexico Labor Department Labor Enforcement Registration No.: _____ (mandatory);
- K. Contractor's Federal I.D. No.: _____ (mandatory);
- L. Required Bidder Qualification Statement with supporting data (preferred); and
- M. A copy of the first page of each Addendum issued (preferred).

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature] _____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and E-Mail Address: _____

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name— Include Location*):

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:

- 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
- 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
- 1.3 Recovery under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

- 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
- 3.2 All Bids are rejected by Owner, or
- 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NOTICE TO CONTRACTORS SUBCONTRACTORS FAIR PRACTICES ACT COMPLIANCE

This Project is subject to the Provisions of the Subcontractors Fair Practices Act, Chapter 18, laws of 1988, NMSA 1978, Sections 13-4-31 through 13-4-43 ("the Act").

THE LISTING THRESHOLD IS \$5,000.00. The following categories of work on this project are subject to the provisions of the Act: Any project task in excess of \$5,000.00 at the time the bid is submitted to the Owner, the Contractor shall list, on the following page LIST OF SUBCONTRACTORS, one subcontractor for each category of work as specified in the preceding paragraph (that exceeds the listing threshold, using additional sheets as necessary. The listing shall include each subcontractor's name and business location. Only one subcontractor shall be listed for each category of work. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL RENDER A BID NON-RESPONSIVE AND THE BID SHALL BE REJECTED.

If a contractor fails to list a subcontractor in excess of the listing threshold and the contractor does not state that no bid was received or that only one bid was received, the contractor represents that it is fully qualified to perform that portion of the work itself and that it shall perform that portion of the work itself.

The apparent low bidder shall not allow a subcontract that exceeds the listing threshold amount to be voluntarily assigned or transferred or to be performed by anyone other than the original subcontractor listed in the original bid without the prior written approval of the Owner.

No Contractor whose bid is accepted shall subcontract any portion of the work in any amount, exceeding the listing threshold amount where the original bid did not designate a subcontractor, unless:

- The Contractor received no bid or received only one bid for the category of work and had indicated such on List of Subcontractors.
- The work is pursuant to a change order that causes changes or deviations from the original Contract.

In the event a hearing is required pursuant to the provisions of the Act and a delay in the work is caused as a result of a subcontractor protesting its substitution, the Contractor shall NOT be entitled to an increase in the Contract Price or Contract Time.

(Use other side & extra sheets if necessary)

SUB-2

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 must file this form with that state agency or local public body. 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 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 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 year period.

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.

“Contact” 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: _____

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)

RESIDENT VETERANS PREFERENCE CERTIFICATION

_____ (NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement:

Please check one box only

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is less than \$1M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than \$1M but less than \$5M allowing me the 8% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than \$5M allowing me the 7% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

"I agree to submit a report, or reports, to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate.

"In conjunction with this procurement and the requirements of this business' application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, when awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be.

"I understand that knowingly giving false or misleading information on this report constitutes a crime."

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

(Signature of Business Representative)*

(Date)

*Must be an authorized signatory for the Business.

The representations made in checking the boxes constitutes a material representation by the business that is subject to protest and may result in denial of an award or unaward of the procurement involved if the statements are proven to be incorrect.

WAGE RATE DECISION

TYPE "A" - STREET, HIGHWAY, UTILITY & LIGHT ENGINEERING

Effective January 1, 2019

Trade Classification	Base Rate	Fringe Rate
Bricklayer/Blocklayer/Stonemason	23.78	9.08
Carpenter/Lather	24.08	10.84
Cement Mason	17.42	6.61
Ironworker	26.50	16.20
Painter (Brush/Roller/Spray)	17.00	6.78
Plumber/Pipefitter	29.45	12.37
Electricians (outside)		
Groundman	22.81	11.93
Equipment Operator	32.73	14.51
Lineman/Wireman or Tech	38.51	16.02
Cable Splicer	42.36	17.01
Laborers		
Group I	11.81	5.88
Group II	12.11	5.88
Group III	12.51	5.88
Group IV	12.76	5.88
Operators		
Group I	18.60	5.94
Group II	19.52	5.94
Group III	19.62	5.94
Group IV	19.73	5.94
Group V	19.83	5.94
Group VI	20.01	5.94
Group VII	20.17	5.94
Group VIII	20.46	5.94
Group IX	27.88	5.94
Group X	31.10	5.94
Truck Drivers		
Group I	16.15	7.52
Group II	16.15	7.52
Group III	16.15	7.52
Group IV	16.15	7.52
Group V	16.15	7.52
Group VI	16.15	7.52
Group VII	16.15	7.52
Group VIII	16.21	7.52
Group IX	18.15	7.52

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.

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between RATON WATER WORKS (“Owner”) and
____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: To build a lift station, gravity and force main sanitary sewers, emergency generator and site improvements, along Hospital Drive near York Canyon Road.

ARTICLE 2 – THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Hospital Drive Lift Station.

ARTICLE 3 – ENGINEER

- 3.01 The part of the Project that pertains to the Work has been designed by:
Project Engineer: Karen Stearns, P.E. 14085
Engineering Analytics, Inc.
219 S. 2nd Street, Raton, NM 87740
- 3.02 The Owner has retained Engineering Analytics, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

- 4.01 *Time of the Essence*
- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.
- 4.02 *Contract Times: Days*
- A. The Work will be substantially completed within 114 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 142 days after the date when the Contract Times commence to run.
- 4.03 *Liquidated Damages*
- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any

extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner Two Hundred and Fifty Dollars (\$250) for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner Two Hundred and Fifty Dollars (\$250) for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Work other than Unit Price Work, an amount equal to the sum of Lump Sums:

Lump Sum Items		
Item No.	Description	Amount
Base Items:		
1	Mobilization, Preparatory Work and Demobilization	\$
2	Potholing and Protection of Existing Utilities	\$
3	Wet Well	\$
4	Valve Vault	\$
5	Electrical System, Wiring, and Instrumentation	\$
6	Emergency Generator	\$
7	Convert Existing Manhole (MH-2) to Overflow Well	\$
8	Abandon Existing Lift Station and Pipeline	\$
Additive Alternate Items:		
A	Phase 2 – New Sanitary Sewer Main	\$
Total of Lump Sum Items, Excluding New Mexico Gross receipts Tax		\$

B. For all Unit Price Work, an amount equal to the sum of extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

Unit Price Bid Items					
Item No.	Description	Units	Estimated Quantity	Unit Bid Price	Extended Price
Additive Alternate Bid:					
B	Epoxy Line New Wet Well	VF	28	\$	\$
C	Epoxy Line Existing Brick Manholes	VF	21	\$	\$
Subtotal of All Unit Price Bid Items B and C, Excluding New Mexico Gross Receipts Tax⁽¹⁾					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

C. Total Lump Sum amount and Unit Price Work (subject to final Unit Price adjustment)

Subtotal of Lump Sum + Unit Price Bids = Subtotal Bid Price	\$
New Mexico Gross Receipts Tax of 8.2708% of Subtotal	\$
Total of Lump Sum and Unit Price Bids + New Mexico Gross Receipts Tax = Total Bid Price	\$

D. The applicable New Mexico Gross Receipts Tax Rate (currently 8.2708%) shall be applied to every invoice submitted by the Contractor applied to the total amount of the invoice being submitted.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the Tenth (10th) or Twenty-Fourth (24th) day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments

previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

- a. 100 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 100 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the rate of 0 percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance

of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 7, inclusive).
 - 2. Performance bond (pages ___ to ___, inclusive).
 - 3. Payment bond (pages ___ to ___, inclusive).
 - 4. Other bonds.
 - a. Bid Bond (pages ___ to ___, inclusive).
 - 5. Standard General Conditions (pages 1 to 65, inclusive).
 - 6. Supplementary Conditions (pages ___ to ___, inclusive).
 - 7. Technical Specifications (pages ___ to ___, inclusive).
 - 8. Drawings consisting of 19 sheets with each sheet bearing the following general title:
Hospital Drive Lift Station
 - 9. Addenda (numbers ___ to ___, inclusive).
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid Proposal Form (pages ___ to ___, inclusive).
 - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.

- d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

Raton Water Works

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

224 Savage Avenue

P.O. Box 99

Raton, NM 87740

License No.: _____

(where applicable)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the

Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than

the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including

allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)

Contractor's Name and Corporate Seal

(seal)

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and

8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology	1
1.01 Defined Terms	1
1.02 Terminology	5
Article 2 – Preliminary Matters	6
2.01 Delivery of Bonds and Evidence of Insurance	6
2.02 Copies of Documents	6
2.03 Before Starting Construction	6
2.04 Preconstruction Conference; Designation of Authorized Representatives	7
2.05 Initial Acceptance of Schedules	7
2.06 Electronic Transmittals	7
Article 3 – Documents: Intent, Requirements, Reuse	8
3.01 Intent	8
3.02 Reference Standards	8
3.03 Reporting and Resolving Discrepancies	8
3.04 Requirements of the Contract Documents	9
3.05 Reuse of Documents	10
Article 4 – Commencement and Progress of the Work	10
4.01 Commencement of Contract Times; Notice to Proceed	10
4.02 Starting the Work	10
4.03 Reference Points	10
4.04 Progress Schedule	10
4.05 Delays in Contractor’s Progress	11
Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions	12
5.01 Availability of Lands	12
5.02 Use of Site and Other Areas	12
5.03 Subsurface and Physical Conditions	13
5.04 Differing Subsurface or Physical Conditions	14
5.05 Underground Facilities	15

5.06	Hazardous Environmental Conditions at Site.....	17
Article 6 – Bonds and Insurance		19
6.01	Performance, Payment, and Other Bonds	19
6.02	Insurance—General Provisions	19
6.03	Contractor’s Insurance	20
6.04	Owner’s Liability Insurance	23
6.05	Property Insurance.....	23
6.06	Waiver of Rights	25
6.07	Receipt and Application of Property Insurance Proceeds	25
Article 7 – Contractor’s Responsibilities		26
7.01	Supervision and Superintendence	26
7.02	Labor; Working Hours	26
7.03	Services, Materials, and Equipment.....	26
7.04	“Or Equals”	27
7.05	Substitutes	28
7.06	Concerning Subcontractors, Suppliers, and Others	29
7.07	Patent Fees and Royalties	31
7.08	Permits	31
7.09	Taxes	32
7.10	Laws and Regulations.....	32
7.11	Record Documents.....	32
7.12	Safety and Protection.....	32
7.13	Safety Representative	33
7.14	Hazard Communication Programs	33
7.15	Emergencies	34
7.16	Shop Drawings, Samples, and Other Submittals.....	34
7.17	Contractor’s General Warranty and Guarantee.....	36
7.18	Indemnification	37
7.19	Delegation of Professional Design Services	37
Article 8 – Other Work at the Site		38
8.01	Other Work	38
8.02	Coordination	39
8.03	Legal Relationships.....	39

Article 9 – Owner’s Responsibilities.....	40
9.01 Communications to Contractor.....	40
9.02 Replacement of Engineer	40
9.03 Furnish Data	40
9.04 Pay When Due.....	40
9.05 Lands and Easements; Reports, Tests, and Drawings	40
9.06 Insurance	40
9.07 Change Orders.....	40
9.08 Inspections, Tests, and Approvals	41
9.09 Limitations on Owner’s Responsibilities	41
9.10 Undisclosed Hazardous Environmental Condition.....	41
9.11 Evidence of Financial Arrangements.....	41
9.12 Safety Programs	41
Article 10 – Engineer’s Status During Construction.....	41
10.01 Owner’s Representative.....	41
10.02 Visits to Site.....	41
10.03 Project Representative.....	42
10.04 Rejecting Defective Work.....	42
10.05 Shop Drawings, Change Orders and Payments.....	42
10.06 Determinations for Unit Price Work	42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work	42
10.08 Limitations on Engineer’s Authority and Responsibilities.....	42
10.09 Compliance with Safety Program.....	43
Article 11 – Amending the Contract Documents; Changes in the Work	43
11.01 Amending and Supplementing Contract Documents	43
11.02 Owner-Authorized Changes in the Work	44
11.03 Unauthorized Changes in the Work	44
11.04 Change of Contract Price	44
11.05 Change of Contract Times	45
11.06 Change Proposals	45
11.07 Execution of Change Orders.....	46
11.08 Notification to Surety.....	47
Article 12 – Claims.....	47

12.01	Claims	47
Article 13 – Cost of the Work; Allowances; Unit Price Work.....		48
13.01	Cost of the Work	48
13.02	Allowances	50
13.03	Unit Price Work	51
Article 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....		52
14.01	Access to Work.....	52
14.02	Tests, Inspections, and Approvals	52
14.03	Defective Work.....	53
14.04	Acceptance of Defective Work.....	53
14.05	Uncovering Work	53
14.06	Owner May Stop the Work	54
14.07	Owner May Correct Defective Work.....	54
Article 15 – Payments to Contractor; Set-Offs; Completion; Correction Period		55
15.01	Progress Payments	55
15.02	Contractor’s Warranty of Title	58
15.03	Substantial Completion	58
15.04	Partial Use or Occupancy	59
15.05	Final Inspection	59
15.06	Final Payment.....	59
15.07	Waiver of Claims	61
15.08	Correction Period	61
Article 16 – Suspension of Work and Termination		62
16.01	Owner May Suspend Work	62
16.02	Owner May Terminate for Cause	62
16.03	Owner May Terminate For Convenience	63
16.04	Contractor May Stop Work or Terminate	63
Article 17 – Final Resolution of Disputes		64
17.01	Methods and Procedures	64
Article 18 – Miscellaneous		64
18.01	Giving Notice	64
18.02	Computation of Times.....	64
18.03	Cumulative Remedies	64

18.04	Limitation of Damages	65
18.05	No Waiver	65
18.06	Survival of Obligations	65
18.07	Controlling Law	65
18.08	Headings.....	65

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for 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 Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS

If any discrepancy or conflict exists between the Supplementary Conditions and the Standard General Conditions of the Construction Contract or other Project Documents, the provisions of the Supplementary Conditions shall govern and shall supersede conflicting provisions.

ARTICLE 2 – PRELIMINARY MATTERS

Delete paragraph 2.01.B of the Standard General Conditions in its entirety and insert the following in its place:

- 2.01.B Before any work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates of insurance which CONTRACTOR is required to purchase and maintain in accordance with Article 6 of the Standard General Conditions, as well as other evidence of insurance as requested by OWNER.

Delete paragraph 2.01.C of the Standard General Conditions in its entirety.

ARTICLE 5.03 – SUBSURFACE AND PHYSICAL CONDITIONS

As referenced in Article 5.03.A of the Standard General Conditions, those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site include the following:

1. *Geotechnical Evaluation Report*, Kleinfelder, Inc., September 23, 2014

ARTICLE 6 – BONDS AND INSURANCE

As referenced in Article 6.02.G of the Standard General Conditions, additional liability coverage for OWNER and ENGINEER shall be provided by endorsement as additional insured on CONTRACTOR'S General Liability Policy.

The Contractual Liability coverage required by paragraph 6.03.C.2 of the Standard General Conditions shall be provided by the CONTRACTOR as part of the CONTRACTOR'S General Liability coverage.

As referenced in Article 6.03.I.2, the Contractor shall maintain coverages for not less than the following amounts or greater as required by law or regulations:

- | | |
|---|-------------|
| 1. Workman's Compensation: | Statutory |
| 2. Employer's Liability | \$500,000 |
| 3. Comprehensive General Liability under Paragraphs 6.03.B.1 through 6.03.B.3 of the Standard General Conditions: | |
| Bodily Injury - Each Occurrence | \$1,000,000 |
| Property Damage - Each Occurrence | \$500,000 |
| Combined Single Limit | \$1,000,000 |
| 4. Comprehensive Automobile Liability under Paragraph 6.03.D of the Standard General Conditions: | |
| Bodily Injury - Each Occurrence | \$1,000,000 |

Property Damage - Each Occurrence
Combined Single Limit

\$500,000
\$1,000,000

Delete Section 6.05 of the Standard General Conditions in its entirety.

ARTICLE 7.17 – CONTRACTOR’S GENERAL WARRANTY AND GUARANTEE

Append Article 7.17.A with the following:

The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from the date of Owner's Acceptance. The Contractor shall warrant and guarantee for a period of one (1) year from the date of Owner's Acceptance of the system that the completed system is free from all defects due to faulty material or workmanship. The Contractor shall promptly make such corrections, as may be necessary including the repairs of any damage to other parts of the system resulting from such defects. The Owner, if they have taken over the system, will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. Refer to the form Letter of Guarantee to be included with final close-out documents.

ARTICLE 11.06 – CHANGE PROPOSALS

The provisions of Article 11.06 shall also be available to the owner.

ARTICLE 13.01 – COST OF WORK

Article 13.01.A.2 shall be amended by adding “Where the change order results in a reduction or deletion of work, the contract price shall be adjusted accordingly.” to the end of the paragraph.

DESCRIPTION OF BID ITEMS AND TECHNICAL SPECIFICATIONS

BASE BID ITEMS

ITEM 1: MOBILIZATION, PREPARATORY WORK AND DEMOBILIZATION

Mobilization, Preparatory Work and Demobilization includes mobilization of all Contractor and subcontractor personnel, equipment, and temporary construction facilities to the project site; demobilization and remobilization for winter shutdowns, including the final demobilization; site safety, providing temporary utilities; preparing and updating detailed construction schedules; traffic control plan and construction zone signage placed for the duration of the project, construction surveying and staking; providing all insurance and bonds required to complete the Work; and all project specific field and office overhead.

General Requirements, unless specifically covered in other bid items, will not be paid separately, but shall be included in the lump sum price bid in the Schedule for Mobilization, Preparatory Work and Demobilization.

Payment will be made at the lump sum price bid in the Schedule for Mobilization, Preparatory Work and Demobilization. The first progress payment for Mobilization, Preparatory Work and Demobilization will be subject to receipt and/or completion of the following:

- Includes the mobilization of Contractor personnel, equipment and temporary construction facilities to the project site; providing temporary utilities; maintaining access roads, parking areas, erosion and sediment control, detailed CPM baseline construction schedule submittal;
- Required insurance certificates and bonds.
- Required preconstruction meeting, submittals, and permits.
- Providing a designated full-time superintendent, on-site.

This Bid item is limited to maximum of 10 percent of the total Bid price. Payment will be made for Mobilization and Preparatory Work as follows, subject to acceptable construction progress:

- Thirty percent of the bid price for this Bid Item with the first monthly progress payment.
- Forty percent of the bid price for this Bid Item with the second monthly progress payment.
- Thirty percent of the bid price with the final monthly progress payment.

ITEM 2: POTHOLING AND PROTECTION OF EXISTING UTILITIES

Contractor shall provide work to investigate the location of known and suspected utilities along the project alignment. Work under this Section includes providing all labor, materials, tools and equipment necessary for protecting existing utilities that are potentially impacted by horizontal directional drilling (HDD) or open trench pipeline excavation. This includes the existing sewer lines, electrical and pump lift station that will remain operational during construction. Potholing may be performed by backhoe or vacuum excavation. Vacuum excavation system shall be equipped with a high-pressure water system designed to assist with "pothole" excavation operations. Contractor shall be responsible for damage and repair to existing utilities. The location, depth and size of each utility shall be recorded. Excavations shall be backfilled and the surface replaced with asphalt pavement if necessary. Work under this item shall be

measured and paid for at the lump sum contract price for ITEM 2: POTHOLING AND PROTECTION OF EXISTING UTILITIES.

ITEM 3: WET WELL

Under this item, Contractor shall provide and install precast concrete wet well with hatch, including all necessary shoring, components and appurtenances. This item shall also include excavation, dewatering, bedding, backfill, and all appurtenances required for a fully completed installation.

This item shall also include pumps and pump controls, piping between the existing manholes and the new valve vault (including wet well piping), connections and anchor bolts in accordance with the requirement of the Uniform Plumbing Code, AWWA, and as specified herein and shown on the contract drawings. The 2" sanitary PVC piping from the valve vault to the wet well shall also be included within this bid item. Piping shall be installed as specified herein under the sections titled HDPE SANITARY PIPELINE and PVC SANITARY PIPELINE and within the contract drawings accordingly.

Spare parts for the pump shall be provided to include: vendor standard spare parts kit, and one complete spare pump. The "Start-Up Report Form" provided in the pump operation manual shall be completed by the Contractor and returned to the Owner following start-up.

Contractor shall provide hard copy owner's manuals for the pumps and instrumentation.

This item shall also include excavation, dewatering, bedding, backfill, and all appurtenances required for a fully completed installation.

Areas requiring fill or backfill as determined by the Project Engineer shall be filled to grade using select backfill material. Work under this item shall include material provision, placement, grading and compaction. Material shall be placed and graded in a homogenous, uniform, non-segregated condition prior to compacting. Compaction equipment shall be specifically designed for uniform compaction of this type of material. Material shall be placed and compacted in continuous layers not exceeding 6 inches loose depth, compacted to the following density standard and moisture content compared to ASTM D698/AASHTO T99 Standard Proctor:

Area	Compaction Requirement	Moisture Requirement
Within Street Section	95%	+/- 2%
Out of Street Section	90%	+/- 4%

Select Backfill Material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
2"	100
No. 4	25-70
No. 200	0-12

Plasticity Index - 12 or less as determined by ASTM D 4318.

Assembly components shall comply with all applicable standards of AWWA and NSF.

Measurement and payment shall be made at the contract lump sum price for the ITEM 3: WET WELL Bid Item.

ITEM 4: VALVE VAULT

Under this item, Contractor shall provide and install precast concrete valve vault with hatches, including all necessary shoring, components and appurtenances. This item shall also include removal of existing tree and of site disposal, excavation, dewatering, bedding, backfill, and all appurtenances required for a fully completed installation.

Under this item, Contractor shall also provide and install flowmeter, valves, valve cans (including phase 2 tie-in valve and valve can), all piping and connections from the valve vault to the new valve cans connecting to the existing force main (including piping within the valve vault), anchor bolts and instrumentation in accordance with the requirement of the Uniform Plumbing Code, AWWA, and as specified herein and shown on the contract drawings. Piping shall be installed as specified herein under the sections titled HDPE SANITARY PIPELINE and PVC SANITARY PIPELINE and within the contract drawings accordingly.

The flow meter readout shall be mounted adjacent to the electrical panels in a lockable NEMA 3R enclosure. Contractor shall provide hard copy owner's manuals for the flow meter.

Areas requiring fill or backfill as determined by the Project Engineer shall be filled to grade using select backfill material. Work under this item shall include material provision, placement, grading and compaction. Material shall be placed and graded in a homogenous, uniform, non-segregated condition prior to compacting. Compaction equipment shall be specifically designed for uniform compaction of this type of material. Material shall be placed and compacted in continuous layers not exceeding 6 inches loose depth, compacted to the following density standard and moisture content compared to ASTM D698/AASHTO T99 Standard Proctor:

Area	Compaction Requirement	Moisture Requirement
Within Street Section	95%	+/- 2%
Out of Street Section	90%	+/- 4%

Select Backfill Material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
2"	100
No. 4	25-70
No. 200	0-12

Plasticity Index - 12 or less as determined by ASTM D 4318.

Assembly components shall comply with all applicable standards of AWWA and NSF. Measurement and payment shall be made at the contract lump sum price for the ITEM 4: VALVE VAULT Bid Item.

ITEM 5: ELECTRICAL SYSTEM, WIRING AND INSTRUMENTATION

The contractor shall provide, install and test all electrical panels, conduit, power and grounding cables, disconnect switches, power center, automatic transfer switch, emergency generator and accessories. Installation shall be in accordance with the Uniform Electrical Code, NFPA 110 and the contract drawings. The contractor shall utilize current HDD technology in accordance with the Drawings and as specified herein for installing electrical wiring under Hospital Drive.

Instrumentation shall include a data-link to the existing telephone line in the adjacent fire station for transmission of status output signals from the pump, level sensors and flowmeter to owner remote data terminals.

HDD shall utilize an electronically tracked bore-head to guide the borehole to a pre-designed configuration. The HDD process shall begin with boring a small, horizontal pilot hole with a continuous string of steel drill rod. When the bore-head and rod emerge on the opposite end of the crossing, a back reamer is attached to the drill rod string and pulled back through the pilot hole. The reamer serves to enlarge the pilot hole to allow the conduit or restrained joint PVC pipe to be pulled through from the opposite end of the borehole. The size of the drilling equipment and required support equipment shall be determined by the Contractor.

