

BIDDING AND CONTRACT DOCUMENTS

**6th & CANAL PUMP STATION
PLUG VALVES REPLACEMENT PROJECT**

FOR THE CITY OF READING

PENNSYLVANIA



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NOTICE AND INSTRUCTIONS

CITY OF READING, PENNSYLVANIA

NOTICE TO CONTRACTORS

The City of Reading is requesting proposals for 6th & Canal Pump Station Plug Valves Replacement Project. An electronic proposal, inclusive of all requested information and supporting documents, shall be submitted via the Pennbid Program (www.pennbidprocureware.com). Proposals shall be received until 3:00 P.M., prevailing time on August 13, 2020, at which time the proposal shall be opened publicly. Proposers are invited to be present at the Bid opening, located in Council Chambers, City Hall, 815 Washington Street, Reading, PA. Specifications and Proposal Forms for the above work can be obtained via Penn Bid at www.pennbidprocureware.com.

There will be no pre-bid meeting for this project

Each proposal shall be accompanied by bid surety in the amount of ten percent (10%) of the proposal. A certified check or bid bond will be accepted.

The City of Reading reserves the right to accept or reject any and all bids, and to accept or reject any part of a bid, as may be in the public interest.

Purchasing Coordinator

INSTRUCTIONS TO BIDDERS

PROPOSAL SUBMISSION

An electronic proposal, inclusive of all requested information and supporting documents, shall be submitted via the PennBid Program (www.pennbidprocureware.com). Proposals shall be received until 3:00 P.M., prevailing time on August 13, 2020, at which time the proposal shall be opened publicly.

Specifications and Proposal Forms for the above work can be obtained via Penn Bid at www.pennbidprocureware.com

Bids received after the hour specified, will not be considered.

BONDS

Bid security, in the amount of ten percent (10%) of the bid price shall accompany each proposal. This bid security may be a Certified or Cashier's Check, or a bid bond furnished by a surety company, satisfactory to the City of Reading. The successful bidder, upon award of contract, shall furnish at the time of execution of the same, a Maintenance Bond, Payment Bond, and Performance Bond by a surety company acceptable to the City of Reading, in an amount equal to ONE HUNDRED PERCENT (100%) of the contract to guarantee satisfactory performance, and a Wage Rate Compliance Bond in an amount equal to FIFTY PERCENT (50%) of the contract. All bonds are subject to approval by the City Solicitor.

In case the contract is awarded to a bidder who fails to enter the contract or to deliver all required bonds and affidavits, the cash or check deposited shall become absolute property of the City; or if a bond has been deposited, it shall become payable immediately. Cash, checks or bonds deposited will be returned to unsuccessful bidders as soon as the contract is awarded, or all bids rejected.

INSURANCE

The Contractor, at the time of execution of the contract, shall also furnish the City with insurance certificates of adequate limits, as later indicated, to protect the City of Reading, its agents, and employees from any litigation involving Worker's Compensation, Public Liability and Property Damage, involved in the work. All subcontractors must also furnish copies of their liability insurance and Worker's Compensation Insurance certificates to the City. No subcontractor will be allowed to perform any work under this contract by the City unless such certificates are submitted to and approved by the City beforehand.

WORKERS' COMPENSATION AND PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE

The status of the Contractor in the work to be performed by the Contractor is that of any independent Contractor and as such, he shall properly safeguard against any and all injury or damage to the public, to public and private property, materials and things, and as such he alone shall be responsible for any and all damage, loss or injury to persons or property that may arise, or be incurred, in or during the conduct or progress of said work without regard to whether or not the Contractor, his sub-contractors, agents, or employees have been negligent, and the Contractor shall keep the City free and discharged of and from any and all responsibility and liability therefore of any sort or kind. The Contractor shall assume all responsibility for risks or casualties of every description, for any or all damage, loss or injury to persons or property arising out of the nature of the work from the action of the elements, or from any unforeseen or unusual difficulty.