Directional drilling equipment shall be self-powered and self-contained. Equipment shall be designed and manufactured with an electronically tracked bore-head so as to guide the borehole to a desired configuration, both horizontally and vertically. Directional drilling equipment shall generate sufficient torque and thrust/pullback force to drill a pilot hole, enlarge the pilot hole by back reaming and pull the pipeline back through the enlarged hole.

Directional drilling operations shall be assisted by use of an adequately sized vacuum excavation system mounted on either a trailer or truck body. Vacuum excavation system shall provide sufficient storage tank capacity and power pack to efficiently remove drilling fluid from the insertion pit during HDD operations.

Directional drilling operations shall be assisted by use of a truck mounted drilling fluid mixing system. Fluid management system shall include two mixing tanks to allow for flexibility in mixing, transferring and delivering drilling fluid. Fluid management system shall have the capability to transfer between tanks while providing drilling fluid to the directional drilling machine.

Work under this item shall be measured and paid for at the contract lump price for ITEM 5: ELECTRICAL SYSTEM, WIRING AND INSTRUMENTATION.

ITEM 6: EMERGENCY GENERATOR

The generator shall be an MTU Onsite Energy as supplied by Stewart & Stevenson 505/325-5071 60 kW / 75 kVA, 480 Volt 3-Phase 12w 60Hz packaged engine generator set as a coordinated assembly of compatible components. Warranty Period shall be 2 Year - 3000 Hour Basic Standby Limited warranty from date of Substantial Completion. Contractor to provide the 1.5" gas line with NPT connections from the gas meter to the generator per manufacturer's recommendations.

Provide a connection to telephone data link using a separate terminal block, factor wired to Form C dry contacts, for each alarm and status indication is reserved for connections for data-link transmission of

indications to remote data terminals. Provide a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every ten of each type and rating, but no less than one of each.
2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.
4. Belts: One set of each generator and fan belt.

Tests and Inspections:

1. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection for "AC Generators and for Emergency Systems" specified by NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch Hg (120kPa). Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.
8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
9. Noise Level Tests: Provide calculated noise measurement of the complete generator package.
10. Coordinate tests for transfer switches and run them concurrently.

Beginning at Substantial Completion, provide twelve months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation.

Contractor to provide parts and supplies same as those used in the manufacture and installation of original equipment and hard copy owner's manual.

Work under this item shall be measured and paid for at the contract lump price for ITEM 6: EMERGENCY GENERATOR.

ITEM 7: CONVERT EXISTING MANHOLE (MH-2) TO OVERFLOW WELL

Under this item, Contractor shall furnish all labor, materials, tools and equipment necessary for the installation of grout or equivalent in the existing manhole (new overflow well) to raise floor to elevation of invert of overflow line. Finished installation shall have a floor slope of 4:1 to allow all liquid to drain to overflow line. Work includes sealing the manhole for new pipe penetrations and abandoned existing pipe penetrations.

Payment will be made at the lump sum contract price in the Schedule for ITEM 7: CONVERT EXISTING MANHOLE TO OVERFLOW WELL.

ITEM 8: ABANDON EXISTING LIFT STATION AND PIPELINE

Contractor shall abandon the existing lift station after the new lift station is operational and approval is received to abandon the existing lift station. Contractor shall remove the pumps, piping, electrical wiring and components and abandon the concrete in place. Removed pumps, piping, electrical wiring and components shall either be disposed of off-site or salvaged by the Contractor. The concrete lid shall be removed and disposed of off-site by the Contractor. The lowest point of the floor shall be ruptured by coring or equivalent to provide a drain of no less than 6-inch diameter to prevent retained liquid in structure. The lift station shall then be backfilled in compacted lifts with granular fill to the ground surface. The granular fill shall have less than 20% passing the No. 200 sieve and maximum size of ½", placed in 12" compacted lifts.

Contractor shall cap existing sanitary sewer pipelines shown on the contract drawings to be abandoned by providing a minimum 3-foot concrete or grout plug at each exposed end of each pipeline. Work includes sealing all manholes remaining in-service for new pipe penetrations and abandoned existing pipe penetrations.

Work under this item shall be measured and paid for at the lump sum contract price for ITEM 8: ABANDON LIFT STATION AND PIPELINE.

ADDITIVE ALTERNATE BID ITEMS

ITEM A: PHASE 2 – NEW SANITARY SEWER MAIN

Furnish all labor, materials, tools and equipment necessary to provide and install new force main pipeline and gravity line from the existing valve can north of the existing lift station to the final receiving manhole in Whittier Street using the trenchless installation method, with the exception of the turn at station 11+32. Force main pipeline shall be 6" HDPE DR 21 in accordance with the HDPE SANITARY PIPELINE section of this document. The gravity main shall be 8" HDPE DR 21 or PVC in accordance with the HDPE SANITARY PIPELINE and PVC SANITARY PIPELINE sections of this document. The Contractor shall use HDD for the installation of the force main under the pavement and shoulder section of 2nd Street and York Canyon Road, as these are NMDOT-designated roads. The Contractor has the option to HDD or open trench the sanitary sewer main outside the pavement and shoulder section of 2nd Street and York Canyon Road.

All pipeline fittings, accessories (including clean outs and manholes), utility protection, equipment and labor associated with work titled "Phase 2" in the Construction Drawings shall be included within this bid item unless otherwise noted.

Work under this item shall be measured and paid for at the lump sum contract price for ITEM A: PHASE 2 – NEW SANITARY SEWER MAIN.

ITEM B: EPOXY LINE NEW WET WELL

This work consists of the labor, materials and equipment required for protecting the wet well. The interior floor, walls and lid shall be sprayed with a protective coating consisting of Raven Lining Systems or equivalent as described in the EPOXY COATING SPECIFICATIONS section of this document. The coating shall be applied at least 28 days after the wet well is cast. The coating may be applied at the precast yard, at the site or after assembly of the wet well. If the coating is applied prior to wet well assembly the joints shall be hand coated. Payment will be made at the vertical foot contract price in the Schedule for ITEM B: EPOXY LINE NEW WET WELL.

ITEM C: EPOXY LINE EXISTING BRICK MANHOLES

This work consists of the labor, materials and equipment required for protecting and/or restoring the existing brick manholes by monolithic spray-application of a solvent-free, high-build epoxy coating to eliminate infiltration/exfiltration, provide corrosion protection, repair damaged surfaces and enhance structural integrity. Surface shall be pre-treated with Raven 700 series. Procedures for surface preparation, cleaning, application and testing are described in the EPOXY COATING SPECIFICATIONS section of this document. Use Raven Lining Systems Raven 755 Cement Mortar or equivalent for repair and pre-treating and use Raven Lining Systems Raven 405 or equivalent for epoxy lining. Payment will be made at the vertical foot contract price in the Schedule for ITEM C: EPOXY LINE EXISTING BRICK MANHOLES.

TECHNICAL SPECIFICATIONS

GENERAL

All work shall be performed in accordance with Project Drawings, Specifications, and Contract Documents. Work not covered by Project Drawings Specifications and Contract Documents shall be performed in accordance with New Mexico Department of Transportation Standard Specifications for Highway and Bridge Construction, (Current Edition, including Addenda, Special Provisions, and Supplemental Documents; hereinafter called NMDOT Specifications). Work not covered by Project Drawings, Contract Documents or NMDOT Specifications shall be performed in accordance with New Mexico Standard Specifications for Public Works Construction, 1987 edition, published by the American Public Works Association (hereinafter called APWA Specifications).

Where differences, conflicts, or discrepancies occur between Project Drawings, Specifications, and Contract Document, NMDOT Standard Specifications and APWA Specifications; the Project Specific Drawings, Specifications and Contract Documents shall take precedence and apply to work. Quantities are given only as a guide to contractor; contractor must satisfy and inform himself of required quantities by field verification before submitting bid. Owner reserves the right to make alterations in the work as may be necessary to complete the work as originally intended.

The Contractor shall supply all labor, equipment, tools, supervision, materials, parts and appurtenances, whether or not specifically required or detailed by Project Drawings, Specifications, or Contract Documents, to complete a fully functional project. Where applicable, material manufacturer's recommendations or specifications shall be submitted by the Contractor to the Owner's Project Representative and shall receive written approval for incorporation into the work. If approved, manufacturer's recommendations or specifications shall be fully complied with. The Contractor is required to supply qualified and competent labor and supervision capable of completing the requiring work in a timely manner and the necessary equipment in safe and good working condition suitable for the required work.

REQUIREMENT FOR PRE-CONSTRUCTION MEETING

Project Engineer may schedule Pre-Construction meeting for the purpose of discussion of requirements for construction. Contractor should provide all supervisory staff, equipment operators, and other skilled personnel for mandatory attendance at the Pre-Construction meeting for instruction by the Project Engineer in project requirements. The Pre-Construction meeting shall provide opportunity for the Engineer and Owner to clarify its requirements and the Contractor's obligations under the Contract. All replacement personnel beginning work on the project following Pre-Construction meeting shall be required to attend project requirement training.

UTILITIES

The Contractor shall coordinate the work with NMDOT and any affected public or private utility owner with facilities, structures, lines, wires, pipes or other fixtures and appurtenances in the project area. The Contractor shall reasonably protect existing utilities, request locations and spots of utilities in a timely manner prior to excavation or disturbance, and shall cooperate with utility owners if relocation or adjustment is necessary.

Contractor shall supply at his own expense with no additional payment by Owner, all necessary incidental fees and costs related to waste disposal, electricity for construction, sanitation, telephone, cleanup, hauling, replacement of damaged property, staging, claims, fines, etc.

The following service will be provided to the contractor by Raton Water Works at no cost to the Contractor:

- Construction water: Contractor is required to meter the water usage during construction, at no cost to Contractor. Contractor is required to obtain the meter from and coordinate the metering reporting requirements with Raton Water Works.

The electric utility provider is Raton Public Service (RPS), which is responsible for the infrastructure up to and including the meter. Any modifications to the RPS service line up to and including the meter will be paid by the Owner, at no cost to the Contractor. The electric line from the meter to the generator and control panel and pumps is included in the scope of work for the Contractor. The Contractor shall use HDD for all electric lines under the pavement of Hospital Drive.

The gas utility provider is Raton Natural Gas (RNG), which is responsible for the infrastructure up to and including the meter. Any modifications to the RNG service line up to and including the meter will be paid by the Owner, at no cost to the Contractor. Contractor is required to schedule and coordinate 1.5" gas service installation with fuel supply pressure between 7- and 11-inches water and flow testing. Raton Natural Gas Company will install the gas meter on the north side of the fire station building. The gas line from the meter to the generator is included in the scope of work for the Contractor.

CONSTRUCTION SEQUENCING, SAFETY AND TRAFFIC CONTROL

Safety and traffic control shall conform to OSHA and the Manual on Uniform Traffic Control Devices respectively and to be the sole responsibility of the contractor and no direct payment will be made. The Contractor shall prepare and submit a Construction Sequence Plan that will ensure reasonable access to residents. Construction and/or demolition activities shall be scheduled so as to minimize disturbance and disruption to area residents and traffic. Street closures and water shutoffs resulting in limitation of service to residences shall be limited to a maximum 8-hour period. In no case shall limitations of access or water service continue overnight. The Contractor is responsible to provide adequate notification to all affected persons prior to street closure or water service disruption. A Construction Sequence Plan, including public notification plans, shall be submitted by the Contractor to the Owner's Project Representative prior to construction and/or demolition activities. The plans for traffic control and sequencing of construction must be approved by the Owner's Project Representative prior to commencement of the work. Necessary work, materials, equipment and appurtenances needed to complete the project for which there is no bid item shall be considered as Incidental.

DUST CONTROL

Contractor is responsible for job site dust control. Dust must be controlled at all times as directed by the Owner's Project Representative. The Contractor is responsible for obtaining all necessary construction water, and all costs associated with construction water or other utilities necessary for the prosecution of the work or appurtenant usages.

PONDING OF SURFACE WATER

Ponding of surface water will not be permitted at any time during construction.

SUBMITTALS

The following submittals will be required and submitted to the Owner's Project Representative.

- Construction Sequencing Plan and Schedule
- Safety Plan
- Stormwater Pollution Prevention Plan, if required
- Class A Portland Cement Concrete Mix Design
- Manhole, wet well and valve vault shop drawings
- Pump, flowmeter and emergency generator product specifications and operation and maintenance manuals
- HDPE and PVC pipe material
- Materials Testing Plan in relation to Construction Schedule
- Seed mix

All acceptance test results, records, and documentation shall be submitted to the Owner's Project Representative in a timely manner. Materials testing performed by Contractor or Contractor's agents for the purpose of preparation of a mix design or any required submittal information for approval of material for incorporation into the project will not be paid or reimbursed. Submission of test data, reports or documentation on similar material previously utilized on NMDOT projects may be utilized for acceptance of material, however, no payment shall be made.

SPECIFICATION FOR PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the requirements of Section 510, NMDOT Standard Specifications for Class A Concrete. A mix design previously prepared, submitted to and approved by the New Mexico State Highway Department in accordance with Section 510 shall be utilized for all concrete placed on the project. Full documentation of the approved mix design submittal shall be filed with the Owner's Project Representative. White pigmented curing compound shall be used on all new concrete. All forms shall be inspected and approved by the Owner's Project Representative prior to concrete placement. Concrete shall be properly cured and protected from temperature extremes in accordance with ACI Specifications 305 and 306.

SPECIFICATION FOR BACKFILL AND COMPACTION OF ALL TRENCHES AND BACKFILL MATERIAL

Backfill shall be placed in uniform layers not to exceed 6-inch loose depth, and compacted to a minimum of 95 percent of Standard Maximum Density (ASTM D 698) at the proper moisture content specified. Trench compaction must be performed using a padfoot or sheepsfoot tandem drum roller compactor. Drum compactor shall be suitable for trench compaction of clay soils, shall have a minimum operating power of 16 horsepower, and a minimum dynamic force of 15,000 lb. Jumping jack compactor shall not be allowed for general trench compaction, unless specifically approved by Project Engineer. Jumping jack shall be acceptable for localized compaction, or for haunch or initial lift compaction.

General trench backfill shall be placed in lifts NOT exceeding 6 inches loose. A minimum of 20 roller passes shall be provided per lift. Lifts placed improperly shall be removed and replaced by Contractor.

If the Contractor's compaction methods are not consistent and/or do not meet the requirements of these Specifications, the OWNER reserves the right to undertake additional compaction tests as necessary to determine the extent of substandard compaction, and to charge the Contractor for all such tests.

Additional specification for backfill and compaction shall be completed by Contractor In conformance with NMDOT Standard Specifications, Section 203 (Excavation, Borrow, and Embankment Section 207 (Subgrade Preparation), Section 304 (Base Course), or other applicable standard.

CONSTRUCTION MATERIALS TESTING

Owner will provide necessary construction materials testing for all concrete, soil, and asphalt placement throughout the project duration to ensure compliance with the requirements of the project Drawings and Specifications. Contractor shall coordinate directly with the Owner Representative to schedule all material testing with a minimum of 48-hour notice prior to the required materials testing. All work performed by the Contractor not tested and approved by the Owner or Owner Representative is subject to no payment. Work not constructed in accordance with the requirements is subject to removal and reinstallation at no additional cost to the Owner.

HDPE SANITARY PIPELINE

Furnish all labor, materials, tools and equipment necessary to provide for installation of standard carbon black HDPE sanitary pipeline and tracer wire in accordance with the Drawings and as specified herein.

HDPE pipe shall be assembled and joined at the site using either the butt fusion or electro-fusion method to provide a leak proof joint. Threaded or solvent-cement joints and connections shall not be permitted. All equipment and procedures used shall be used in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel certified, as fusion technicians, by a manufacturer of polyethylene pipe and/or fusing equipment. Butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. Joint shall be allowed adequate cooling time before removal of pressure. Fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to acceptance by the Engineer prior to insertion. All defective joints shall be cut out and replaced at no cost to the Engineer. Any section of the pipe with a gash, blister, abrasion, nick, scar, or other deleterious fault greater in depth than ten percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with the procedures stated above. In addition, any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling as determined by the OWNER and/or his representative shall be discarded and not used. Terminal sections of pipe that are joined within the insertion pit shall be connected with a full circle pipe repair clamp or equal. Butt gap between pipe ends shall not exceed one-half (½) inch. Also, Unicore Plastic Fusion System, Unicore can be used to butt fuse the sewer pipe material.

PVC SANITARY PIPELINE

This item shall include trenching, excavation, shoring or benching, pipeline placement, grading, backfill and compaction necessary for placement of PVC sanitary pipeline and tracer wire meeting the requirements of ASTM-2729 Schedule 40 PVC green sewer pipe shall utilize a gasket to seal the integral

bell socket to the spigot of the next joint. PVC pipe shall be supplied in 20-foot laying lengths. Joints shall meet the requirements of ASTM D3139.

All pipes shall be manufactured in the USA. Installation and construction shall fully conform to AWWA Standard C605, and approved Manufacturer's recommendations. Potable waterlines and accessories shall be installed in a manner to exclude any foreign matter in the line.

Unless otherwise specified in the plans and/or special provisions, the bottom of the trench shall be accurately graded to provide uniform bearing and support for each section of the pipe at every point along its entire length, except for portions of the pipe where it is necessary to excavate for bells and for proper sealing of the pipe joints. Water lines must be constructed a minimum of four feet in depth from the top of proposed grade to the top of pipe, unless otherwise shown on the plans. Open ends of pipe shall be plugged with a standard plug or cap at all times when pipe laying is not in progress. Trench water shall not be allowed to enter the pipe. All trenches shall be properly backfilled at the end of each working day.

Except at locations where excavation of rock, hardpan, or other unsuitable material from the bottom of the trench is required, care shall be taken not to excavate below the depth indicated. Unauthorized excavation below the specified grade line shall be refilled at the Contractor's expense with an approved granular material compacted to a uniform density of not less than 95 percent of the maximum density as determined by ASTM D698/AASHTO T99 Standard Proctor.

Whenever rock or hardpan material is encountered in the trench bottom, it shall be over-excavated to a minimum depth of 6 inches below the O.D. of the pipe. This over-excavation shall be filled with an approved granular material placed with the compaction specification above.

Contractor shall provide and construct concrete thrust block at all change of angle pressurized fittings as indicated. Unless otherwise directed by Project Engineer or Owner, concrete thrust block shall be provided in addition to specified pipeline restraint. Concrete thrust blocking shall meet the requirements of APWA Specifications Section 801.

STAINLESS STEEL SANITARY PIPELINE

All sanitary stainless-steel piping as shown on the contract drawings shall consist of flanged Type 304, Schedule 40S Stainless Steel. Flange bolts, washers, and nuts shall be Type 304 or 304L stainless steel. Pipe fittings shall be shop-welded insofar as possible. Torque all flanged connections in accordance with the gasket manufacturer's recommendations.

PIPELINE INSPECTION AND TESTING

Television inspection of gravity sewer pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by closed circuit color television. Television inspection shall include the following: Video tapes (post installation) to be submitted to the Owner prior to processing of final invoice. Videotapes will remain property of the Owner. The Contractor shall retain second copy for his use. All flows tributary to reach of sewer being inspected are to be completely bypassed around the reach during video inspection, if necessary and/or required by the Engineer. Post construction videotape footage shall be taken upon completion of reconstruction of each reach of sewer with the voice description, as appropriate, and with stationing of service connections indicated. Data and stationing shall be indicated on video.

The Contractor shall perform pressure and leakage testing on the entire completed pressure system in accordance with AWWA C605 at a test pressure of 100 psi. Test duration shall be 2 hours. Allowable leakage shall not exceed 0.106 GPH per 1,000 ft. per inch diameter over the test period for the water main being tested. If the pipe fails to meet test requirements, all leaks shall be repaired and defective pipe or accessories replaced, with no additional payment being made. The test procedure shall be repeated until satisfactory results are demonstrated.

Work under this item shall be considered as incidental to the project and no separate payment associated with Pipeline Inspection and Testing will be made.

SITE PROTECTION AND RECLAMATION

Contractor shall take reasonable measures to protect the existing site conditions and property within the project site throughout the duration of the construction project. Contractor shall furnish and install materials to restore landscape, fencing and non-pavement areas to their preconstruction condition. This work shall include finish grading, seeding and mulching of all disturbed areas. Provide seed mix for approval prior to installation. Apply seed at a rate of 1 lb. per 1000 sq. ft. evenly in two intersecting directions. Rake in lightly. Immediately following seeding, apply mulch to a thickness of 1/8 inch. Apply water with fine spray immediately after each area has been mulched. Saturate to a 4-inch depth of soil.

Work under this item shall be included as incidental to the contract price and no separate payment will be made for Site Protection and Reclamation.

EPOXY COATING SPECIFICATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Solvent-free epoxy coating to be applied to specified surfaces and conforms to the requirements set forth below.
- B. This specification covers all labor, materials, equipment, and services necessary to complete the installation of corrosion protection for concrete and masonry structures as herein specified.
- C. Related Sections: Concrete Repair, Environmental, Health and Safety

1.2 REFERENCES

- A. ACI – The published standards of the American Concrete Institute, Farmington Hills, MI.
 - 1. ACI 506.2-77 - Specifications for Materials, Proportioning, and Application of Shotcrete.
- B. ASTM - The published standards and testing methods of the American Society for Testing and Materials, West Conshohocken, PA.
 - 1. ASTM C109 - Compressive Strength Hydraulic Cement Mortars
 - 2. ASTM C579 - Compressive Strength of Chemically Setting Silicate and Silica Chemical Resistant Mortars
 - 3. ASTM D543 - Resistance of Plastics to Chemical Reagents
 - 4. ASTM D638 - Tensile Properties of Plastics
 - 5. ASTM D695 - Compressive Properties of Rigid Plastics
 - 6. ASTM D790 - Flexural Properties of Unreinforced and Reinforced Plastics

7. ASTM D2584 - Volatile Matter Content
 8. ASTM D4258 - Standard Practice for Surface Cleaning Concrete
 9. ASTM D4259 - Standard Practice for Abrading Concrete
 10. ASTM D4787 Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates
 11. ASTM D4541 - Pull-off Strength of Coatings Using a Portable Adhesion Tester
 12. ASTM D7234 - Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers
 - C. ICRI – The published standards of the International Concrete Repair Institute, Des Plaines, IL.
 1. ICRI Technical Guideline No. 03732 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
 - D. NACE - The published standards of National Association of Corrosion Engineers (NACE International), Houston, TX.
 1. NACE RPO 188-99 Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates
 - E. SSPC - The published standards of the Society of Protective Coatings, Pittsburgh, PA.
 1. SSPC-SP 1 - Solvent Cleaning
 2. SSPC-SP 5 - White Metal Blast Cleaning
 3. SSPC-SP 10 - Near White Metal Blast Cleaning
 4. SSPC-SP 12 Surface Preparation and Cleaning of Metals by Water jetting prior to Recoating.
 5. SSPC SP-13/NACE No. 6 – Surface Preparation of Concrete.
 6. SSPC-PA 9 - Measurement of Dry Coating Thickness on Cementitious Substrates Using Ultrasonic Gages.
- 1.3 SUBMITTALS
1. Technical data sheet on each product used, including ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications.
 2. Material Safety Data Sheets (MSDS) for each product used.
 3. Project specific guidelines and recommendations.
 4. Applicator Qualifications:
 - a. Manufacturer certification that the Applicator has been trained in the handling, mixing and application of the products to be used.
 - b. Certification that the equipment to be used for applying the products has been approved by the protective coating manufacturer and Applicator personnel have been trained and certified for proper use of the equipment.
 - c. Written document providing three (3) years of experience and five (5) recent references of Applicator indicating successful application of a 100% solids high- build solvent-free coating by spray application.
 - d. Applicator must provide written documentation of having installed a minimum of 50,000 sf of plural component spray applied epoxy coating the same or similar to that specified within the last two (2) years.
 - e. Proof of any necessary federal, state or local permits or licenses necessary for the project.
 5. Documentation of requirements of Section 1.6 B & C.
- 1.4 QUALITY ASSURANCE
- A. Coating and repair product(s) shall be capable of being installed and curing properly within the specified environment(s); specifically within environmental

conditions of a typical sanitary sewer. Coating product(s) shall be resistant to all forms of chemical or bacteriological attack found storm water systems.

- B. Coating and Repair product(s) shall be fully compatible; including ability to bond effectively (as tested for in Section 3.5 C.) to each other and/or the host substrate, forming a composite system.
- C. Contractor shall utilize equipment for the application of the coating and repair product(s) which has been approved by the product manufacturer; and Contractor shall have received training on the operation and maintenance of said equipment from the product manufacturer. Written certification of such approval(s) and training shall be submitted by the coating and repair product manufacturer(s).
- D. Contractor and contractor personnel shall be certified by, or have their training approved and certified by, the coating and repair product(s) manufacturer(s) for the handling, mixing, application and inspection of the product(s) to be used as specified herein. Written certification of such training shall be submitted by the coating and repair product manufacturer(s) and shall include the individual contractor personnel to be employed on the project.
- E. Inspectors shall be trained in the use of testing or inspection instrumentation and knowledgeable of the proper use, preparation and installation of the product(s) to be used as specified herein.
- F. Contractor shall initiate and enforce quality control procedures consistent with the coating product(s) manufacturer recommendations and applicable NACE, SSPC, ICRI or other standards as referenced herein.
- G. Pre-construction meeting shall take place no less than two weeks prior to Contractor mobilization. All parties to have physical presence on the project during construction shall be present. At this meeting responsibilities and authorities during construction shall be discerned; comments and questions regarding materials and execution of these specifications shall be presented and addressed.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Materials are to be kept dry, protected from weather, and stored under cover.
- B. Coating and repair materials are to be stored between 50 deg F and 90 deg F. Do not store near flame, heat, or strong oxidants.
- C. All materials are to be handled according to their material safety data sheets.

1.6 SITE CONDITIONS

- A. Contractor shall conform to all local, state, and federal regulations including those set forth by OSHA, RCRA and the EPA and any other applicable authorities.
- B. Confined space entry program and other required safety training certifications shall be submitted by Contractor to Owner as necessary to perform the specified work.
- C. Flow diversion and/or bypass plans shall be submitted by Contractor to Owner as necessary to perform the specified work.

1.7 WARRANTY

- A. Contractor shall warrant all work against defects in materials and workmanship for a period of one (1) year, unless otherwise noted, from the date of final acceptance of the project. Contractor shall, within a reasonable time after receipt of written notice thereof, repair defects in materials or workmanship which may develop during said one (1) year period, and any damage to other work caused by such defects or the repairing of same, at his own expense and without cost to the Owner.
- B. Coating and repair product supplier(s) shall warrant all coating materials for a period of one (1) year from the date of final acceptance, unless otherwise noted, to be free of

manufacturing defects; and products will meet current published physical properties when applied and tested in accordance with the manufacturer's standards. If, within said one (1) year period, any product does not meet the physical properties or is defective in manufacture the manufacturer will either replace the defective product or refund the purchase price.

PART 2 PRODUCTS

2.1 EXISTING PRODUCTS

- A. Thoroughly clean and prepare existing products/surfaces to effect a seal with and promote the adhesion of the coating product(s).

2.2 REPAIR PRODUCTS

- A. Repair materials shall be used to fill voids, structurally reinforce and/or rebuild surfaces, etc. as determined necessary to produce a relatively smooth surface prior to the application of the epoxy coating. Repair materials must be compatible with the specified epoxy coating and shall be applied in accordance with the manufacturer's recommendations.
 - 1. Repair materials must be supplied by the coating product(s) manufacturer or be an approved equal product.
 - 2. In order for a product to be considered an approved equal the submitted product must meet or exceed the minimum characteristics as measured by the applicable standards and on the Technical Data Sheets of the approved products. Also be expressly approved by the coating product(s) manufacturer in writing for compatibility with the specified coating product(s).
 - 3. All materials shall be mixed, applied, and cured in accordance with the manufacturer's recommendations.
 - 4. Repair product physical properties shall be substantiated through submittal of accredited third party testing results and shall be representative of the actual field applied product and cure mechanism(s) to be employed in the field.
- B. Factory blended, rapid setting, high-early strength, non-shrink, Portland cementitious repair mortar to be trowel or pneumatically spray applied to the entire surface.
 - 1. Manufacturer: Raven Lining Systems, Broken Arrow, Oklahoma 800-324-2810 or 918-615-0140 fax.
 - 2. Product: Raven 755 - Cement Mortar having the following characteristics:
 - a. Product Type: Portland cement mortar
 - b. Tensile Strength, (ASTM 496): >800 psi
 - c. Compressive Strength, (ASTM C109): >9,000 psi @ 28 days d. Flexural Strength, (ASTM C293): >1500 psi
 - e. Shrinkage @ 90% R. H. (ASTM C596): 0%
 - f. Adhesion to Concrete, (ASTM C882): >2000 psi
 - g. Freeze/Thaw (ASTM C666): 100 Cycles, no visible damage
- C. Factory blended, non-shrink, hydraulic cement to be used for infiltration remediation.
 - 1. Manufacturer: As applicable
 - 2. Product: Hydraulic cement having the following characteristics:
 - a. Product Type: Hydraulic cement

- b. Compressive Strength, (ASTM C109): >1,000 psi @ 1 hour, >2500 psi @ 24 hours
 - c. Shrinkage @ 90% R. H. (ASTM C596): 0%
 - D. Hydrophobic or Hydrophilic injectable chemical grout to be used for the remediation of high volume infiltration or crack repair and/or soil stabilization and void filling.
 - 1. Manufacturer: As applicable
 - 2. Product: Chemical grout as appropriate for infiltration, crack repair and soil stabilization.

2.3 COATING PRODUCTS

- A. Coating product shall be applied to all interior surfaces to protect the host substrate and repair materials from all forms of chemical or bacteriological attack typically found in storm water systems and impart a degree of structural enhancement.
- B. Coating product physical properties shall be substantiated through submittal of accredited third party testing results and shall be representative of the actual field applied product and cure mechanism(s) to be employed in the field.
- C. 100% Solids, Solvent-Free, Ultra-High Build Epoxy Coating to be spray applied to all interior surfaces of exposed concrete above the spring line or as otherwise detailed.
 - 1. Manufacturer: Raven Lining Systems, Broken Arrow, Oklahoma 800-324-2810 or 918-615-0140 fax.
 - 2. Product: Raven 405 – 100% solids, solvent-free ultra high-build epoxy system exhibiting the following characteristics:
 - a. Product Type: amine cured epoxy
 - b. VOC Content (ASTM D2584): 0%
 - c. Compressive Strength, (ASTM D695): >18,000 psi
 - d. Tensile Strength, psi (ASTM D638): >7,600 psi
 - e. Flexural Modulus, psi (ASTM D790): >700,000 psi
 - f. Adhesion to Concrete, (ASTM D4541/7234): >200 psi with substrate (concrete) failure
 - g. Chemical Resistance (ASTM D543/G20) immersion service for:
 - i. Municipal sanitary sewer environment
 - ii. Sulfuric Acid, 30%
 - iii. Sodium Hydroxide, 10%
 - iv. Sodium Hypochlorite, 3%
 - h. Successful Pass: Sanitation District of L.A. County Coating Evaluation Study and SSPWC 210.2.3.3 (Greenbook "Pickle Jar" Chemical Resistance test)
- D. 100% Solids, Solvent-Free, Ultra-High Build Epoxy Coating to be manually or spray applied to interior surfaces of exposed concrete above or below the typical flow line; specifically designed for accelerated cure and suitable for release of flow in less than 45 minutes at normal service temperatures or as otherwise detailed.
 - 1. Manufacturer: Raven Lining Systems, Broken Arrow, Oklahoma 800-324-2810 or 918-615-0140 fax.
 - 2. Product: Raven 405 FS – 100% solids, solvent-free ultra high-build epoxy system.
 - a. Product Type: amine cured epoxy
 - b. VOC Content (ASTM D2584): 0%
 - c. Compressive Strength, (ASTM D695): >16,000 psi
 - d. Tensile Strength, psi (ASTM D638): >7,600 psi

- e. Flexural Modulus, psi (ASTM D790): >688,000 psi
- f. Adhesion to Concrete, (ASTM D4541/7234): >200 psi with substrate (concrete) failure
- g. Chemical Resistance (ASTM D543/G20) immersion service for:
 - i. Municipal sanitary sewer environment
 - ii. Sulfuric Acid, 30%
 - iii. Sodium Hydroxide, 10%
 - iv. Sodium Hypochlorite, 3%

2.4 PRODUCT APPLICATION EQUIPMENT

- A. Cementitious repair products for spot repair may be mixed and applied using hand and/or power tools
- B. Cementitious repair products to be spray applied shall be mixed and applied using manufacturer approved batch mixing and low velocity spray devices.
- C. Coating product primer may be applied using hand tools or other convention/airless spray application device(s).
- D. Coating product to be spray applied shall be mixed and applied using manufacturer approved heated plural component spray equipment.
- E. Coating product application to hard to reach areas or for touch-up may be performed using hand tools.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Appropriate actions shall be taken by Contractor to comply with local, state, and federal regulatory and other applicable agencies with regard to environment, health, and safety during work.
- B. All structures to be coated shall be readily accessible to Contractor.
- C. Any active flows shall be dammed, plugged, or diverted as required to ensure all liquids are maintained below or away from the surfaces to be coated until final applications are cured as recommended by the manufacturer.
- D. Temperature of the surface to be coated should be maintained between 40 & 120 °F.
- E. Specified surfaces should be shielded to avoid exposure of direct sunlight, other intense heat source or, where cementitious products are employed, excessive ventilation. Where varying surface temperatures do exist, coating installation should be scheduled when the temperature is falling versus rising.
- F. Prior to commencing surface preparation, Contractor shall inspect all surfaces specified to receive the coating and notify Owner, in writing, of any noticeable disparity in the site, structure or surfaces which may interfere with the work, use of materials or procedures as specified herein.

3.2 REPAIRS AND SURFACE PREPARATION

- A. Excessive debris, sediment, root intrusion or other foreign materials which may impact the effectiveness of the surface preparation process shall be removed prior to the commencement thereof.
- B. Offset structural components, lids, covers, frames, etc. shall be repaired, replaced, or reset prior to the commencement of surface preparation.
- C. External soil/fill voids shall be remediated and/or stabilized by replacement or injection of stabilizing grout as determined appropriate by the engineer.

- D. Oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants which may affect the performance and adhesion of the coating to the substrate shall be removed in accordance with SSPC- SP 1 – Solvent Cleaning.
- E. Choice of surface preparation method(s) should be based upon the condition of the structure and concrete or masonry surface, potential contaminants present, access to perform work, and the required cleanliness and profile of the prepared surface to receive the repair and/or coating product(s).
- F. Surface preparation method, or combination of methods, that may be used include high-pressure water cleaning, water jetting, abrasive blasting, shot blasting, grinding, scarifying, detergent water cleaning, hot water cleaning and others as referenced in industry accepted standards such as:
 - 1. SSPC SP-13/NACE No. 6 Surface Preparation of Concrete,
 - 2. ASTM D-4258 Standard Practice for Surface Cleaning Concrete for Coating and ASTM D4259 Standard Practice for Abrading Concrete,
 - 3. ICRI Technical Guideline No. 03732 Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- G. Whichever method(s) are used, they shall be performed in a manner that provides a uniform, sound, clean, and neutralized surface suitable for the specified coating product(s).
 - 1. Resulting surface profile of the prepared concrete substrate shall be (as described in ICRI Technical Guideline No. 03732):
 - a. For application of cementitious materials; at least a CSP5
 - b. For application of coating products: at least a CSP4.
 - 2. Concrete and/or mortar damaged by corrosion, chemical attack or other means of degradation shall be removed so that sound substrate remains,
 - a. In conditions where severe chemical/microbiological attack is present the prepared substrate shall exhibit a pH of 8-12. Additional cleaning and/or contaminated substrate removal may be required to achieve the specified pH level.
- H. Prior to the application of the coating product repairs shall be completed to ensure the following:
 - 1. All inflow and infiltration shall be eliminated by use of appropriate repair material(s), such as hydraulic cements and/or chemical grouts as described in Section 2.2.
 - 2. All repairs to joints, pipe seals, steps, mechanical penetrations, benches, inverts, pipes or other appurtenances to be coated shall be completed and repaired surfaces prepared according to this section.
 - a. Benches or other horizontal surfaces shall have adequate slope (1" rise per lineal foot) to minimize the retention of debris following surcharge.
 - b. Inverts or flow channels shall be smooth without lips, rough edges or other features which may cause debris to collect; contoured to minimize turbulent flow; and be sloped to promote adequate flow from the inlet(s) to the outlet pipe.
 - c. All joints, pipe seals, steps or other penetrations shall be sealed against inflow, infiltration and exfiltration and be adequately filled, smoothed and contoured to promote monolithic coating application.

3.3 APPLICATION OF REPAIR AND RESURFACING PRODUCTS

- A. Repair products as per Section 2.2 B, shall be used to repair, smooth or rebuild surfaces with rough profiles to provide a concrete or masonry substrate suitable for the coating product(s) to be applied. These products shall be installed to 1/2" minimum thickness or as recommended within manufacturers published guidelines. Should structural rebuild be necessary, these products shall be installed to a thickness as specified by the Project Engineer
- B. Repair products as per Section 2.2 D shall be used to remediate all active inflow, infiltration, and/or external soil/fill voids.
- C. All Repair products shall be handled, mixed, installed, and cured in accordance with manufacturer guidelines.
- D. All repaired or resurfaced substrates shall be inspected for cleanliness and suitability to receive the coating product(s). Additional surface preparation may be required prior to coating application as per Section 3.2.

3.4 APPLICATION OF COATING PRODUCT(S)

- A. Application procedures shall conform to the recommendations of the coating product(s) manufacturer, including environmental controls, product handling, mixing, application equipment, and methods.
- B. Spray equipment shall be specifically designed to accurately ratio and apply the coating product(s) and shall be in proper working order.
- C. Contractors qualified in accordance with Section 1.4 of these specifications shall perform all aspects of coating product(s) installation.
- D. Prepared surfaces shall be coated via spray application of the coating product(s) described herein unless otherwise recommended by the coating product manufacturer. Epoxy Coating thickness shall be in relation to the profile of the surface to be coated as recommended by the coating product manufacturer.
- F. In all cases the coating product(s) shall be applied to a minimum dry film thickness of 125 mils to surface profiles of CSP-4 to CSP-5.
 - 1. For resistance to ground water head pressure coating manufacture for recommendations.
- G. Subsequent top coating or additional coats of the coating product(s) shall occur within the products recoat window or 24 hours whichever is less. Additional surface preparation procedures will be required if this recoat window is exceeded.
- H. Coating product(s) shall interface with adjoining construction materials/components throughout the manhole structure to effectively seal and protect substrates from attack by corrosive elements and to ensure the effective elimination of infiltration into the sewer system.
- I. Procedures and materials necessary to effect the interface between dissimilar materials and the coating product shall be as recommended by the coating product(s) manufacturer.
- J. Termination points of the coating product(s) shall be made at the manhole frame and chimney joint (or other man way as is present), 1" below normal flow levels at the bench or within the invert, and a minimum of 1" interfacing within each pipe penetration.
- L. Flow shall be stopped, bypassed, or diverted as necessary for application of the coating product(s) to the invert and interface with pipe materials.

3.5 TESTING AND INSPECTION

- A. Coating system thickness shall be inspected to ensure compliance with the specifications herein.
 - 1. During application a wet film thickness gauge, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used. Measurements shall be taken, documented, and attested to by Contractor for submission to Owner.
 - 2. After the coating product(s) have cured in accordance with manufacturer recommendations, coating system thickness may be measured according to SSPC-PA 9 - Measurement of Dry Coating Thickness on Cementitious Substrates Using Ultrasonic Gages.
- B. High voltage holiday detection for coating systems installed in corrosive environments, when it can be safely and effectively employed, shall be performed to ensure monolithic protection of the substrate. After the coating product(s) have cured in accordance with manufacturer recommendations, all surfaces shall be inspected for holidays in accordance with NACE RPO 188-99 Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates or ASTM D4787 Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates. All detected holidays shall be marked and repaired according to the coating product(s) manufacturer's recommendations.
 - 1. Test voltage shall be a minimum of 100 volts per mil of coating system thickness.
 - 2. Detection of a known or induced holiday in the coating product shall be confirmed to ensure proper operation of the test unit.
 - 3. All areas repaired shall be retested following cure of the repair material(s).
 - 4. In instances where high voltage holiday detection is not feasible a close visual inspection shall be conducted and all possible holidays shall be marked and repaired as described above.
 - 5. Documentation of areas tested, equipment employed, results, and repairs made shall be submitted to the Owner/Engineer by Contractor.
- C. Adhesion of the coating system to the substrate shall be confirmed in a minimum of 10% of the areas coated, or for large structures once every 1000 square feet of coated area. After the coating product(s) have cured in accordance with manufacturer recommendations, testing shall be conducted in accordance with ASTM D7234 Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers. Owner's representative shall select the areas to be tested.
 - 1. For each test manhole a minimum of three 20 mm dollies shall be affixed to the coated surface; one at the cone area, one at the mid-section and one near the bottom of the structure.
 - 2. For larger structures a minimum of three 20 mm dollies shall be affixed to the coated surface at random locations within each 1000 square foot area or as otherwise agreed upon.
 - 3. The adhesive used to attach the dollies to the coating shall be rapid setting with tensile strengths in excess of at least twice the anticipated failure point (generally at least 1000 psi) and permitted to cure in accordance with manufacturer recommendations. The coating and dollies shall be adequately cleaned and prepared to receive the adhesive. Failure of the dolly adhesive shall be deemed a non-test and require retesting.

4. Prior to performing the pull test, the coating shall be scored to the substrate, or within 10 mils of the substrate surface, by mechanical means without disturbing the dolly or coating system bond within the test area.
 5. Two of the three adhesion pulls in each test area shall exceed 200 psi and shall include substrate adhered to the back of the dolly or no visual signs of the coating product in the test hole. Pulls tests with results between 150 and 200 psi may be acceptable if more than 50 percent of the substrate in the test area is adhered to the dolly.
 6. Should a structure, or area, fail to achieve two successful pulls as described above, additional testing shall be performed at the discretion of the Owner or Project Engineer. Any areas detected to have inadequate bond strength shall be evaluated by the Project Engineer. Further bond tests may be performed in that area to determine the extent of potentially deficient bonded area and repairs shall be made by Contractor.
 7. All adhesion testing shall be performed by qualified personnel using calibrated equipment as specified by the applicable ASTM standard(s).
 8. All adhesion testing shall be documented and submitted in a consistent format detailing location, test values, description of the failure point/mode, scoring method employed, adhesive used, cure time of coating and adhesive and other data as deemed necessary by the owner/engineer.
 9. All adhesion test locations shall be repaired by the Contractor at no cost to the Owner.
- D. Visual inspection shall be made by the Project Engineer and/or Inspector. Any deficiencies in the finished coating affecting the performance of the coating system or the operational functionality of the structure shall be marked and repaired according to the recommendations of the coating product(s) manufacturer.
- E. The system may be returned to full operational service as soon as the final inspection has taken place and all coating materials have been adequately cured according to the coating product(s) manufacturer's recommendations.

HOSPITAL DRIVE LIFT STATION RATON, NEW MEXICO

FEBRUARY 2016

I, KAREN STEARNS, NEW MEXICO REGISTERED
PROFESSIONAL ENGINEER NO. 14085,
HEREBY CERTIFY THAT PROJECT DESIGN
DOCUMENTS HAVE BEEN PREPARED BY
MYSELF IN ACCORDANCE WITH APPLICABLE
STANDARDS AND AGENCY REQUIREMENTS.

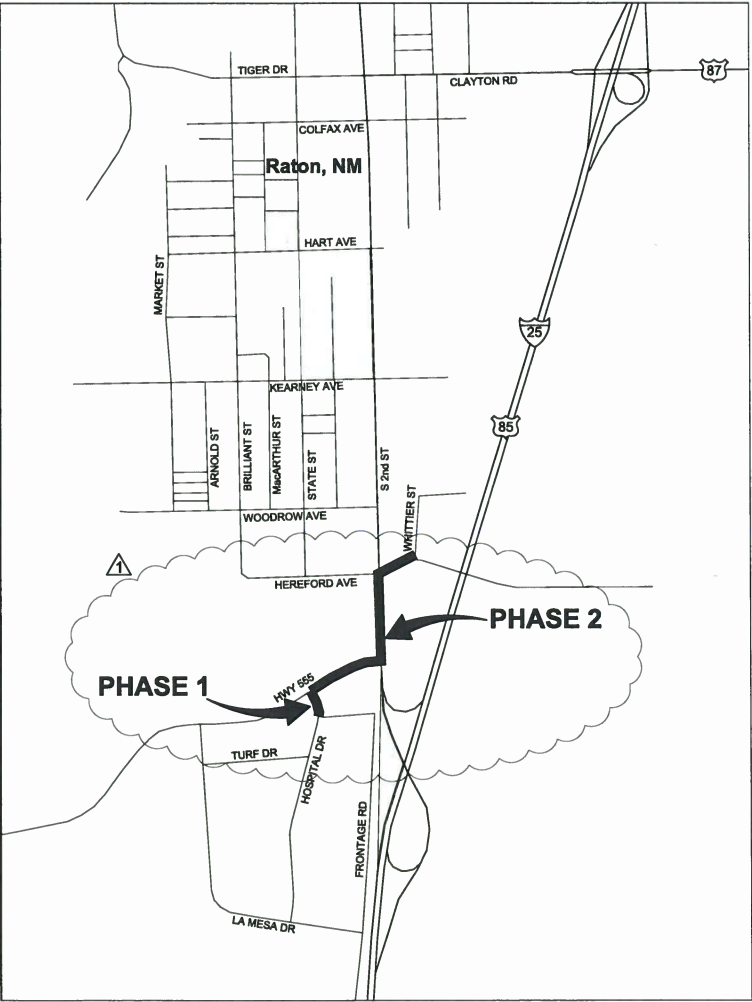
PROJECT ENGINEER:
KAREN M. STEARNS, P.E.
ENGINEERING ANALYTICS, INC.
219 S. 2ND ST.
RATON, NEW MEXICO 87740
575-445-7192

FUNDING AGENCY:
CITY OF RATON WATER WORKS

CONTRACTING AGENCY:
CITY OF RATON
224 SAVAGE AVENUE
POST OFFICE BOX 910
RATON, NEW MEXICO 87740

SHEET INDEX

- △ G-1.0 COVER SHEET AND SITE LOCATION PHASE 1 AND PHASE 2
- G-2.0 GENERAL NOTES PHASE 1 AND PHASE 2
- G-3.0 BORING LOGS
- C-1.0 OVERALL SITE PLAN PHASE 1 AND PHASE 2
- C-1.1 CIVIL DETAILS PHASE 1
- C-1.2 CIVIL DETAILS NMDOT AND NM APWA STANDARD DRAWINGS PHASE 1 AND PHASE 2
- C-2.0 PIPELINE PLAN AND PROFILE STA 0+00 TO 8+00 PHASE 1 AND PHASE 2
- C-2.1 PIPELINE PLAN AND PROFILE STA 8+00 TO 17+50 PHASE 2
- C-2.2 PIPELINE PLAN AND PROFILE STA 17+50 TO 23+93 PHASE 2
- P-1.0 PROCESS AND INSTRUMENTATION DIAGRAM PHASE 1
- P-1.1 PROCESS AND INSTRUMENTATION LEGEND AND NOTES PHASE 1 AND PHASE 2
- M-1.0 LIFT STATION PLAN PHASE 1
- M-1.1 LIFT STATION DETAILS PHASE 1
- E-1.0 ELECTRICAL SITE PLAN
- E-2.0 ELECTRICAL ONE-LINE DIAGRAM
- E-3.0 PANEL SCHEDULES
- △ TC-1.0 TRAFFIC CONTROL PLAN TT2 PHASE 2
- △ TC-1.1 TRAFFIC CONTROL PLAN TEMPORARY WORK ON SHOULDER PHASE 2
NM APWA DWG 2102 SEWER MANHOLE TYPE "E"