The Contractor shall assume and be liable for all blame and loss of whatsoever nature by reason of neglect or violation of any Federal, State, County or Local laws, regulations, or ordinances; the Contractor shall indemnify and save harmless the City from all suits or actions of law of any kind whatsoever in connection with this work and shall if required by the City, produce evidence of settlement of any such

action before final payment shall be made by the City. Contractor's Liability Insurance Certificate shall include the save harmless clause and shall be filed with the City.

The Contractor shall maintain such insurance as will protect him from claims under worker's compensation acts and from claims for damages because of bodily injury, including death, and property damage, which may arise from and during operations under this Contract, whether such operations be by himself, by any subcontractor or anyone directly or indirectly employed by either of them. Contractor's liability insurance shall be in the names of the Contractor and the City, as their respective interests may appear. Certificates of such insurance shall be filed with the City Risk and Safety Manager.

The minimum amount of liability insurance to be maintained by the Contractor during the life of the contract shall be as follows:

Comprehensive General Liability – for bodily injury and property damage – including any liability normally covered by a general liability policy with limits of not less than \$1,000,000 per occurrence and \$2,000,000 in the annual aggregate.

Business Automobile Liability – For owned, non-owned, leased and hired vehicles with a combined single limit of not less than \$1,000,000 for bodily injury and property damage.

Professional Liability – in minimum amounts of \$1,000,000 per occurrence and \$2,000,000 aggregate.

Worker's Compensation – Statutory limits in each state in which Service Provider is required to provide Worker's Compensation coverage including "All States" and "Voluntary Compensation" endorsement, and a Waiver of Subrogation endorsement in favor of the County.

Employer's Liability – with limits of not less than \$100,000 Accident – Each Accident, \$100,000 Disease – Each Employee; and \$500,000 Disease – Policy Limit.

Prior to commencement of performance of this Agreement, Contractor shall furnish to the City a certificate of insurance evidencing all required coverage in at least the limits required herein, **naming the City of Reading, its elected officials, agents, and employees as additional insureds under the Comprehensive General Liability coverage**, and providing that no policies may be modified or cancelled without thirty (30) days advance written notice to the City. Such certificate shall be issued to: **City of Reading, 815 Washington Street, Reading, PA 19601**. All policies shall be in effect with companies holding an A.M. Best rating of "A-" or better and shall be licensed to do business in the Commonwealth of Pennsylvania. Such companies shall also be acceptable to the City.

Please forward a certificate of insurance verifying these insurance requirements.

Liability insurance shall include automobile coverage, including "hired automobiles and non-ownership automobiles."

Liability insurance shall include the hazard of collapse, damage to underground utilities, underground blasting, and excavation. Prior to any blasting which may be required, blasting insurance shall be obtained by the Contractor in an amount satisfactory to the City Engineer.

Liability insurance shall include the hazard of building collapse and of damage to adjoining properties and/or to individuals located within or adjacent to each project site.

All subcontractors performing work under this contract must furnish to the City a copy of their Certificate of Insurance for Workers' Compensation and liability for bodily injury and property damage.

WAGES AND EMPLOYMENT REQUIREMENTS

Bidder agrees that not less than the Pennsylvania prevailing wages will be paid.

The Contractor will further agree to comply with Commonwealth of Pennsylvania Act of August 15, 1961, P.L. 1225 and amendments as applicable.

EQUAL EMPLOYMENT OPPORTUNITY

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

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

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

The Contractor will send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representatives of the Contractor, commitments under this Section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

In the event of the Contractor's noncompliance with the non-discrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts.

The Contractor will include the provisions of these paragraphs in every subcontract or purchase order unless exempted.

EMPLOYMENT OF CERTAIN PERSONS PROHIBITED

No person who, at the time, is serving sentence in a penal or correctional institution shall be employed on the work covered by this Contract.

SUPERVISION OF WORKERS

The Contractor shall provide qualified supervision of each crew at all times while working under this contract. Each supervisor shall be authorized by the Contractor to accept and act upon all directives issued by the City. Failure for the supervisor to act on said directives shall be sufficient cause to give notice that the Contractor is in default of the contract unless such directives would create potential personal injury or safety hazards.