PROJECT LOCATION



Karen M. Stearns

REVISIONS			
Revision	Date	Description	
0	4/27/16	ISSUED FOR CONSTRUCTION	
1	2/18/16	ISSUED FOR PROJECT PHASING	

Designed by:
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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

COVER SHEET AND
SITE LOCATION
PHASE 1 AND PHASE 2


Drawn by:	RDP
Designed by:	KMS
Checked by:	EJH
Scale:	As Shown
Project No.	140627
Date:	February 18, 2016
SHEET	G-1.0

AB	ANCHOR BOLT	MH	MANHOLE
AC	ACRE	MIN	MINIMUM
AC-FT	ACRE-FEET	N	NORTHING
APPROX	APPROXIMATE	NA	NOT APPLICABLE
B, BOTT	BOTTOM	NGS	NATIONAL GEODETIC SURVEY
C	CENTERLINE	NO	NUMBER
CC	CENTER TO CENTER	NTS	NOT TO SCALE
CFS	CUBIC FEET PER SECOND	OC	ON CENTER
CJ	CONTROL JOINT	OPNG	OPENING
CLR	CLEAR	OW	OUTLET WORKS
CMP	CORRUGATED METAL PIPE	PC	POINT OF CURVATURE
CSK	COUNTERSINK	PL	PLATE (STEEL)
CTD	CENTERED	PT	POINT OF TANGENCY
CTJ	CONSTRUCTION JOINT	PVI	POINT OF VERTICAL INTERSECTION
CY	CUBIC YARD	PVC	POLYVINYL CHLORIDE
DEMO	DEMOLISH	PZ	PIEZOMETER
DET	DETAIL	R	RADIUS
DIA	DIAMETER	RCR	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE	REIN	REINFORCEMENT
DNS	DO NOT SCALE	REQD	REQUIRED
D/S	DOWNSTREAM	REV	REVISION
E	EASTING	ROW	RIGHT-OF-WAY
EA	EACH	S	SLOPE (FT/FT)
EE	EACH END	SAN	SANITARY SEWER
EF	EACH FACE	SCH	SCHEDULE
EJ	EXPANSION JOINT	SHT	SHEET
EL	ELEVATION	SMH	SANITARY MANHOLE
EOP	END OF PROJECT	SQ	SQUARE
EQUIP	EQUIPMENT	SS	STAINLESS STEEL
EST	ESTIMATED	STA	STATION
EW	EACH WAY	STD	STANDARD
EX	EXAMPLE	T, TOP	TOP
EXIST	EXISTING	TBD	TO BE DETERMINED
EXP	EXPANSION	TH	TEST HOLE
FT	FEET	TOF	TOP OF FOOTING ELEVATION
FTG	FOOTING	TOW	TOP OF WALL ELEVATION
GH	GAGE HEIGHT	TP	TEST PIT
HORIZ	HORIZONTAL	TSLE	TOP OF SLAB ELEVATION
HS	HEADED STUD	TSTE	TOP OF STEEL ELEVATION
IN	INCHES	TYP	TYPICAL
INV	INVERT	UNO	UNLESS NOTED OTHERWISE
JT	JOINT	U/S	UPSTREAM
L, L	DEVELOPMENT LENGTH	VERT	VERTICAL
LF	LINEAR FEET	WL	WATER LEVEL
MAX	MAXIMUM	WS	WATERSTOP

	EXISTING FENCE
	UNDERGROUND TELEPHONE LINE
	OVERHEAD ELECTRIC LINE
	EXISTING ELECTRIC LINE
	EXISTING GAS LINE
	EXISTING SEWER LINE
	EXISTING WATER LINE
	EXISTING CULVERT
	PROPERTY BOUNDARY
	PROPOSED PIPELINE (UNDERGROUND ROUTE)
	EXISTING SEWER MANHOLE
	PROPOSED SEWER MANHOLE
	BORING
	EXISTING STREET SIGN
	EXISTING POWER POLE
	EXISTING LIGHT POLE
	EXISTING TREE
	EXISTING FIRE HYDRANT



INDICATES CROSS SECTION LOCATION. D REFERS TO THE CROSS SECTION DESIGNATION. 6 REFERS TO THE SHEET NUMBER WHERE THE SECTION IS SHOWN. WHEN SHOWN ON THE SECTION LABEL, THIS NUMBER REFERS TO THE SHEET NUMBER WHERE THE SECTION IS CUT.

SEE DETAIL  INDICATES DETAIL LOCATION. 2 REFERS TO THE DETAIL DESIGNATION. 4 REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS INDICATED. WHEN SHOWN ON THE DETAIL, THIS NUMBER REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS SHOWN.

1. PHASE 1 OF THIS DESIGN PACKAGE PROVIDES THE NECESSARY UPGRADES TO AGING EQUIPMENT TO MEET CURRENT SYSTEM DEMANDS WITH ROOM FOR CAPACITY EXPANSION UP TO APPROXIMATELY 200 gpm. PHASE 2 IS PROVIDED AS FUTURE UPGRADE TO ALLOW ADDITIONAL CAPACITY IF DEVELOPMENT INCREASES THE REQUIRED CAPACITY BEYOND 200 gpm. THE PHASE 2 EXPANSION WILL SUPPORT A SYSTEM FLOW UP TO APPROXIMATELY 240 gpm USING PHASE 1 PUMPS OR 550-600 gpm WITH THE INSTALLATION OF LARGER CAPACITY PUMPS.
2. NOT ALL EXISTING UTILITIES ARE SHOWN IN PLAN OR PROFILE DUE TO INSUFFICIENT INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE UTILITIES PRIOR TO CONSTRUCTION. CALL NEW MEXICO ONE CALL BEFORE YOU DIG (UTILITY LOCATES) 1-800-321-2537 OR 811.
3. CONTRACTOR MUST ENSURE THAT ALL EXISTING UTILITIES, ONSITE STRUCTURES, ADJACENT STRUCTURES AND SITES ARE PROTECTED DURING CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE ALL DAMAGE IS REPAIRED TO EQUAL OR BETTER THAN EXISTING.
4. CONTRACTOR MUST ENSURE THAT ALL ENVIRONMENTAL CONDITIONS ARE PROTECTED THROUGHOUT CONSTRUCTION AND THE SITE IS RESTORED TO A STATE ACCEPTABLE TO THE ENGINEER AND CITY OF RATON.
5. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT(S) FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY.
6. PIPELINE TO STAY A MINIMUM OF 2' AWAY FROM EXISTING BURIED UTILITIES, WHICH MAY REQUIRE COORDINATION WITH THE UTILITY COMPANIES OR POTHOLING IN ORDER TO DETERMINE DEPTHS OF EXISTING UTILITIES. CONTRACTOR TO CONTACT RATON WATER WORKS IMMEDIATELY UPON DISCOVERY OF CONFLICT BETWEEN PIPELINE ALIGNMENT AND EXISTING UTILITIES.
7. MAINTAIN A MINIMUM 4' DISTANCE FROM POWER POLES.
8. ALL LENGTHS OF HORIZONTAL BORES TO BE FIELD VERIFIED BY CONTRACTOR.
9. RATON WATER WORKS TO COORDINATE WITH RATON NATURAL GAS AT LEAST THREE (3) WEEKS BEFORE CONSTRUCTION COMMENCEMENT FOR GAS SERVICE RELOCATION TO NMDOT METER AT 2ND STREET AND HEREFORD AVENUE. CONTRACTOR TO VERIFY GAS SERVICE LINE RELOCATION PRIOR TO CONSTRUCTION.
10. ALL CONSTRUCTION SHALL COMPLY WITH THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2008 EDITION.
11. ANY PAVEMENT CUTS FOR TRENCH OR BORE PITS SHALL BE BUILT AND REPLACED PER STD DWG 2465 THICKNESS.
12. THE EXISTING LIFT STATION, GRAVITY LINES AND FORCE MAIN ARE TO REMAIN INTACT AND OPERATIONAL DURING CONSTRUCTION. RATON WATER WORKS REQUIRES ONE (1) WEEK AFTER CONSTRUCTION OF NEW SEWER LIFT STATION AND PIPELINES ARE COMPLETE IN ORDER TO VERIFY THE NEW SYSTEM IS FULLY OPERATIONAL. ONLY AFTER RATON WATER WORKS IS SATISFIED WITH THE OPERATION OF THE NEW SYSTEM MAY THE CONTRACTOR ABANDON THE APPROPRIATE SECTIONS OF THE EXISTING SYSTEM, AS IDENTIFIED IN THE PLANS. CONTRACTOR TO SUBMIT A PHASING PLAN TO DEMONSTRATE COMPLIANCE WITH THESE OBJECTIVES PRIOR TO CONSTRUCTION.
13. FORCE MAINS SHALL BE PRESSURE TESTED AT A MINIMUM OF 50 PSI ABOVE THE DESIGN WORKING PRESSURE OF ±45 PSI.
14. ALL PUMPS SHALL BE TESTED BY THE MANUFACTURER AT THE FACTORY. THESE TESTS WILL INCLUDE A HYDROSTATIC TEST AND AN OPERATING TEST. CONTRACTOR SHALL COMPLETE THE "START-UP REPORT FORM" FOUND ON PAGE 37-40 OF THE PUMP OPERATIONAL MANUAL FOR DOCUMENTATION OF INITIAL INSTALLATION.
15. PUMPS HANDLING RAW WASTEWATER SHALL BE CAPABLE OF PASSING SPHERES OF AT LEAST 3 INCHES IN DIAMETER. PUMP SUCTION AND DISCHARGE OPENINGS SHALL BE AT LEAST 4 INCHES IN DIAMETER.
16. SURVEY CONTROL TO BE PROVIDED AT PRE-CONSTRUCTION MEETING.
17. CONTRACTOR TO PROVIDE TRAFFIC CONTROL PLANS TO RATON WATER WORKS PRIOR TO CONSTRUCTION. TRAFFIC CONTROL WITHIN NMDOT RIGHT-OF-WAY REQUIRES NMDOT PERMIT. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN TO VEHICULAR TRAFFIC AT ALL TIMES ON HOSPITAL DRIVE, SUFFICIENT FOR PASSAGE OF EMERGENCY VEHICLES. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN EACH DIRECTION TO VEHICULAR TRAFFIC ON YORK CANYON ROAD (NM 555) AND SOUTH 2ND STREET. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN TO VEHICULAR TRAFFIC ON HEREFORD AVENUE AND WHITTIER STREET.
18. PHASE 2: CONSTRUCTION OF THE PIPELINE FROM THE LIFT STATION VALVE VAULT TO THE FINAL RECEIVING MANHOLE IN WHITTIER STREET SHALL BE TRENCHLESS (THE TURN AT STATION 11+32 IS EXCEPTED FROM THIS REQUIREMENT). CONTRACTOR HAS OPTION TO TRENCH OR USE TRENCHLESS METHODS FOR THE SECTION OF PIPELINE FROM THE EXISTING MANHOLE IN HOSPITAL DRIVE TO THE LIFT STATION AND FROM MH-1 TO THE LIFT STATION.

Revision	Date	Description
0	4/27/15	ISSUED FOR CONSTRUCTION
1	2/18/16	ISSUED FOR PROJECT PHASING

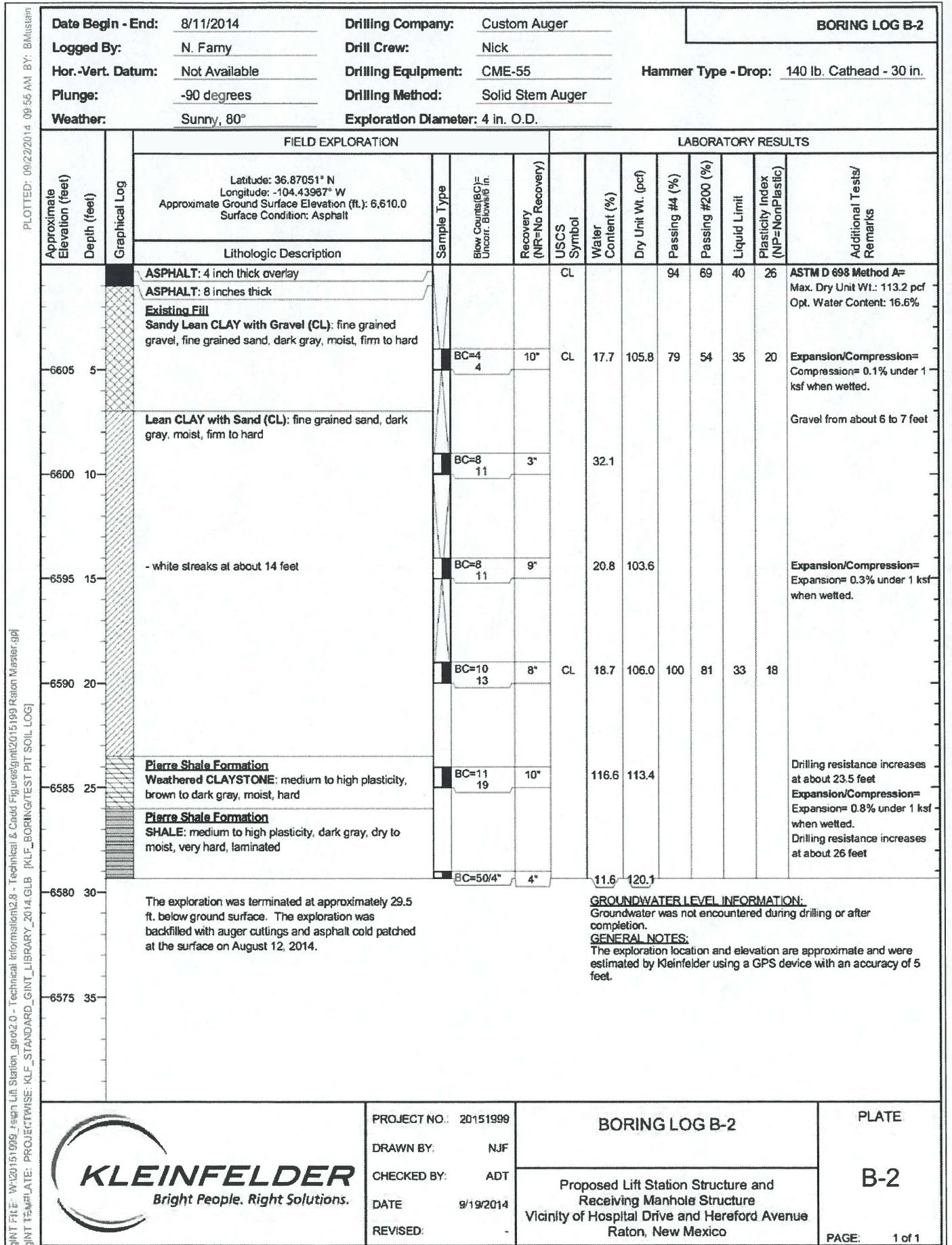
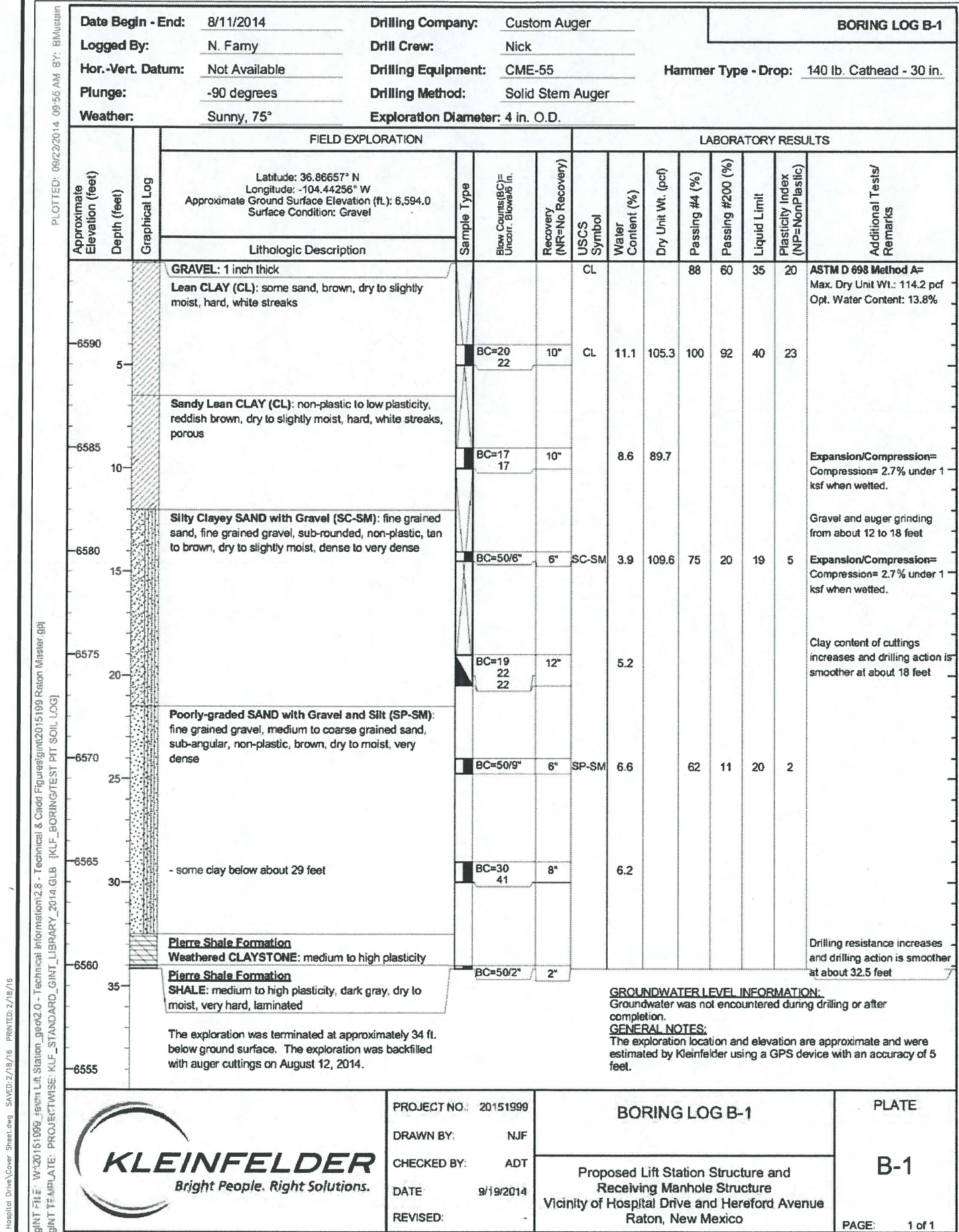
EA
Engineering Analytics, Inc.
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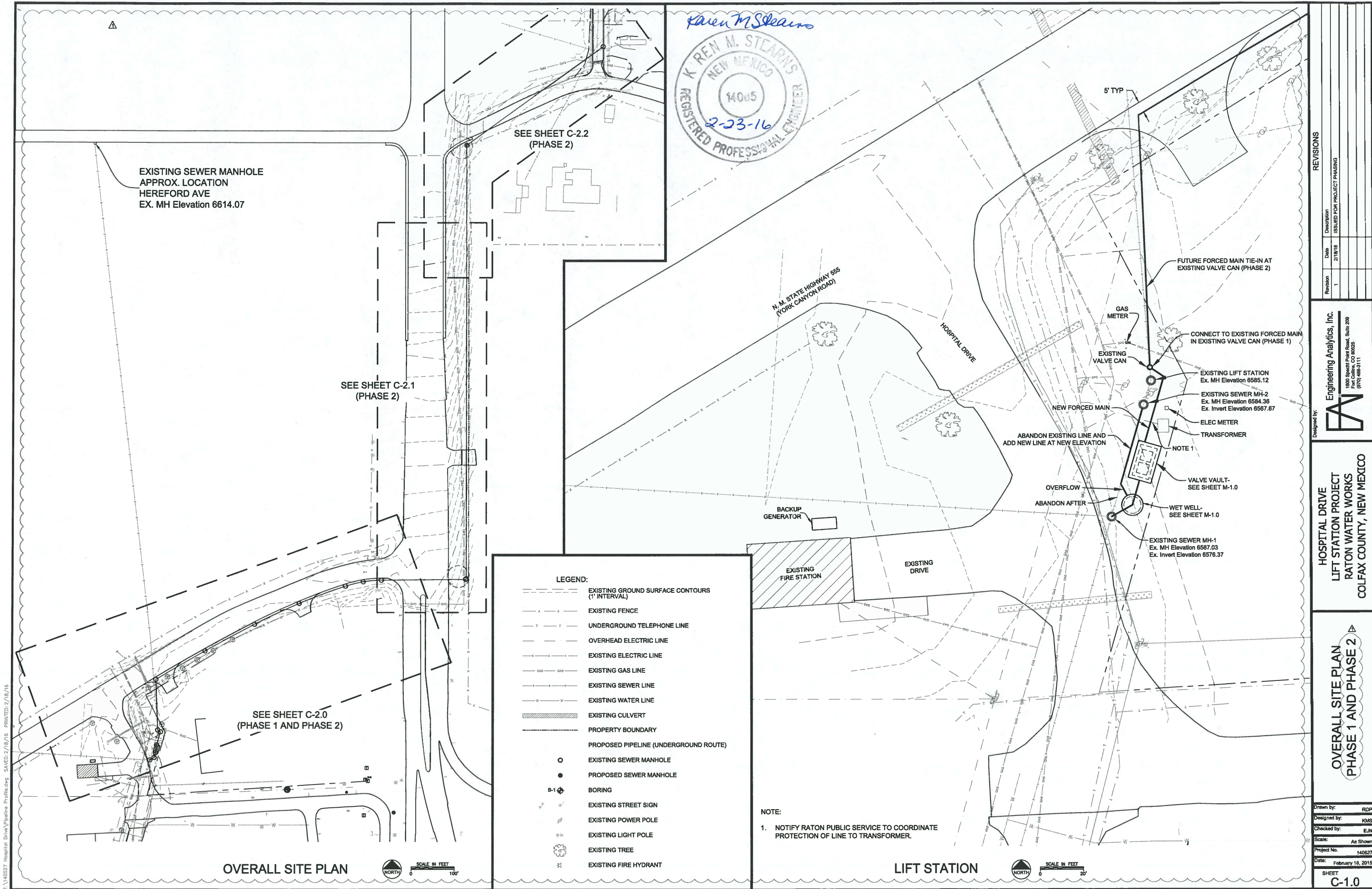
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

GENERAL NOTES

PHASE 1 AND PHASE 2

Drawn by:	RDP
Designed by:	KMS
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	February 18, 2015
SHEET	
G-2.0	





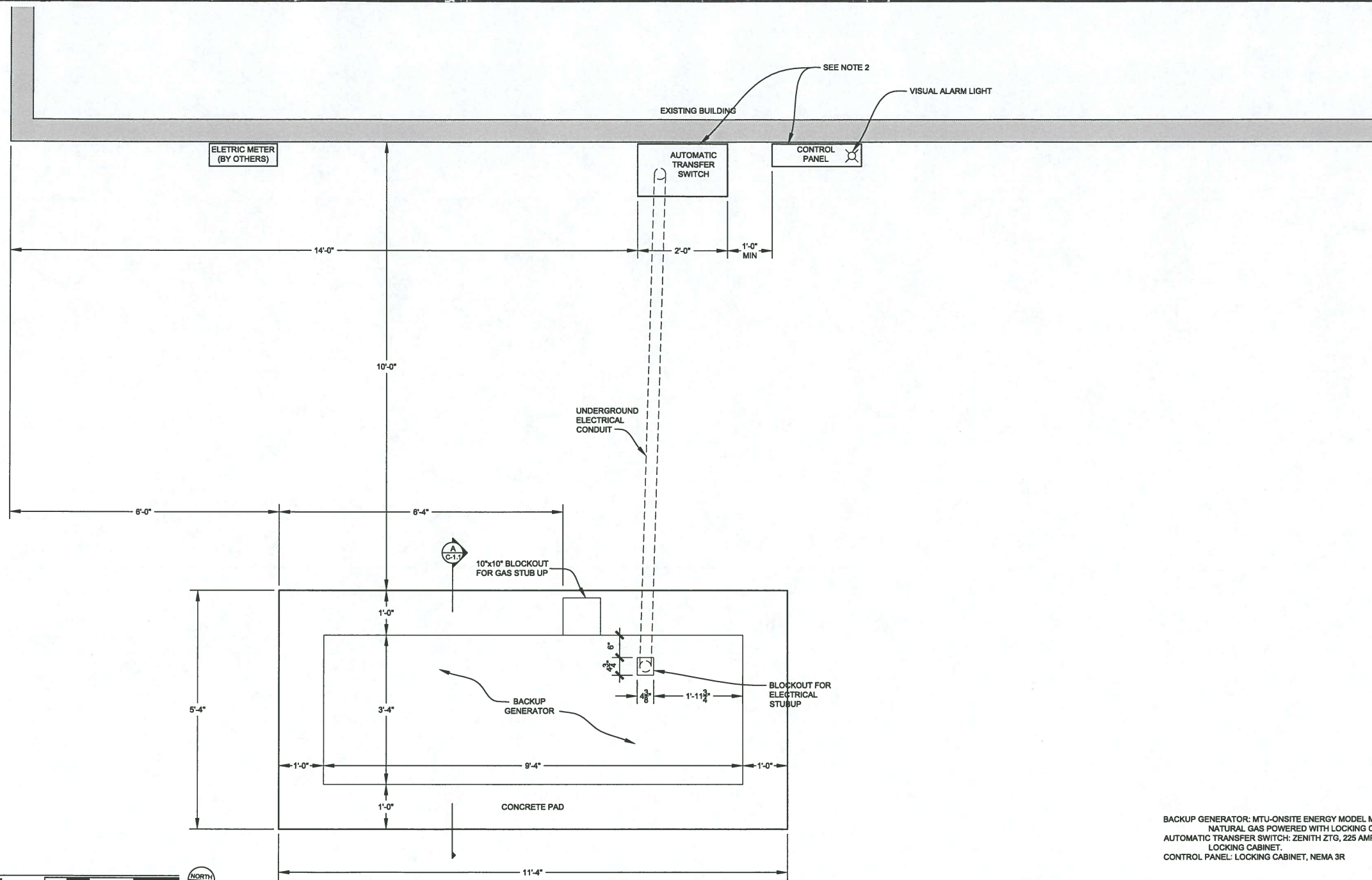
REVISIONS			
Revision	Date	Description	Issued For Project Phasing
1	2/18/16		

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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

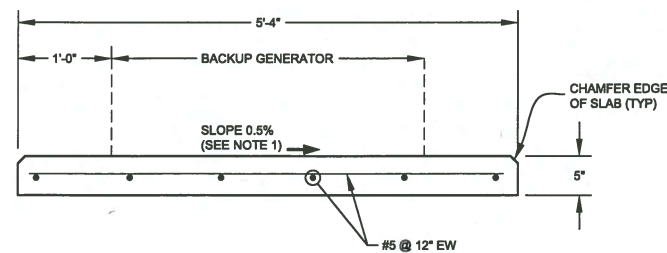
OVERALL SITE PLAN
PHASE 1 AND PHASE 2

Drawn by: RDP
Designed by: KMS
Checked by: E.J.N.
Scale: As Shown
Project No. 140527
Date: February 18, 2015
SHEET
C-1.0



PLAN
SCALE: 3/4" = 1'-0"

BACKUP GENERATOR: MTU-ONSITE ENERGY MODEL MTU8V0071GS80
NATURAL GAS POWERED WITH LOCKING CABINET.
AUTOMATIC TRANSFER SWITCH: ZENITH ZTG, 225 AMP, 3 POLE, WITH
LOCKING CABINET.
CONTROL PANEL: LOCKING CABINET, NEMA 3R



A SECTION
C-1.1 SCALE: 1/2" = 1'-0"

- NOTES:
1. SLOPE PAD TO DRAIN. LEVEL GENERATOR PER MANUFACTURER'S SPECIFICATIONS. BOLT DOWN GENERATOR WITH EPOXY BOLTS PER MANUFACTURER'S SPECIFICATIONS.
 2. MOUNT CABINET ON EXISTING BUILDING OR SUPPORT ON UNISTRUT OR EQUIVALENT BOLTED TO CONCRETE PAD.
 3. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. MAXIMUM WATER CEMENT RATIO SHALL NOT EXCEED 0.45.



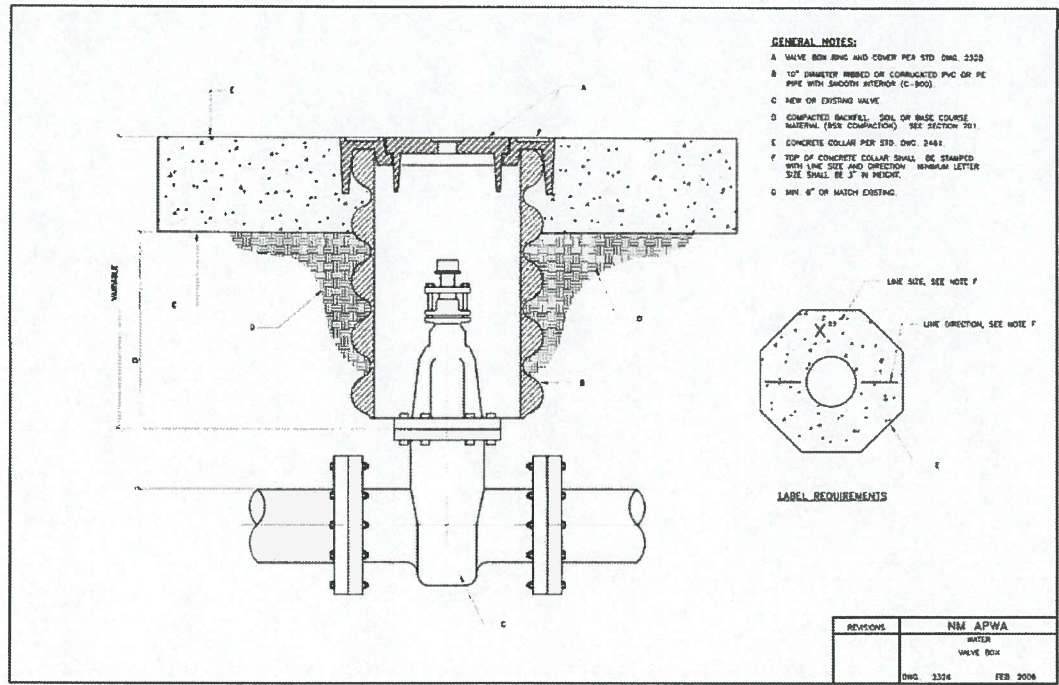
REVISIONS			
Revision	Date	Description	
0	4/27/15	ISSUED FOR CONSTRUCTION	
1	2/18/16	ISSUED FOR PROJECT PHASING	

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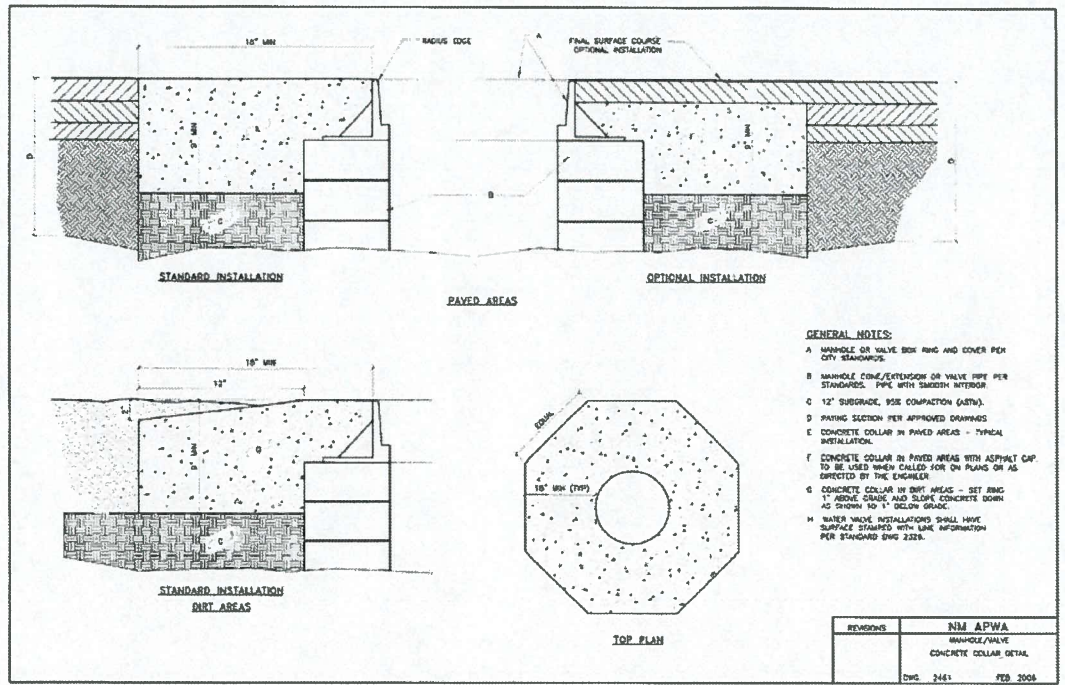
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

CIVIL DETAILS
PHASE 1

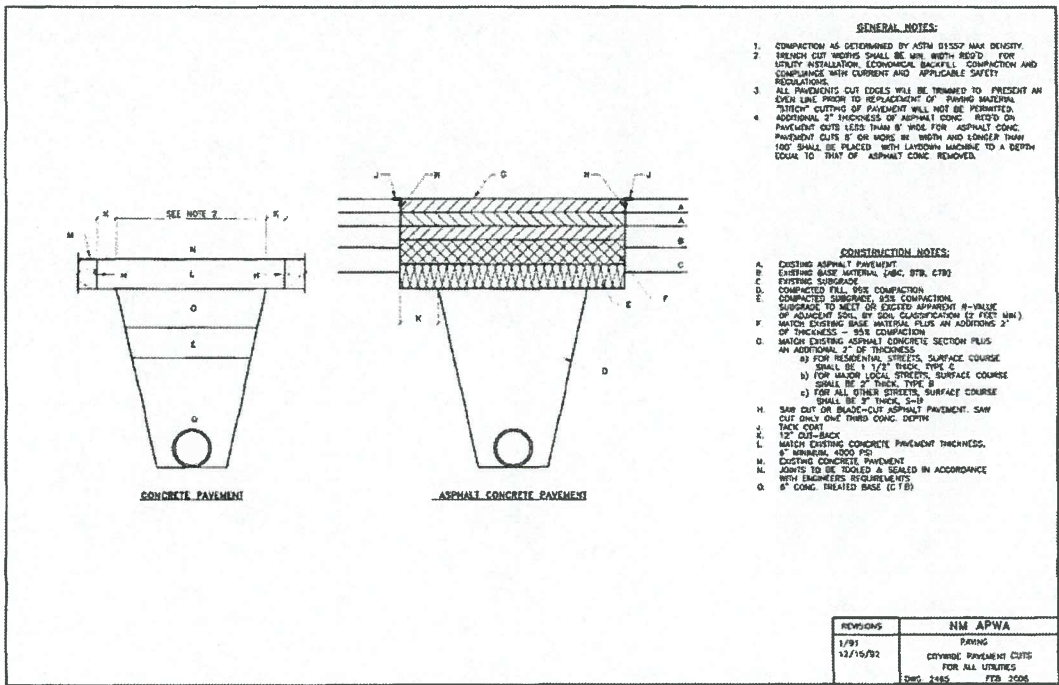
Drawn by:	RDP
Designed by:	KMS
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	February 18, 2015
SHEET	C-1.1



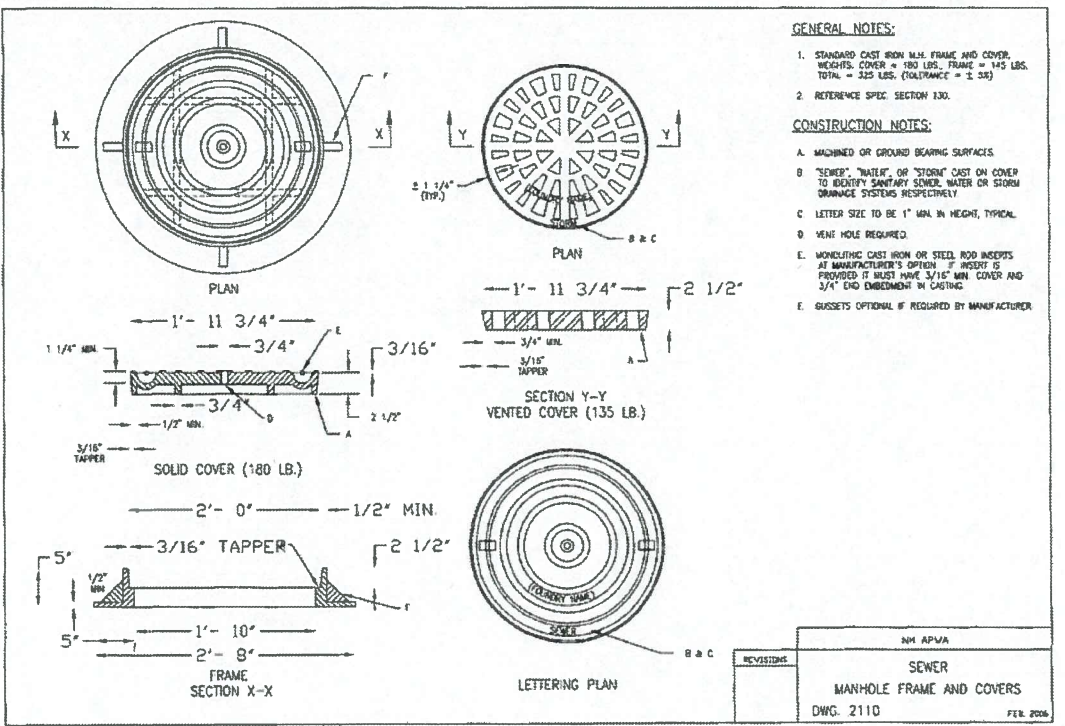
2361 NM APWA WATER VALVE BOX



2461 NM APWA MANHOLE/VALVE CONCRETE COLLAR DETAIL

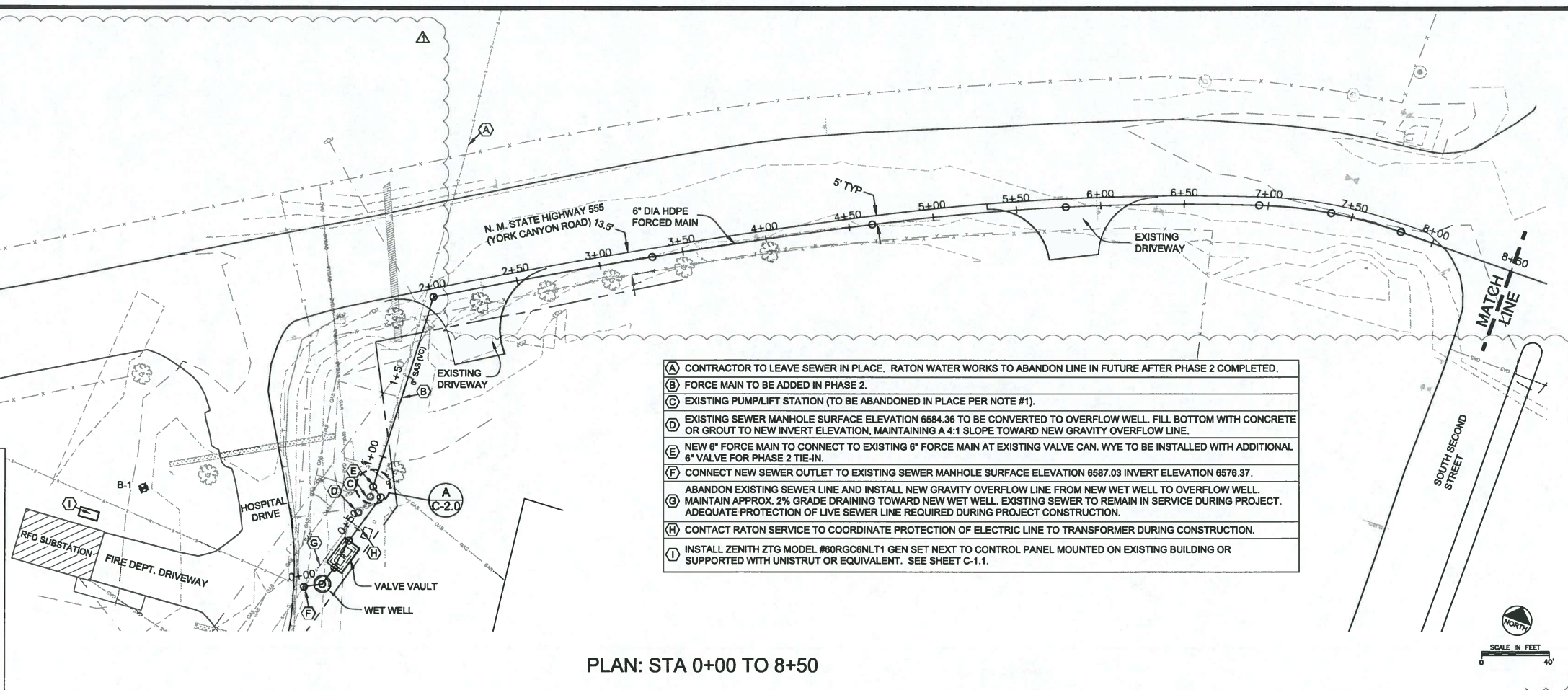
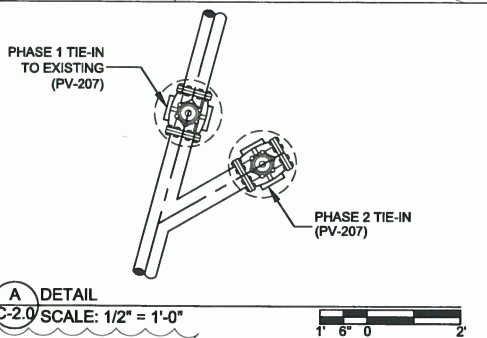


2465 NM APWA PAVEMENT CUTS FOR ALL UTILITIES

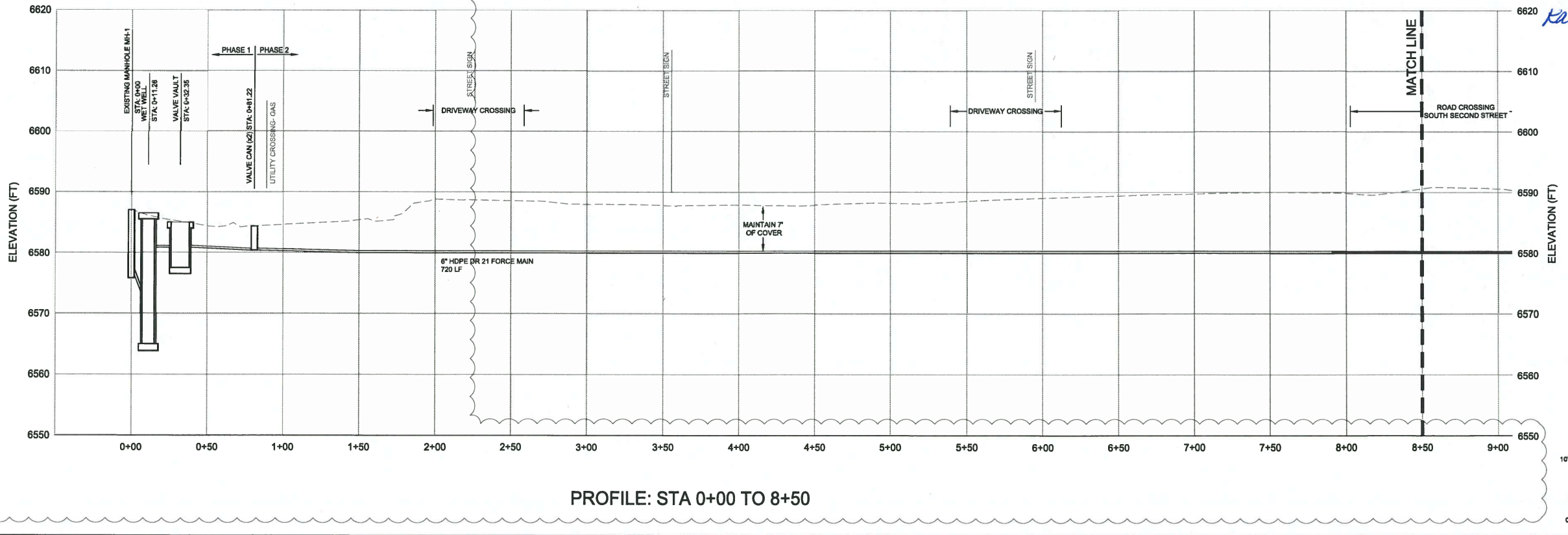


2110 NM APWA SEWER MANHOLE FRAME AND COVERS

NOTES:
1. EXISTING LIFT STATION TO BE ABANDONED AFTER NEW LIFT STATION DEEMED FULLY OPERATIONAL. CONTRACTOR TO REMOVE LID OF LIFT STATION AND CAP PENETRATING LINES FROM THE INSIDE. THE LOWEST POINT OF FLOOR SHALL BE RUPTURED BY CORING OR SIMILAR MEANS TO PROVIDE A DRAIN OF MIN. 6" DIA TO PREVENT RETAINED LIQUID AND ALL STRUCTURES SHOULD BE FILLED WITH GRANULAR FILL.



- (A) CONTRACTOR TO LEAVE SEWER IN PLACE. RATON WATER WORKS TO ABANDON LINE IN FUTURE AFTER PHASE 2 COMPLETED.
- (B) FORCE MAIN TO BE ADDED IN PHASE 2.
- (C) EXISTING PUMP/LIFT STATION (TO BE ABANDONED IN PLACE PER NOTE #1).
- (D) EXISTING SEWER MANHOLE SURFACE ELEVATION 6584.36 TO BE CONVERTED TO OVERFLOW WELL. FILL BOTTOM WITH CONCRETE OR GROUT TO NEW INVERT ELEVATION, MAINTAINING A 4:1 SLOPE TOWARD NEW GRAVITY OVERFLOW LINE.
- (E) NEW 6" FORCE MAIN TO CONNECT TO EXISTING 6" FORCE MAIN AT EXISTING VALVE CAN. WYE TO BE INSTALLED WITH ADDITIONAL 6" VALVE FOR PHASE 2 TIE-IN.
- (F) CONNECT NEW SEWER OUTLET TO EXISTING SEWER MANHOLE SURFACE ELEVATION 6587.03 INVERT ELEVATION 6576.37.
- (G) ABANDON EXISTING SEWER LINE AND INSTALL NEW GRAVITY OVERFLOW LINE FROM NEW WET WELL TO OVERFLOW WELL. MAINTAIN APPROX. 2% GRADE DRAINING TOWARD NEW WET WELL. EXISTING SEWER TO REMAIN IN SERVICE DURING PROJECT. ADEQUATE PROTECTION OF LIVE SEWER LINE REQUIRED DURING PROJECT CONSTRUCTION.
- (H) CONTACT RATON SERVICE TO COORDINATE PROTECTION OF ELECTRIC LINE TO TRANSFORMER DURING CONSTRUCTION.
- (I) INSTALL ZENITH ZTG MODEL #80RGC6NLT1 GEN SET NEXT TO CONTROL PANEL MOUNTED ON EXISTING BUILDING OR SUPPORTED WITH UNISTRUT OR EQUIVALENT. SEE SHEET C-1.1.