This contract will be under the direct supervision of the City or its authorized representatives. Any alterations or modifications of the work performed under this contract shall be made only by written agreement between the Contractor and the City authorized representatives and shall be made prior to commencement of the altered or modified work. No claims for extra work or materials shall be allowed unless covered by written agreement.

SUBCONTRACTS

The Contractor will not be allowed to subcontract work under this contract unless written approval is granted by the City. The Subcontractor, as approved, shall be bound by the conditions of the contract between the City and the Contractor. The authorization of a Subcontractor is to perform in accordance with all terms of the contract and specifications. All required notices, work orders, directives, and requests for emergency services will be directed to the Contractor. All directions given to the Subcontractor in the field shall bind the Contractor as if the notice had been given directly to the Contractor.

QUALITY

Where a bid is asked for a certain article or "Approved Equal" and the bidder intends to furnish an article which the bidder considers equal to the one named, the bidder must specify in the bid the name and grade of said article. All disputes concerning grade and quality of materials or work shall be determined by a person duly authorized by the City.

TIME OF COMPLETION

The bidders are herewith cautioned that the time of completion indicated in their proposal must be complied with. To insure timely completion, the successful bidder will be required to furnish adequate equipment, and qualified personnel in sufficient numbers at all times.

Where a date is set for delivery of materials or the performance of work, said materials must be delivered, or work performed, in accordance with the specifications or description herein contained on or before said date, or the order to the delinquent party will be canceled and awarded to the next lowest responsible bidder.

BUSINESS PRIVILEGE TAX

The City of Reading imposes a Business Privilege License, at \$55.00 per calendar year. In addition, a Business Privilege Tax is imposed at the rate of 2-1/4 mills upon the gross receipts attributable to business conducted within the City of Reading.

PERMITS/LICENSES

The Contractor shall, at his expense, pay all fees and procure all necessary licenses and permits needed to conduct the work required under the terms of this contract. The Contractor shall give any and all necessary formal notices required in conjunction with the lawful prosecution of the work of this contract.

BASIS OF PAYMENT

All prices to be quoted F.O.B. Reading, PA destination. The City of Reading is tax exempt.

OBSERVANCE OF LAWS, ORDINANCES AND REGULATIONS

The Contractor at all times during the term of this contract shall observe and abide by all Federal, State, and Local laws which in any way affect the conduct of the work and shall comply with all decrees and orders of courts of competent jurisdiction. The Contractor shall comply fully and completely with any and all applicable State and Federal Statutes, rules and regulations as they relate to hiring, wages, and any other applicable conditions of employment.

WITHDRAWAL OF PROPOSALS/BIDS

After a bid has been opened, it may not be withdrawn except as provided by Act of January 23, 1974, P.L. 9 No. 4, as same may be amended.

No bids may be withdrawn for a period of ninety (90) days following the formal opening and receipt of bids by the City of Reading.

BID REJECTION

The City of Reading reserves the right to reject any or all bids and to accept or reject any part of any bid. It also reserves the right to waive any technical defects or minor irregularities, which in its discretion, is in the best interest of the City.

EXECUTION OF CONTRACT

The successful Bidder shall, within ten (10) calendar days after mailing of contract documents by the City to the Principal, enter into contract with the City on form as included within the bidding documents for the appropriate bonds, indemnities and insurances required hereunder.

The contract, when executed, shall be deemed to include the entire agreement between the parties; the Contractor shall not base any claim for modification of the contract upon any prior representation or promise made by the representatives or the City, or other persons.

All attachments are considered as part of this document.

METHOD OF PAYMENT

Payments shall be based on an invoice submitted by the General Contractor or approved representative Construction Manager. The City shall have the right to withhold disbursement funds if in the City's opinion construction work for which payment has been requested is of poor workmanship, contrary to any applicable codes and contract specifications, violation of appropriate paperwork requirements that are not up to date and approved for this billing period, General Contractor fails to comply with this Agreement, or for other conditions or circumstances which the City deems not to be in the best interest of the public.

Ten percent (10%) of each General Contractor invoice request shall be retained by the City on this contract until it is completed up to City codes and contract specifications and approved by a City Official or person representing a City Official (Architect or Engineer).

ACCESS TO ACCOUNTING RECORDS

The contractor shall certify that all materials, equipment, and labor charged to the City are accounted for and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement. The City or its representative shall be afforded access to all the Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to this Contract, and the Contractor shall preserve all such records for a period of three (3) years, or for such longer period as may be required by law, after the final payment.

ASSIGNMENT OF REFUND RIGHTS

The City is not subject to federal, state, or local sales or use tax or federal excise tax. Contractor hereby assigns to City all of its rights, title, and interest in any sales or use tax which may be refunded as a result of the purchase of any materials purchased in connection with the Contract and Contractor, unless directed by the City, shall not file a claim for any sales or use tax refund subject to this assignment. Contractor authorizes the City, in its own name or the name of the Contractor, to file a claim for a refund of any sales or use tax subject to this assignment.

CONTRACTS WITH SUBCONTRACTORS

The Contractor agrees to include the above references paragraphs in any contract with subcontractors and to provide proof thereof to the City of Reading if requested.

NOTICE TO PROCEED

The Contractor shall begin work on the job site within ten (10) days after receiving Notice to Proceed from the City.

DISCONTINUANCE OF WORK

Any practice obviously hazardous as determined by the City shall be immediately discontinued by the Contractor upon receipt of either written or oral notice to discontinue such practice.

CONTRACT TERMINATION

The City shall have the right to terminate a contract or a part thereof before the work is completed in the event:

1. Previous unknown circumstances arise making it desirable in the public interest to void the contract.
2. The contractor is not adequately complying with the specifications.
3. The contractor refuses, neglects, or fails to supply properly trained or skilled supervisory personal and/or workers or proper equipment.
4. The contractor in the judgment of the City is unnecessarily or willfully delaying the performance and completion of the work.
5. The contractor refuses to proceed with work when and as directed by the City.
6. The contractor abandons the work.

Contractors who have questions concerning various aspects of this Contract should contact the following persons:

MANDATORY PRE-BID MEETING

There will be no pre bid meeting scheduled for this project.

QUESTIONS REGARDING SPECIFICATIONS OR BID PROCESS

To ensure fair consideration for all bidders, the City prohibits communication to or with any department or division manager or employee during the bid process with the exception of those questions relative to interpretation of specifications of the bid process. Such questions shall be submitted to Purchasing via www.pennbidprocureware.com by 2:00pm on July 27, 2020. Responses to questions shall be issued to all bidders in the form of a written addendum no later than July 31, 2020

Notice: Payment of invoices is subject to the terms and conditions of the sources of funding for this project.

THE FOLLOWING INSTRUCTIONS FOR CONTRACTORS REGARDING AFFIRMATIVE ACTION ARE PROVIDED FOR INFORMATION PURPOSES. THE SUCCESSFUL BIDDER ASSUMES THE OBLIGATION TO TAKE WHATEVER AFFIRMATIVE ACTIONS ARE NECESSARY TO ASSURE EQUAL EMPLOYMENT OPPORTUNITY IN ALL ASPECTS OF EMPLOYMENT, IRRESPECTIVE OF RACE, COLOR, CREED, OR NATIONAL ORIGIN.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT
OPPORTUNITY (EXECUTIVE ORDER 11246, AS AMENDED)**

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

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

Timetables	Goals for Minority Participation in Each Trade	Goals for Female Participation for Each Trade
Until Further Notice	2.5% for all trades	6.9% for All Trades

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally-assisted) performed in the covered area.