REVISIONS		
Revision	Date	Description
0	4/27/15	ISSUED FOR CONSTRUCTION
1	2/18/16	ISSUED FOR PROJECT PHASING

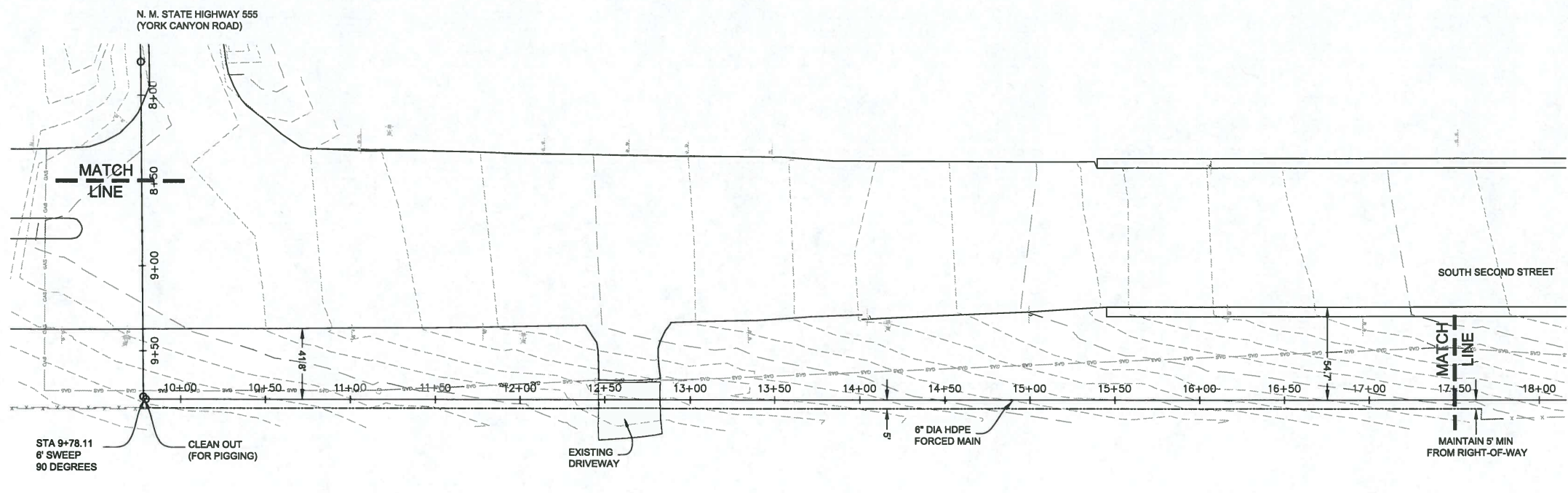
Designed by: Engineering Analytics, Inc.
1800 S. Central Expressway, Suite 200
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KAREN M. STEARNS
NEW MEXICO
14085
REGISTERED PROFESSIONAL ENGINEER

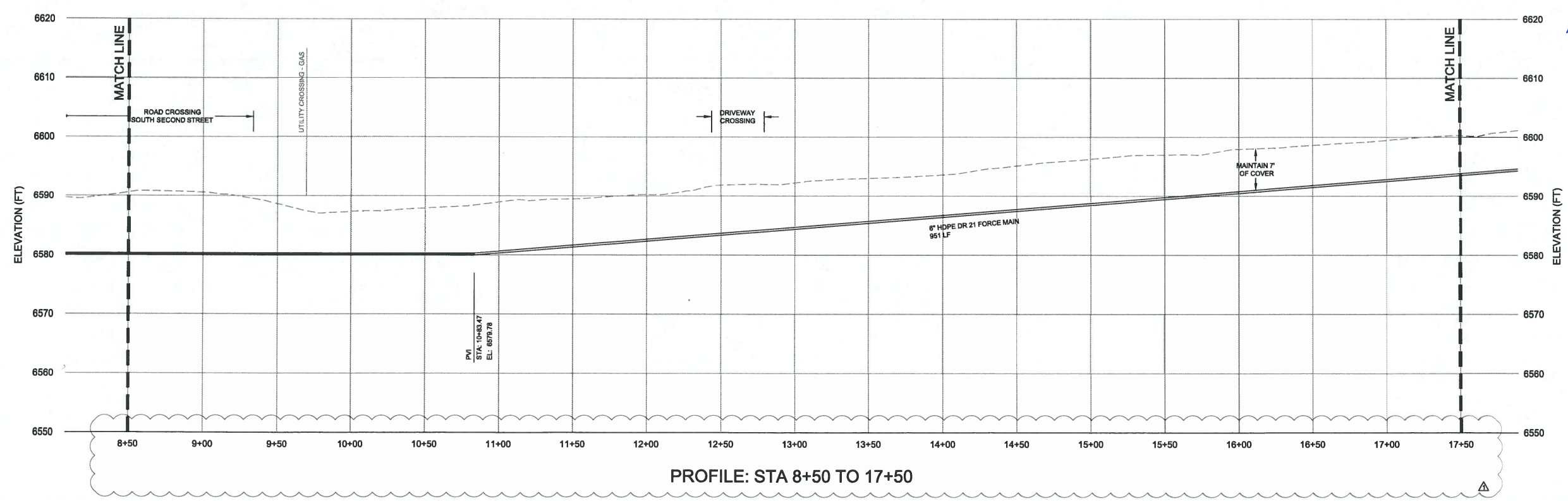
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PIPELINE PLAN AND
PROFILE STA 0+00 TO 8+50
PHASE 1 AND PHASE 2

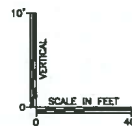
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PLAN: STA 8+50 TO 17+50



PROFILE: STA 8+50 TO 17+50



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2-23-16

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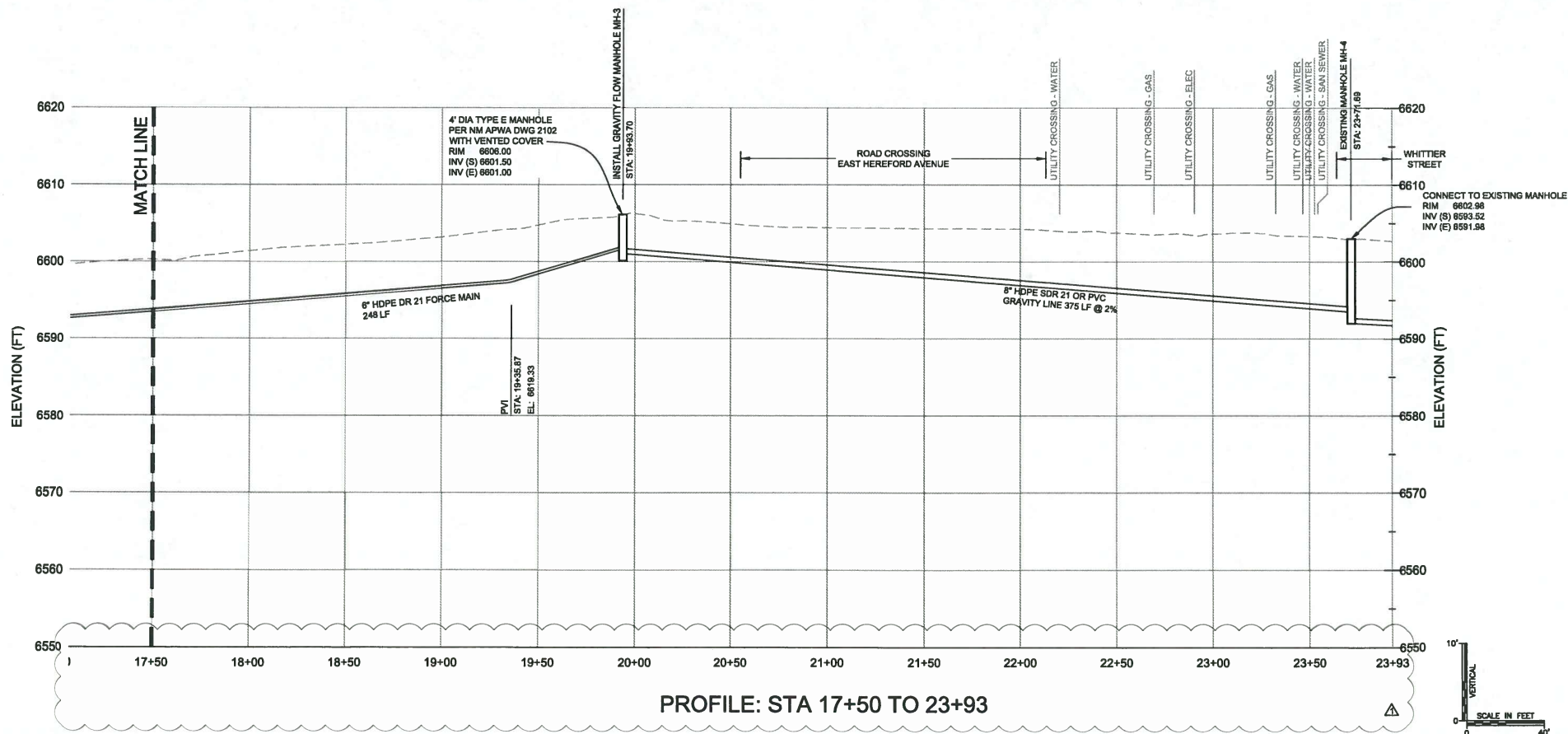
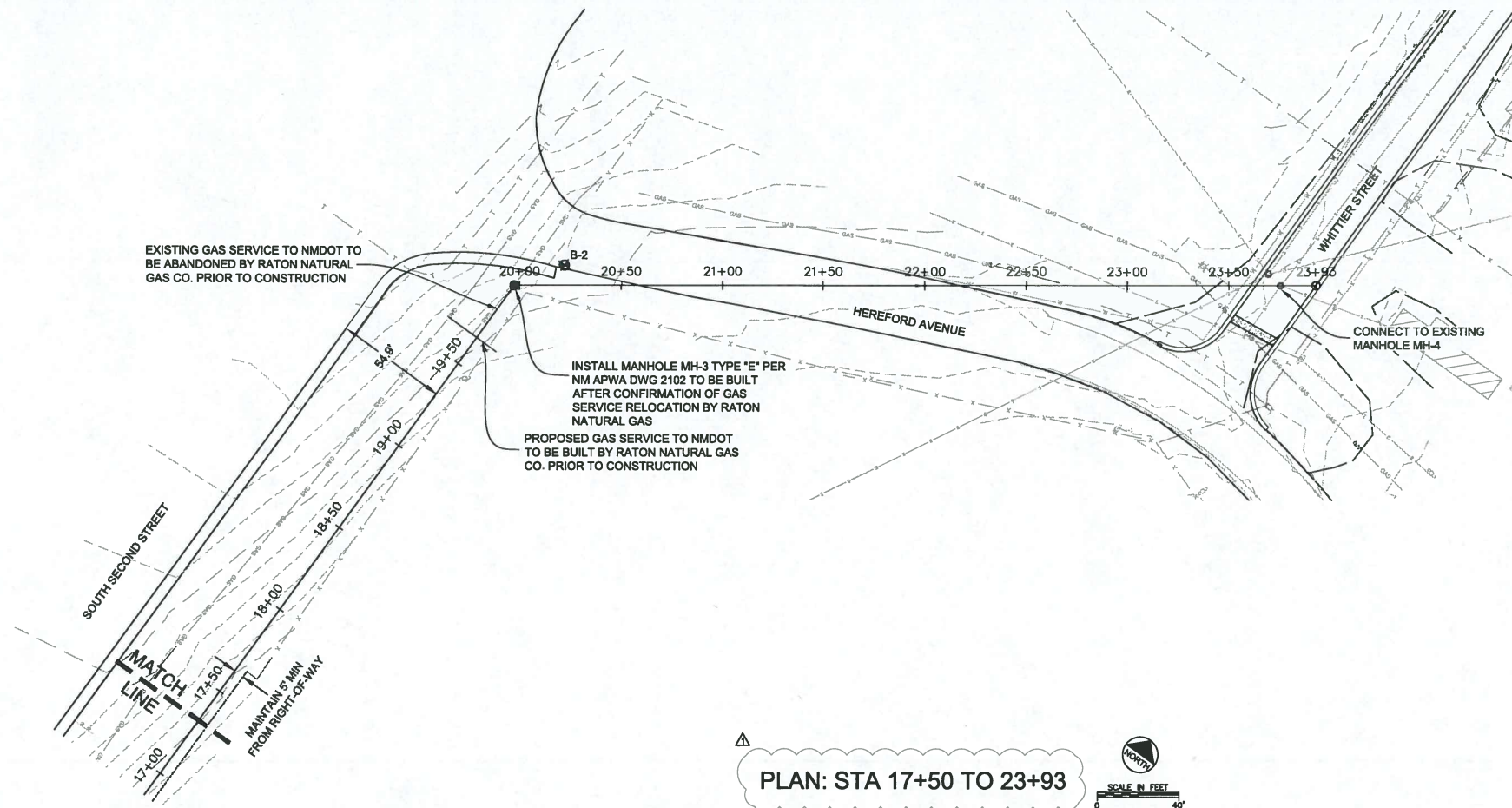
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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PIPELINE PLAN AND
PROFILE STA 8+50 TO 17+50
PHASE 2

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2-23-16



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SHEET	C-2.2

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

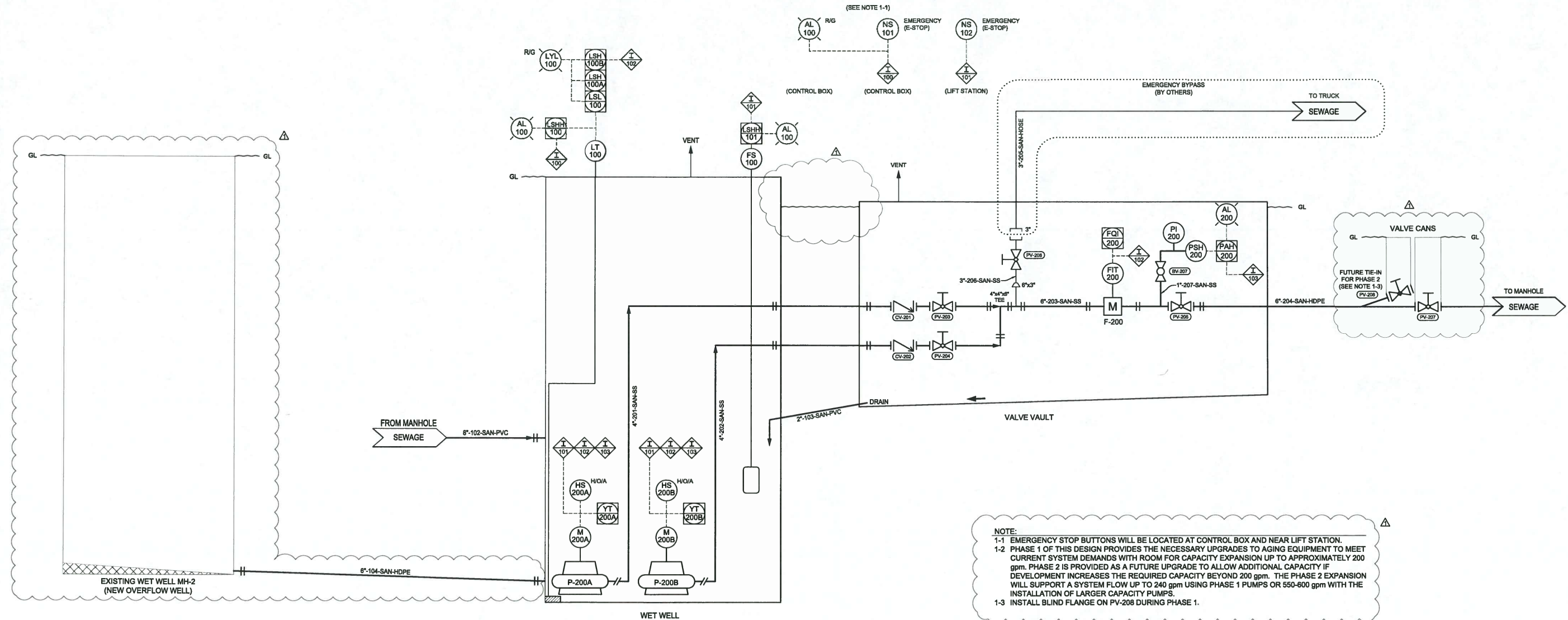
PIPELINE PLAN AND
PROFILE STA 17+50 TO 23+93
PHASE 2

LT-100
SUBMERSIBLE
LEVEL TRANSMITTER
DWYER PBLTZ-15-150
(OR EQUIVALENT)

P-200 A & B
SUBMERSIBLE
SHREDDER PUMP
BJM PUMPS
MODEL: SK75C
4" DISCHARGE
10 HP - 3Ø, 60HZ, 460 V
1750 RPM
PHASE 1: 210 gpm AT 57' MAX HEAD
PHASE 2: 240 gpm AT 53' MAX HEAD

FS-100
MECHANICAL
FLOAT SWITCH

F-200
MAGNETIC
FLOWMETER
EMERSON - ROSEMOUNT
MODEL: 8750 WA
WITH REMOTE MOUNT
TRANSMITTER



NOTE:
1-1 EMERGENCY STOP BUTTONS WILL BE LOCATED AT CONTROL BOX AND NEAR LIFT STATION.
1-2 PHASE 1 OF THIS DESIGN PROVIDES THE NECESSARY UPGRADES TO AGING EQUIPMENT TO MEET CURRENT SYSTEM DEMANDS WITH ROOM FOR CAPACITY EXPANSION UP TO APPROXIMATELY 200 gpm. PHASE 2 IS PROVIDED AS A FUTURE UPGRADE TO ALLOW ADDITIONAL CAPACITY IF DEVELOPMENT INCREASES THE REQUIRED CAPACITY BEYOND 200 gpm. THE PHASE 2 EXPANSION WILL SUPPORT A SYSTEM FLOW UP TO 240 gpm USING PHASE 1 PUMPS OR 550-600 gpm WITH THE INSTALLATION OF LARGER CAPACITY PUMPS.
1-3 INSTALL BLIND FLANGE ON PV-208 DURING PHASE 1.

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0	4/27/15	ISSUED FOR CONSTRUCTION	
1	2/18/16	ISSUED FOR PROJECT PHASING	

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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PROCESS AND
INSTRUMENTATION DIAGRAM
PHASE 1

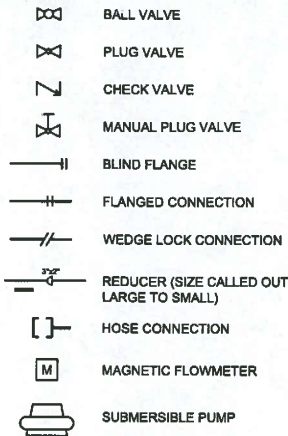
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2-23-16
KAREN M. STEARNS
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14085

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Project No. 140527
Date: February 18, 2016
SHEET
P-1.0

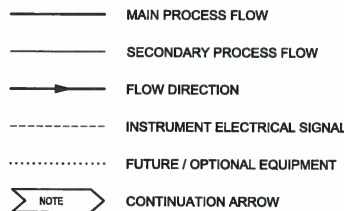
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PROCESS AND INSTRUMENTATION DIAGRAM SYMBOLS AND ABBREVIATIONS

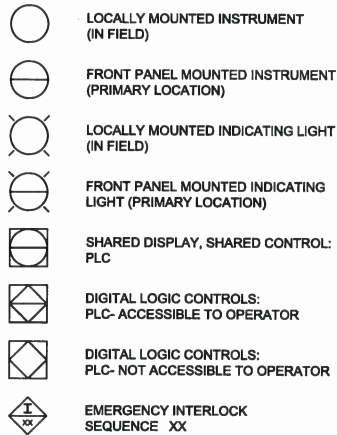
EQUIPMENT, PIPING AND VALVES



LINE SYMBOLS



GENERAL INSTRUMENT OR FUNCTION SYMBOLS



EQUIPMENT AND PIPING SERIES

100 SANITARY GRAVITY FLOW
200 SANITARY PRESSURIZED FLOW

LINE SERVICE CODES

SAN SANITARY SEWER WATER
VTA AIR VENT

PIPING MATERIAL CODES

HDPE HIGH DENSITY POLYETHYLENE PIPE
HOSE TEMPORARY HOSE
PVC POLYVINYL CHLORIDE PIPE
SS 304 STAINLESS STEEL PIPE

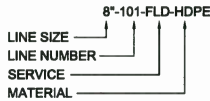
ABBREVIATIONS

AG ABOVE GROUND
AL ALARM LIGHT
BBL BARREL
BGS BELOW GROUND SURFACE
BLDG BUILDING
CMP CORRUGATED METAL PIPE
CONT CONTINUED
DIP DUCTILE IRON PIPE
DWG DRAWING
EA EACH
FTB FROM TANK BOTTOM
FTT FROM TANK TOP
GL GROUND LEVEL
H HIGH/HEIGHT
H/O/A HAND/OFF/AUTO
HDPE HIGH DENSITY POLYETHYLENE
IA INSTRUMENT AIR
L LOW
NC NORMALLY CLOSED
NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NO NORMALLY OPEN
NOM NOMINAL
PA PLANT AIR
PLC PROGRAMMABLE LOGIC CONTROLLER
PSI POUNDS PER SQUARE INCH
PSIG POUNDS PER SQUARE INCH (GAUGE)
R/G RED, GREEN LIGHT
S/S STOP, START
TBD TO BE DETERMINED
TEFC TOTALLY ENCLOSED, FAN COOLED
UG UNDER GROUND
VFD VARIABLE FREQUENCY DRIVE

EQUIPMENT ABBREVIATIONS

M MOTOR
P PUMP

PIPING LINE DESIGNATIONS



VALVE DESIGNATIONS

ALL GENERAL USE VALVES WILL BE IDENTIFIED AS FOLLOWS:

XX-YYY
XX VALVE TYPE
YYY VALVE NUMBER

ALL GENERAL USE VALVES WILL BE IDENTIFIED AS FOLLOWS:

BV BALL VALVE
CV CHECK VALVE
PV PLUG VALVE

INSTRUMENT DESIGNATIONS

ALL INSTRUMENTS WILL BE IDENTIFIED AS FOLLOWS:

XX-YYY
XX INSTRUMENT LETTER DESIGNATION
YYY INSTRUMENT NUMBER

CONTROL PHILOSOPHY

- PUMPS P-200 A AND B TO BE OPERATED IN AN ALTERNATING MANNER SUCH THAT DURING NORMAL OPERATION ONLY ONE PUMP IS OPERATING AT A TIME. DURING AN UPSET CONDITION WHERE ONE PUMP CANNOT PUMP A SUFFICIENT AMOUNT OF WASTEWATER TO KEEP UP WITH THE INFLOW RATE THE SECOND PUMP WILL START UP TO ASSIST. PUMPS WILL CONTINUE TO OPERATE UNTIL A PUMP STOP COMMAND IS RECEIVED BY THE CONTROL PANEL.
- PUMPS SHALL BE CONTROLLED BY SET POINTS ON SUBMERSIBLE LEVEL TRANSMITTER LT-100
 - LOW LEVEL CONDITION (LSL-100) - PUMP STOP COMMAND
 - HIGH LEVEL CONDITION 1 (LSH-100A) - START FIRST PUMP
 - HIGH LEVEL CONDITION 2 (LSH-100B) - START SECOND PUMP, NOTIFY FILTER PLANT CONTROL ROOM OF SECOND PUMP START (I-102).
 - HIGH HIGH LEVEL CONDITION 1 (LSHH-100) - SEND ALARM CONDITION TO FILTER PLANT CONTROL ROOM (I-101) AND ACTIVATE ON-SITE VISUAL ALARM.
 - HIGH HIGH LEVEL CONDITION 2 (LSHH-101) - SEND SECOND ALARM CONDITION TO FILTER PLANT CONTROL ROOM (I-101) AND ACTIVATE ON-SITE VISUAL ALARM. THIS ALARM IS A BACKUP ALARM BASED ON A MECHANICAL FLOAT SWITCH (FS-100) THAT WILL INDICATE A PUMP PROBLEM IN THE EVENT THE LEVEL TRANSDUCER FAILS.
- ALL INSTRUMENT AND PUMP OUTPUTS SHALL BE COLLECTED BY AN ON-SITE PLC THAT CAN BE ACCESSED AT THE CONTROL CABINET AND REMOTELY FROM THE FILTER PLANT CONTROL ROOM.
- EMERGENCY STOP BUTTONS (RED-MUSHROOM HEAD PUSH BUTTON) SHALL BE LOCATED AT:
 - CONTROL BOX (NS-101).
 - LIFT STATION (NS-102).
 - THE CONTROL ROOM SHALL ALSO BE ABLE TO ISSUE AN EMERGENCY STOP COMMAND. A MUSHROOM HEAD BUTTON IS NOT NECESSARY FOR THIS LOCATION.
- EMERGENCY STOP BUTTONS SHALL CUT POWER TO THE PUMPS BUT SHALL LEAVE ALL TRANSDUCERS AND OTHER INSTRUMENTATION AND ALARMS ACTIVE. EMERGENCY STOP BUTTONS SHALL ALERT THE CONTROL ROOM THAT AN E-STOP CONDITION HAS BEEN ACTIVATED (I-100)
- IF LINE PRESSURE PSH-200 EXCEEDS 60 PSI FOR MORE THAN 3 MINUTES THE SYSTEM SHALL ACTIVATE HIGH PRESSURE ALARM (PAH-200). THIS ALARM WILL ACTIVATE THE ON-SITE VISUAL ALARM, AND SEND AN ALARM CONDITION TO THE FILTER PLANT CONTROL ROOM (I-103).
- THE PLC SHALL DISPLAY ON AN INSTANTANEOUS BASIS AND RECORD OVER TIME:
 - INDIVIDUAL PUMP STATUS.
 - INDIVIDUAL PUMP RUN TIME:
 - TOTAL.
 - INCREMENTAL RUN TIMES PER PUMPING EVENT.
 - FLOW RATE FROM FIT-200.
 - PUMP HIGH PRESSURE FROM PSH-200.
 - LOG OF ALL EMERGENCY STOP COMMANDS.
 - LOG OF ALL ALARM CONDITIONS (LAHH-100, LAHH-101, PSH-200).
- INDICATOR LIGHT (LYL-100) SHALL CHANGE FROM RED TO GREEN DEPENDING ON THE PUMP STATUS. RED LIGHT ALL PUMPS ARE OFF, GREEN LIGHT PUMP(S) ARE RUNNING.