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

(3) **THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE DIRECTOR OF THE OFFICE OF FEDERAL CONTRACT COMPLIANCE PROGRAMS WITHIN 10 WORKING DAYS OF AWARD OF ANY CONSTRUCTION SUBCONTRACT IN EXCESS OF \$10,000 AT ANY TIER FOR CONSTRUCTION WORK UNDER THE CONTRACT RESULTING FROM THIS SOLICITATION. THE NOTIFICATION SHALL LIST THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE SUBCONTRACTOR; EMPLOYER IDENTIFICATION NUMBER; ESTIMATED DOLLAR AMOUNT OF THE SUBCONTRACT; ESTIMATED STARTING AND COMPLETION DATES OF THE SUBCONTRACT; AND, THE GEOGRAPHICAL AREA IN WHICH THE CONTRACT IS TO BE PERFORMED.**

*OFFICE OF FEDERAL CONTRACT COMPLIANCE PROGRAMS
THE CURTIS CENTER SUITE 750 WEST
170 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-3309
PHONE (215) 861-5764*

As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the City of Reading, Pennsylvania.

State of _____)
County of _____) ss.

I, _____, **Notary Public, being duly sworn, deposes and says that he**
is _____ of _____,
(Name of Organization)
and that the answers to the foregoing questions and all statements therein contained are true and
correct.

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

NOTARY PUBLIC

My Commission Expires:

DOCUMENTS TO BE SUBMITTED WITH BID

PROPOSAL

Proposal of:

Name:

Address:

TO: Eddie Moran, Mayor
 City of Reading
 Reading, PA 19601

Dear Mayor Moran:

In conformity with City Plans and specifications, and the Contract Documents, including the instructions to Bidders, Form of Proposal, Bid Bond and Conditions, the undersigned submits this proposal, and encloses herewith as proposal guaranty, a Certified or Treasurer's Check, or Bid Bond, in an amount not less than ten percent (10%) of the bid herein submitted, which it is understood will be forfeited if this proposal is accepted by the City of Reading, and the undersigned fails to furnish approved bonds and execute the contract within the time stipulated; otherwise, the guarantee will be returned.

The undersigned declares that no Member of Council, Director of Department, Division Manager, deputy thereof or clerk therein, or other officer of the City of Reading, is directly or indirectly interested as principal, surety or otherwise in this proposal or has any supervision or overall responsibility for the implementation in administration of the contract.

It is certified that the undersigned is the only person(s) interested in this proposal as principal and that the proposal is made without collusion with any person, firm, or corporation.

It is hereby agreed to execute the contract and furnish surety company bonds, on the forms enclosed in the Contract Documents, in the amount of one hundred percent (100%) of the contract price within ten (10) days of mailing of the contract documents from the City to the Principal, and to begin work within ten (10) days after receipt of Notice to Proceed from the City of Reading.

It is proposed to furnish and deliver all materials, tools, equipment, power, tests and transportation, perform all labor, superintendence, and all means of construction, and do all incidental work, and to execute, construct and finish in an expeditious and workman-like manner, in accordance with the plans and specifications, to the satisfaction and acceptance of the Department of Public Works of the City of Reading and its Engineer for the 6th and Canal Street Pump Station Plug Valves Replacement Project as herein bid:

Item No.	Description	Unit	Quantity	Unit Price	Total Price
1	Mobilization and General Conditions	LS	1		
2	Bonds and Insurances	LS	1		
3	42-inch Ductile Iron Force Main	LF	22		
4	42-inch Ductile Iron Fittings	EA	6		
5	42-inch Plug Valves	EA	2		
6	Electric Motor Actuators	EA	2		
7	42-inch Pipe Couplings	EA	4		
8	Contract Coordination	LS	1		
9	Grass Areas Surface Restoration	SY	1,000		
10	Stone Drive Areas Restoration	SY	100		
11	Erosion Control	LS	1		
12	Demobilization and Closeout	LS	1		
TOTAL BID					

_____ (written)

\$ _____ (figures).

Detailed Description of Bid Items may be found in Technical Specification Section 01 20 00.

IN WITNESS WHEREOF, this proposal has been executed this ____ day _____ A.D. 20____, by the setting hereunto of his or its hand and seal.