EXPLANATION OF INSTRUMENTATION LETTERS

FIRST LETTER		SUCCEEDING LETTER		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS	ALARM	ALARM		
B BURNER, FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C CONDUCTIVITY			CONTROL	
D DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E VOLTAGE		PRIMARY ELEMENT		
F FLOW RATE	RATIO (FRACTION)			
G GAUGING (DIMENSIONAL)		GLASS VIEWING DEVICE		
H HAND (MANUAL)				HIGH
I CURRENT (ELECTRICAL)		INDICATE		
J POWER	SCAN			
K DISCRETE, TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N SHUTDOWN		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORIFICE, RESTRICTION		
P PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q QUANTITY	INTEGRATE, TOTALIZE			
R RADIATION		RECORD		
S SPEED, FREQUENCY	STATUS		SWITCH	
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION, CALCULATE	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			LOUVER, VALVE, DAMPER	
W WEIGHT, FORCE		WELL		
X UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

VALVE SCHEDULE

VALVE NO.	TYPE	CONNECTION	SIZE	NORMAL SETTING	VALVE FUNCTION	LOCATION	LINE NO.	QTY / OUT OF TOTAL	DESCRIPTION
CV-201	CHECK	FLANGE	4"	N/A	PREVENT BACKFLOW	VALVE VAULT	4"-201-SAN-SS	1/2	SWING CHECK VALVE, 150 LB, FLG, 304 SS
CV-202	CHECK	FLANGE	4"	N/A	PREVENT BACKFLOW	VALVE VAULT	4"-202-SAN-SS	2/2	SWING CHECK VALVE, 150 LB, FLG, 304 SS
PV-203	PLUG	FLANGE	4"	NO	CONTROL	VALVE VAULT	4"-201-SAN-SS	1/4	PLUG VALVE, 150 LB, FLG, 304 SS
PV-204	PLUG	FLANGE	4"	NO	CONTROL	VALVE VAULT	4"-202-SAN-SS	2/4	PLUG VALVE, 150 LB, FLG, 304 SS
PV-205	PLUG	FLANGE	6"	NO	CONTROL	VALVE VAULT	6"-203-SAN-SS	3/4	PLUG VALVE, 150 LB, FLG, 304 SS
PV-206	PLUG	FLANGE	3"	NC	EMERGENCY BYPASS	VALVE VAULT	3"-205-SAN-HOSE	1/1	PLUG VALVE, 150 LB, FLG, 304 SS
PV-207	PLUG	FLANGE	6"	NO	CONTROL	EXISTING VALVE CAN	6"-204-SAN-HDPE	4/4	PLUG VALVE, 150 LB, FLG, 304 SS
PV-208	PLUG	FLANGE	8"	NC	PHASE 2 TIE-IN	EXISTING VALVE CAN	8"-204-SAN-HDPE	1/1	PLUG VALVE, 150 LB, FLG, 304 SS

REVISIONS

Revision	Date	Description
1	2/18/16	ISSUED FOR PROJECT PHASING

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(970) 484-3111

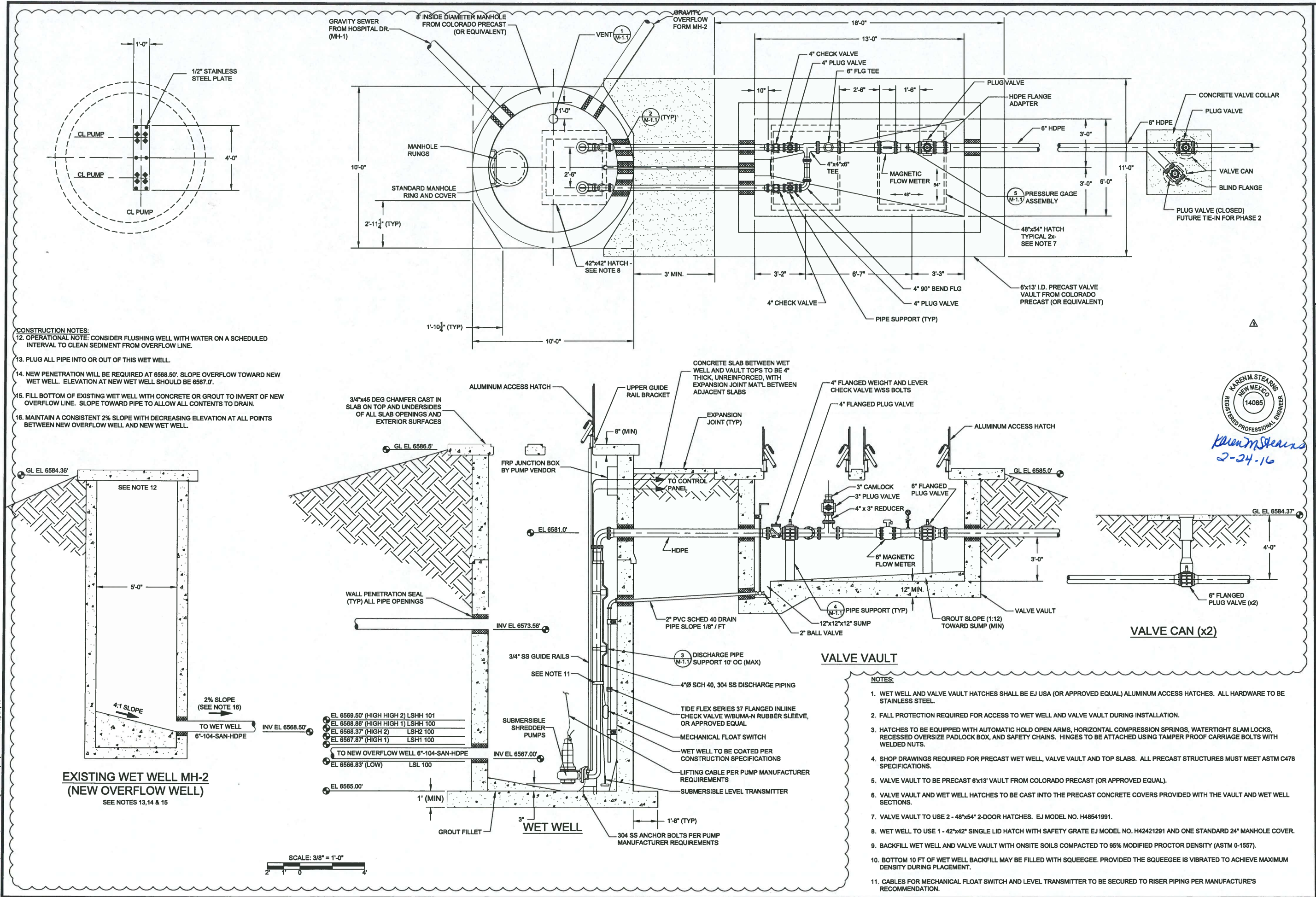
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PROCESS AND
INSTRUMENTATION
LEGEND AND NOTES
PHASE 1 AND PHASE 2

Drawn by: RDP
Designed by: KMS
Checked by: EJM
Scale: As Shown
Project No. 140527
Date: February 18, 2015
SHEET
P-1.1



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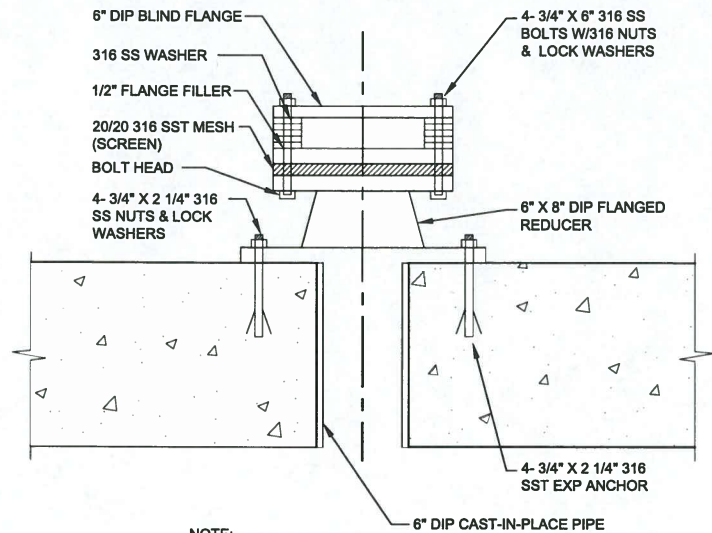
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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

LIFT STATION PLAN
PHASE 1

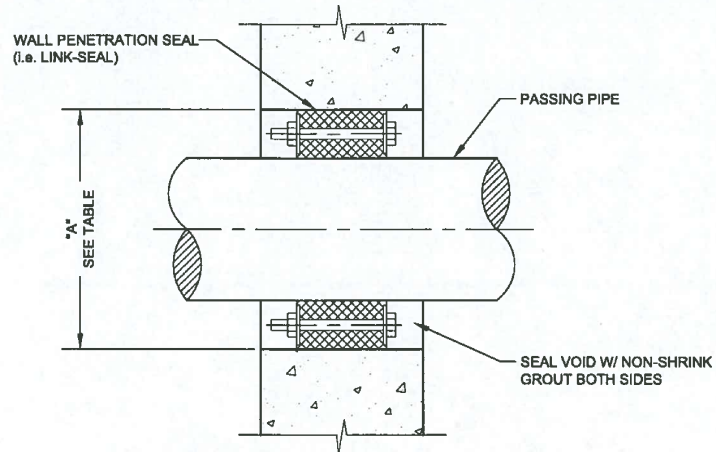
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Checked by: E.J.N.
Scale: As Shown
Project No. 140527
Date: February 18, 2016
SHEET
M-1.0



NOTE:

THE PENETRATION FOR THE VENT ASSEMBLY SHALL BE LOCATED 1' INSIDE THE INTERIOR WET WELL WALL AND CENTERED OPPOSITE FROM THE DISCHARGE PIPE.

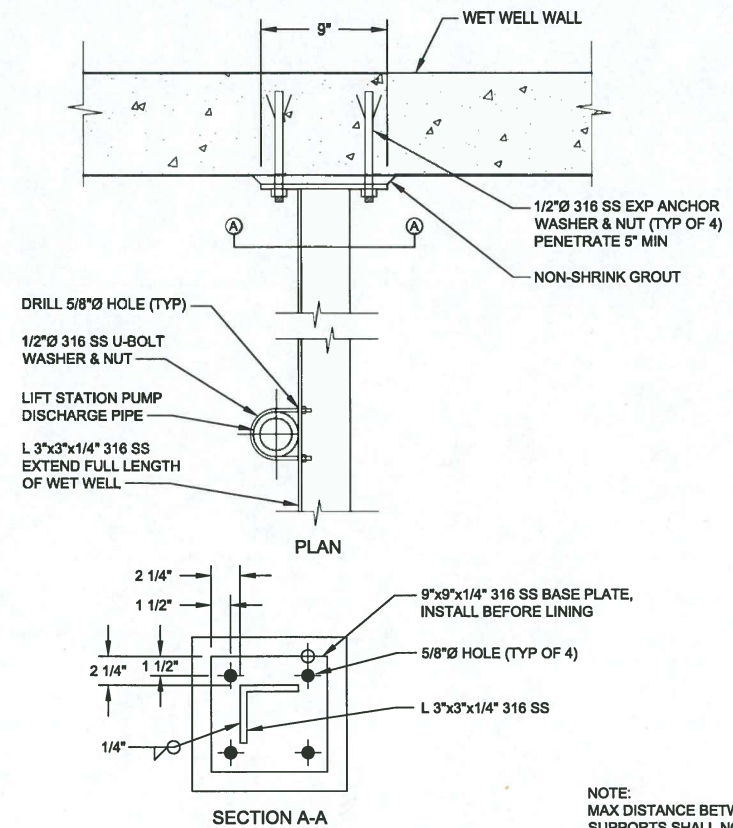
1 WET WELL VENT DETAIL



NOTES:
1. ALL DIMENSIONS ARE GIVEN IN INCHES.
2. USE ON EXISTING CONSTRUCTION.

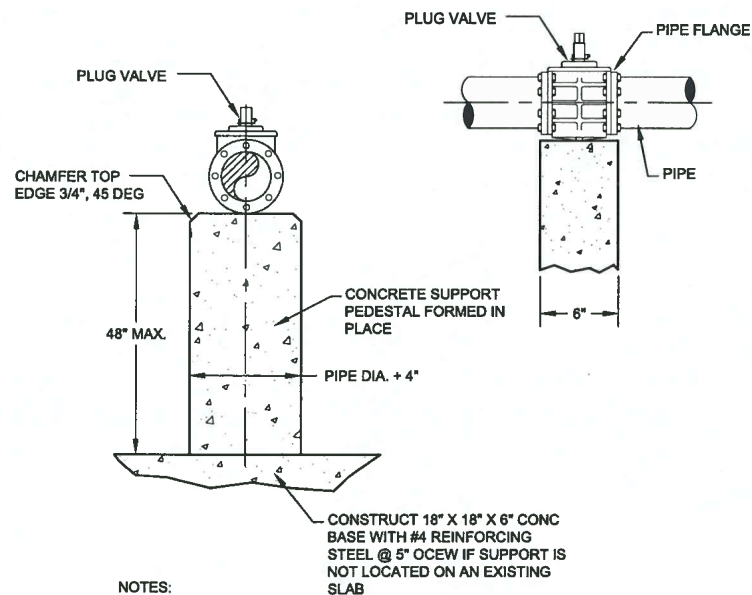
PIPE SIZE	"A"	PIPE SIZE	"A"
2	4	12	16
2-1/2	4	14	18
3	5	16	20
4	6	18	24
6	10	20	24
8	12	24	30
10	14		

2 CORE DRILL PENETRATION DETAIL



NOTE:
MAX DISTANCE BETWEEN SUPPORTS SHALL NOT EXCEED 10 FEET.

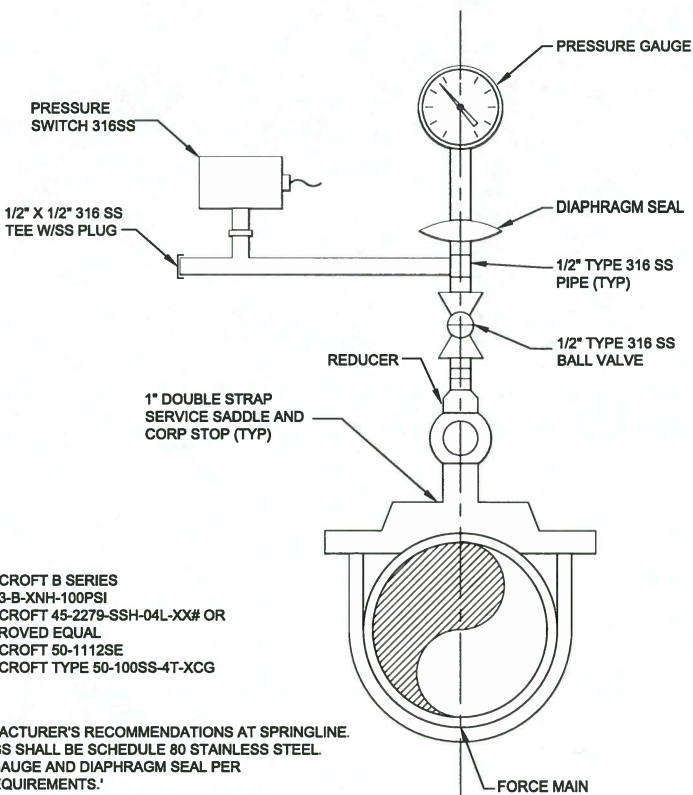
3 LIFT STATION PUMP DISCHARGE PIPE SUPPORT DETAIL



NOTES:

1. CONCRETE SHALL BE 4000 PSI, UNREINFORCED.
2. SEE PLANS AND SECTIONS FOR PIPE ELEVATION REQUIREMENT.
3. PIPE SUPPORT SUITABLE FOR PIPE SIZES 3" THROUGH 24" DIA.
4. SUPPORT STRAIGHT PIPE SECTION, FITTING OR PLUG VALVE. DO NOT PLACE UNDER CHECK VALVE.

4 CONCRETE PIPE SUPPORT DETAIL



PRESSURE SWITCH: ASHCROFT B SERIES B4-23-B-XNH-100PSI
PRESSURE GAUGE: ASHCROFT 45-2279-SSH-04L-XX# OR APPROVED EQUAL
SNUBBER: ASHCROFT 50-1112SE
DIAPHRAGM SEAL: ASHCROFT TYPE 50-100SS-4T-XCG

NOTES:

1. TAP PIPE PER MANUFACTURER'S RECOMMENDATIONS AT SPRINGLINE.
2. ALL PIPE AND FITTINGS SHALL BE SCHEDULE 80 STAINLESS STEEL.
3. INSTALL PRESSURE GAUGE AND DIAPHRAGM SEAL PER MANUFACTURER'S REQUIREMENTS.
4. PRESSURE RANGE FOR GAUGE TO BE BASED ON OPERATION CONDITIONS.

5 PRESSURE GAGE DETAIL

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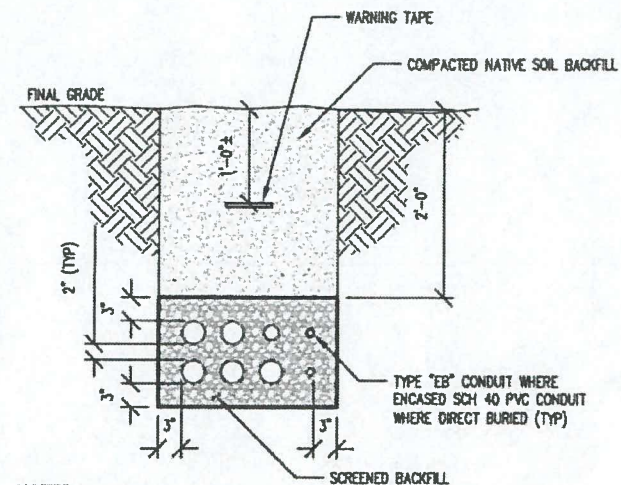
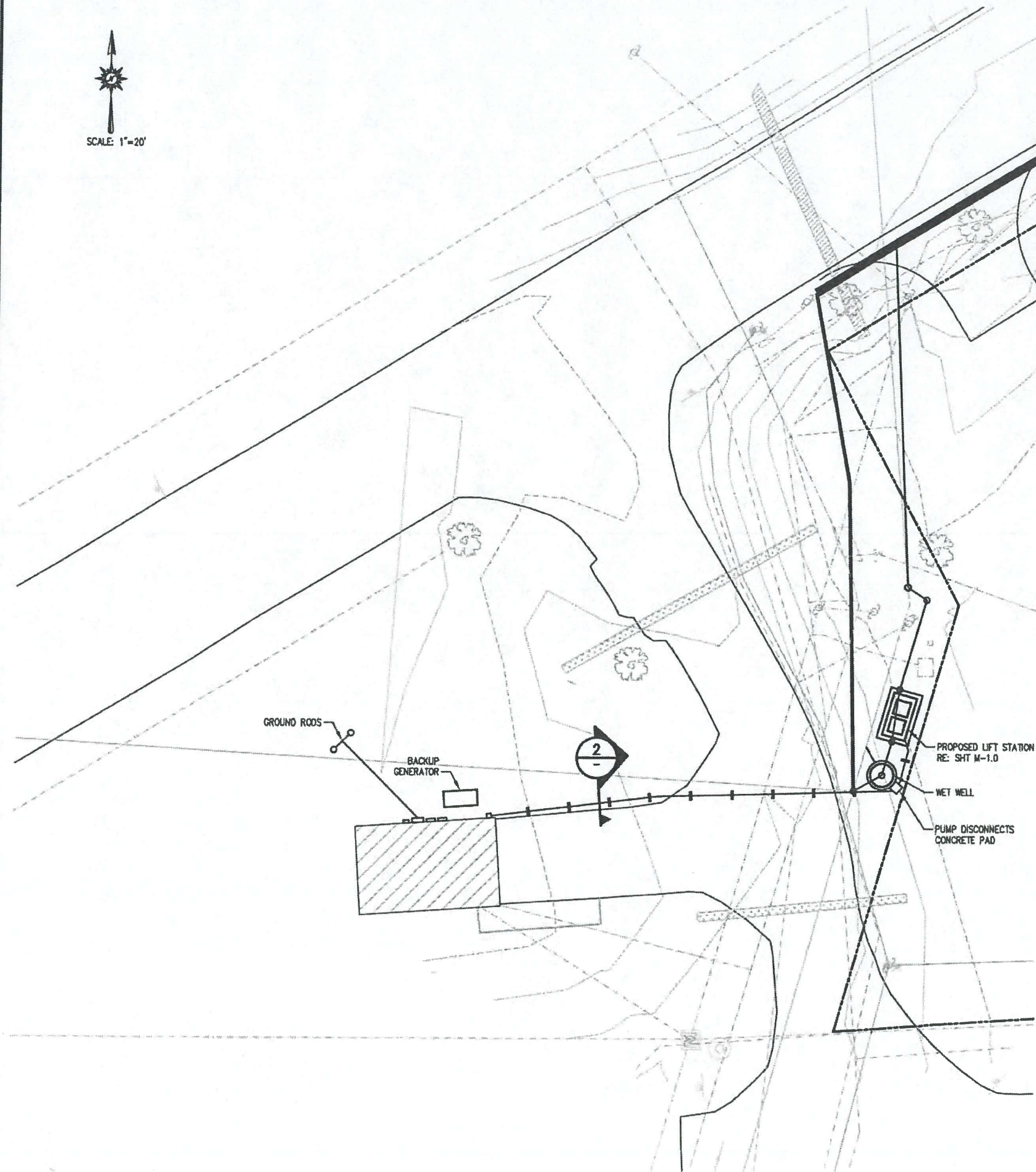
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

LIFT STATION DETAILS
PHASE 1

Karen M. Stearns
2-23-16

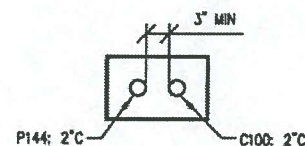


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Scale:	As Shown
Project No.	140527
Date:	February 18, 2016
SHEET	M-1.1

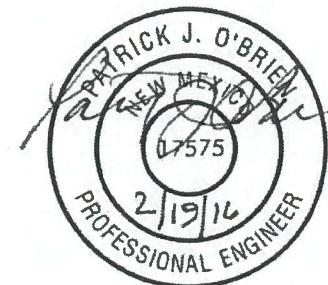


- NOTES:**
1. BACK FILL OF TRENCHES IN EXISTING PAVED AREAS SHALL BE DONE WITH NATIVE SOILS MECHANICALLY COMPACTED OR FLOW ABLE FILL THAT WILL SET UP AND PROVIDE COMPACTING FOR QUICK TRENCH CLOSURE.
 2. REFER TO ELECTRICAL PLANS FOR QUANTITY OF DUCTS IN EACH TRENCH.
 3. ALL RISER CONDUIT BENDS AND ABOVE GROUND CONDUIT SHALL BE RIGID METAL CONDUIT. PROVIDE PVC TO METAL COUPLING AT ENDS OF STRAIGHT UNDERGROUND RUNS.

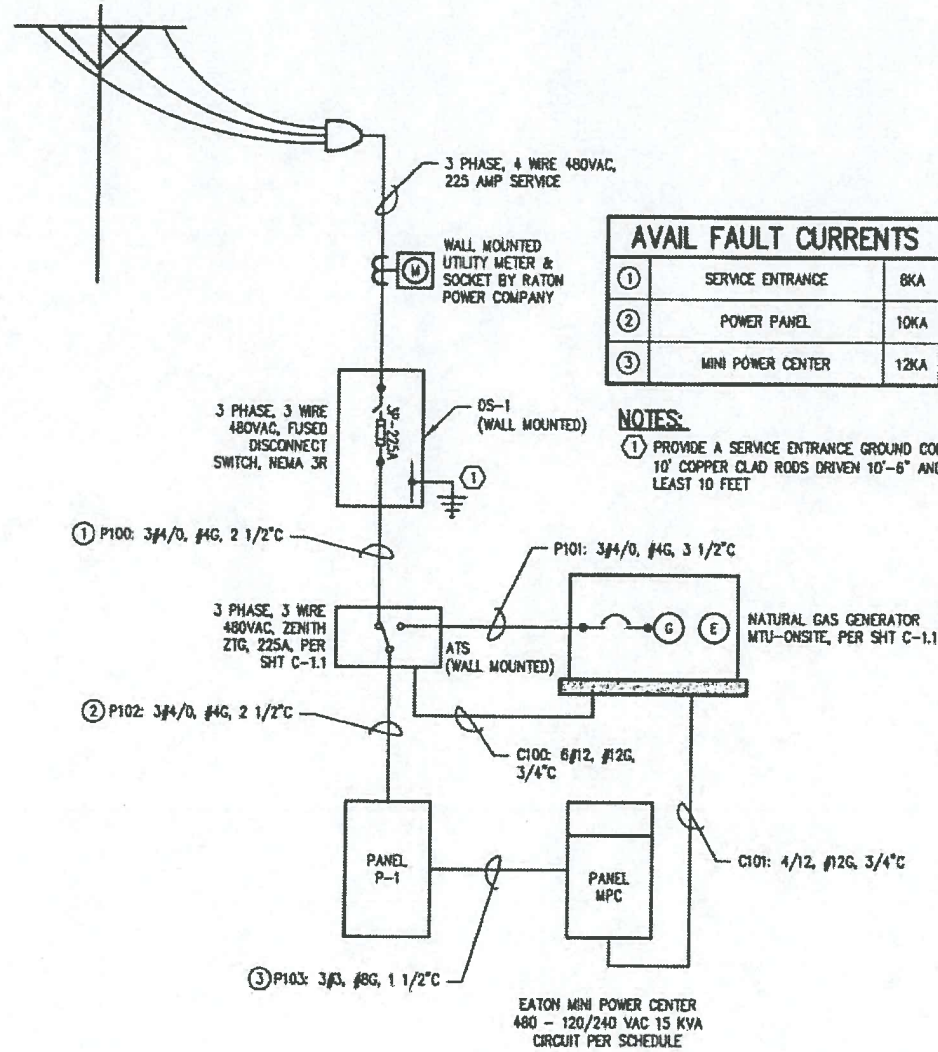
1 DUCT BANK DETAIL
1"=1'-0"



2 ELECTRICAL DUCT SECTION
1"=1'-0"



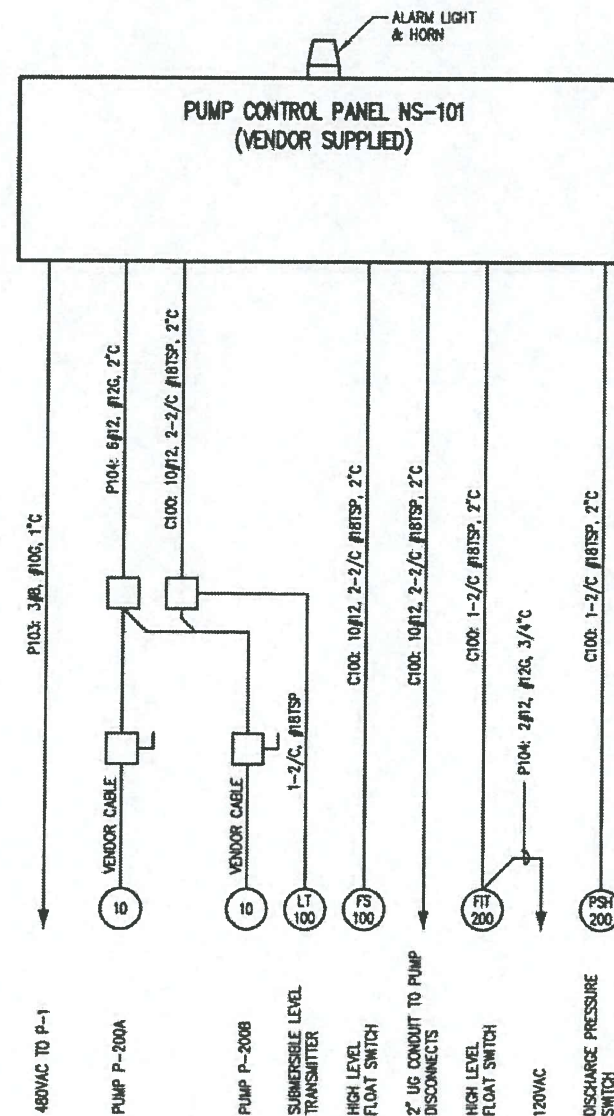
REVISIONS		FEI ENGINEERS	
Revision	Description	Drawn by	Checked by
		KPR	NET
		NET	EJN
		As Shown	110421
		February 18, 2016	
SHEET E-1.0		ELECTRICAL SITE PLAN	



AVAIL FAULT CURRENTS		
①	SERVICE ENTRANCE	8KA
②	POWER PANEL	10KA
③	MINI POWER CENTER	12KA

NOTES:
① PROVIDE A SERVICE ENTRANCE GROUND CONSISTING OF TWO 10' COPPER GLAD RODS DRIVEN 10'-6" AND SEPARATED AT LEAST 10 FEET

MOTOR DRIVEN EQUIPMENT LIST																
Area	Item Name	Tag	Status	Load Power Information				Protection				Conduit/Wire				
				Volts	Phase	Hp	FLA	Circuit Breaker	Disc Size	NEMA Rating	VFD or Starter	Starter Size	Starter Location	Feed From	Copper XHHW	Conduit Size
Lift Station	Well Submersible Pump	P-200A	New	480	3	10	14.0	30	30	4X	Starter	1			12	3/4
	Well Submersible Pump	P-200B	New	480	3	10	14.0	30	30	4X	Starter	1			12	3/4
	Heat and Lighting Loads	LP-1	New	240	1	0	60.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
				88.0												



PUMP CONTROL PANEL ONE-LINE



REVISIONS		Revised	Date	Description



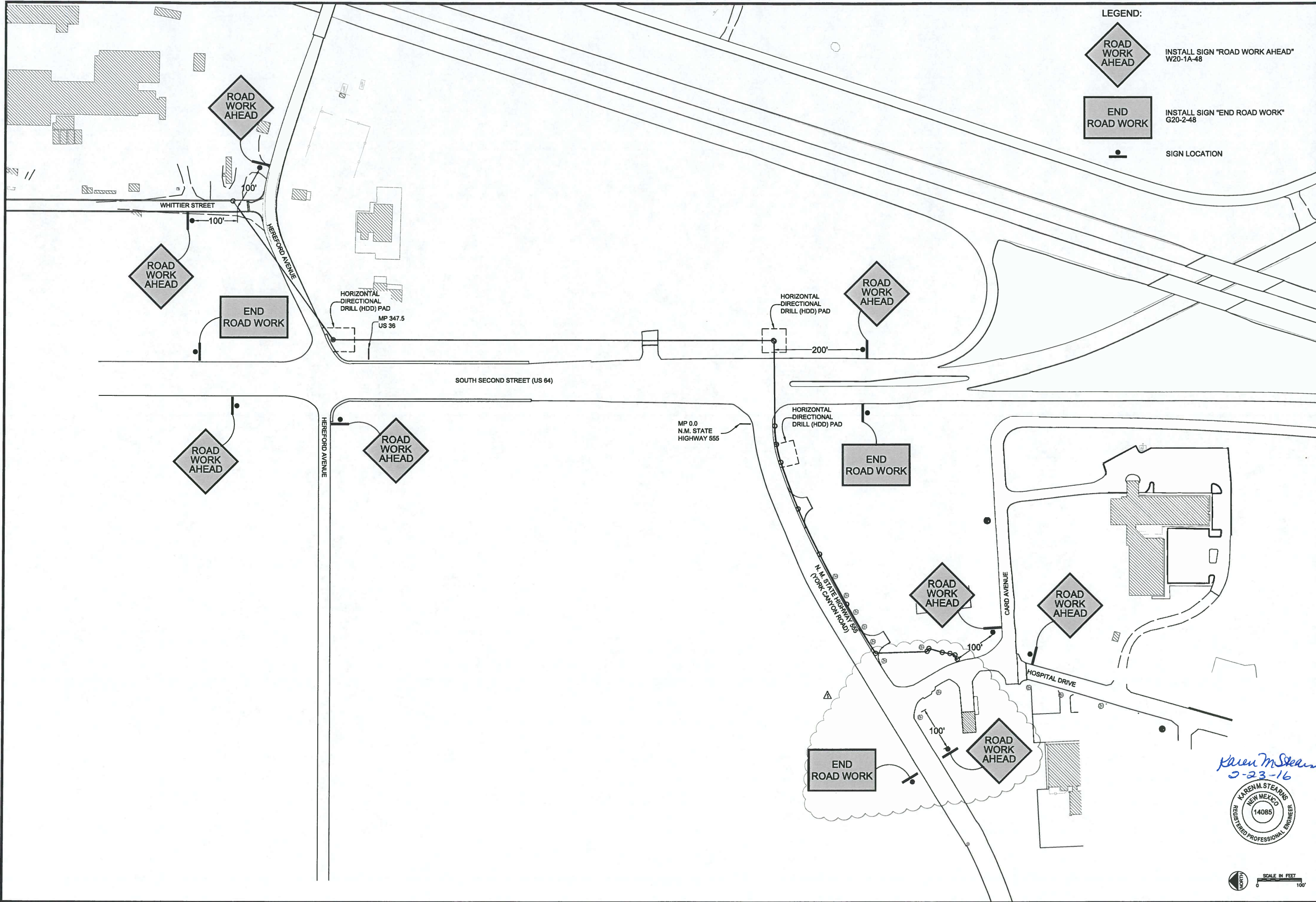
Engineering Analytics, Inc.
1600 South Pearl Road, Suite 200
Columbus, OH 43224
(614) 468-3111

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

ELECTRICAL ONE-LINE
DIAGRAM

Drawn by: JOP
Designed by: NET
Checked by: EJM
Scale: As Shown
Project No: 110421
Date: February 18, 2018
SHEET
E-2.0

T:\140527 Hospital Drive\Traffic Control.dwg SAVED: 2/18/16 PRINTED: 2/18/16



LEGEND:

INSTALL SIGN "ROAD WORK AHEAD"
W20-1A-48

INSTALL SIGN "END ROAD WORK"
G20-2-48

SIGN LOCATION

REVISIONS		
Revision	Date	Description
0	4/27/15	ISSUED FOR CONSTRUCTION
1	2/18/16	ISSUED FOR PROJECT PHASING

Designed by: **Engineering Analytics, Inc.**
1800 Speed Point Road, Suite 208
Fort Collins, CO 80525
(970) 498-3111

**HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO**

**TRAFFIC CONTROL PLAN
TTC ZONE
PHASE 2**

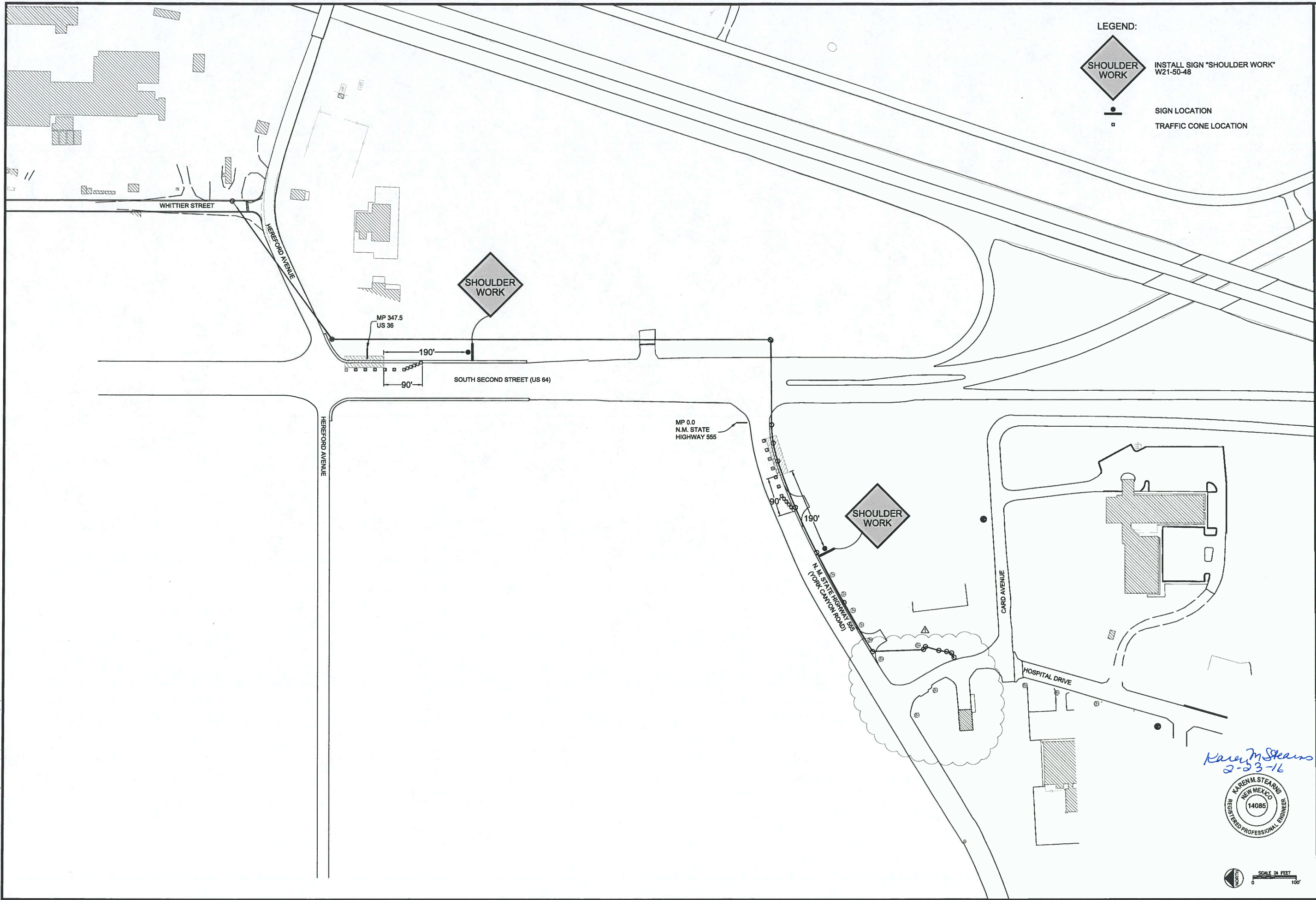
Drawn by:	RDP
Designed by:	KMS
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	February 18, 2015

SHEET **TC-1.0**

Karen M. Stearns
3-23-16



F:\140527 Hospital Drive\Traffic Control.dwg SAVED: 2/18/16 PRINTED: 2/18/16



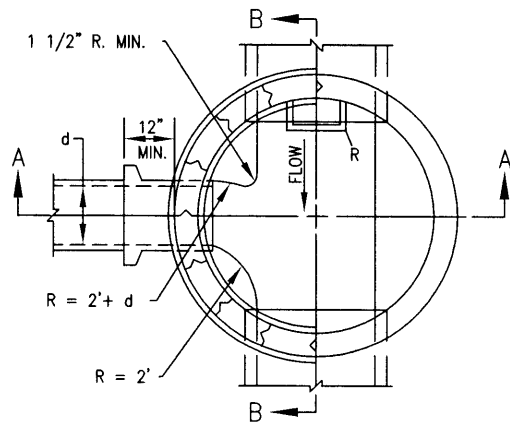
REVISIONS			
Revision	Date	Description	
0	4/27/15	ISSUED FOR CONSTRUCTION	
1	2/18/16	ISSUED FOR PROJECT PHASING	

Designed by:	Engineering Analytics, Inc.
	1800 Sunset Road, Suite 208
	Fort Collins, CO 80525
	(970) 688-3111

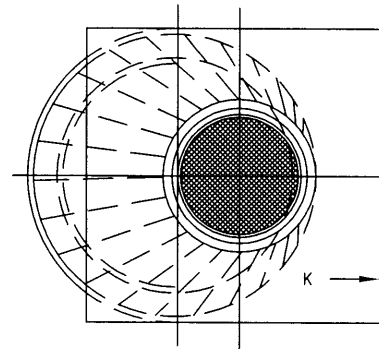
HOSPITAL DRIVE LIFT STATION PROJECT RATON WATER WORKS COLFAX COUNTY, NEW MEXICO	TRAFFIC CONTROL PLAN TEMPORARY WORK ON SHOULDER PHASE 2
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Drawn by:	RDP
Designed by:	KMS
Checked by:	EJN
Scale:	As Shown
Project No:	140527
Date:	February 18, 2015

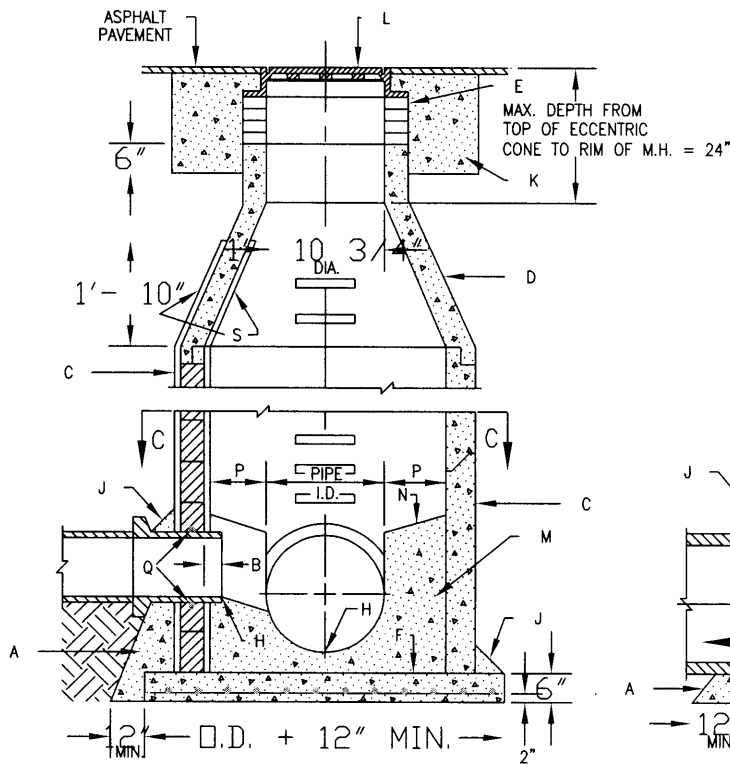
SHEET	TC-1.1
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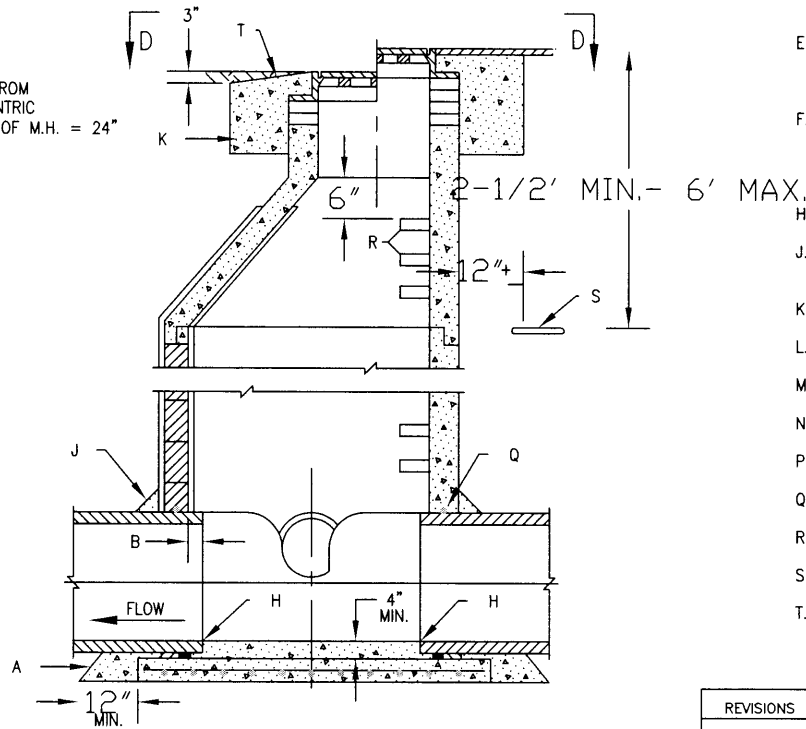
PLAN AT C-C



PLAN AT D-D



CROSS SECTION A-A



CROSS SECTION B-B

GENERAL NOTES:

1. TYPE E M.H. NOT TO BE USED FOR DEPTHS LESS THAN 6' MEASURED FROM INV. TO RIM.
2. M.H. GREATER THAN 18' IN DEPTH SHALL BE OF PRECAST CONC. SECTIONS ONLY.
3. DESIGN APPLIES TO 4' AND 6' I.D. MANHOLES.
4. USE NON-SHRINK GROUT FOR JOINTS, FILLETS & PIPE PENETRATIONS.
5. COMPACT ALL BACKFILL AROUND M.H. TO 95%.
6. POSITION M.H. OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.

CONSTRUCTION NOTES:

- A. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE OF M.H. TO BELL OF FIRST JOINT AND SHALL CRADLE PIPE TO SPRING LINE.
- B. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRINGLINE OF PIPE.
- C. USE MAX. 4 COURSES GR. MS BRICK ON UNPAVED STREET FOR FUTURE ADJ. OF FRAME TO PAVEMENT GRADE. PLASTER INSIDE WITH 1/2" MORTAR.
- D. BASE TO BE POURED IN PLACE USING NO. 4 BARS AT 6" O.C. EA. WAY FOR M.H. DEPTH OF 16' OR GREATER. NO. 4 BARS AT 12" O.C. EA. WAY FOR M.H. LESS THAN 16' DEEP.
- E. INV. ELEV. OF STUB OR LATERAL AS SHOWN ON PLANS.
- F. 6" GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
- G. USE A 5' X 5' CONCRETE PAD IN ALL AREAS.
- H. M.H. FRAME AND COVER, SEE DWG. 2110.
- I. CONCRETE FILL, 3000 PSI.
- J. SLOPE 1" PER FT. FROM PIPE CROWN.
- K. SHELF TO BE 9" WIDE MIN.
- L. APPROVED WATERSTOP TO BE WITH TYPE OF PIPE.
- M. STEPS TO BE INSTALLED AS PER SPEC. SECTION 920.4.7.
- N. EMD (IN UNPAVED AREAS).
- O. IN UNPAVED AREAS SET FRAME TO GRADE AND SLOPE TOP OF PAD.

REVISIONS

NM APWA

SEWER
MANHOLE TYPE "E"

DWG. 2102

FEB. 2006