(INDIVIDUAL: PRINCIPAL)

(Signature of Individual) (Seal)

Witness:

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

(Name of Partnership) (Seal)

Witness:

By: _____ (Seal)
(Partner)

Witness:

By: _____ (Seal)
(Partner)

Witness:

By: _____ (Seal)
(Partner)

Witness:

By: _____ (Seal)
(Partner)

(CORPORATION PRINCIPAL)

Attest:

(Assistant Secretary)

(Name of Corporation)

By: _____

(Vice) President

(CORPORATE SEAL)

or (if appropriate)

(Name of Corporation)

By: _____
Authorized Representative

FORM OF BID BOND

BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned,

_____, as Principal (the "Principal"), and _____

a corporation organized and existing under laws of the _____ of _____, as

Surety (the "Surety"), are held and firmly bound unto _____ as

Obligee (the "Obligee"), as hereinafter set forth, in the full and just sum of

_____ Dollars

(\$ _____),

lawful money of the United States of America, for the payment of which sum we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WITNESSETH THAT:

WHEREAS, the Principal herewith is submitting a Proposal to the Obligee to perform the _____ Work in connection with the construction of _____ pursuant to plans, specifications and other documents constituting the Contract Documents which are incorporated into said Proposal by reference (the "Contract Documents"), as prepared by the Department of Public Works, City Hall, 815 Washington Streets, Reading, PA 19601-3690.

WHEREAS, it is a condition of the receipt and consideration by the Obligee of said Proposal that it shall be accompanied by proposal guaranty to be held by the Obligee on terms hereinafter set forth.

NOW, THEREFORE, the condition of this Bond shall be such that, if the Principal, within ten (10) days after mailing of contract document by the City to Principal, shall furnish to the Obligee a Performance Bond, Payment Bond and a Wage Rate Compliance Bond, and upon award of a contract to him by the Obligee, shall execute and deliver the Agreement and furnish to the Obligee proper evidence of effectiveness of insurance coverage, respectively within the time, in the forms and in the amounts, as appropriate, required by the Contract Documents, then this Bond shall be void, otherwise, this Bond shall remain in full force and effect.

The Principal and the Surety agree to pay to the Obligees the difference between the amount of said Proposal, as accepted by the Obligees, and any higher amount for which the required work shall be contracted for by the Obligees, together with any additional advertising costs, architect's fees, legal fees and any all other fees and expenses incurred by the Obligees by reason of the failure of the Principal to enter into such Agreement with the obligee, or to furnish such Contract Bonds, or to furnish evidence of effectiveness of such insurance coverage; provided, however, that (1) the obligation of the Surety shall not exceed the stated principal amount of this Bond; and (2) if the Obligees should not procure an executed contract with any other person for the performance of the work contemplated in said Proposal, as accepted by the Obligees, upon the same terms and conditions, other than price, as provided in the Contract Documents, within the period provided in the Contract Documents during which no proposals of bidders may be withdrawn, whether because of the lack of other proposals, or because of the inability or refusal of any other bidder to enter into an appropriate contract, or because the cost under any higher proposal would be greater than the Obligees shall determine, in its sole discretion, that it can afford, then the Principal and the Surety agree to pay to the Obligees the full amount of this Bond as liquidated damages.

IN WITNESS WHEREOF, the Principal and the Surety cause this Bond to be signed, sealed and delivered this _____ day of _____, 20____.

(INDIVIDUAL PRINCIPAL)

(Seal)

(Signature of Individual)

Witness:

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

(PARTNERSHIP PRINCIPAL)

(Seal)

(Name of Partnership)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

(CORPORATION PRINCIPAL)

(Name of Corporation)

By: _____
(Vice) President

Attest:

(Assistant Secretary)

(Corporate Seal)

(OR, IF APPROPRIATE)

(Name of Corporation)

By: _____
(Authorized Representative)

Signed _____

(Title)

Subscribed and sworn to before me on

this ___ day of _____, 20 ___

(Title)

My Commission Expires:

(CORPORATION SURETY)

(Name of Corporation)

By: _____
(Attorney-In-Fact)

Witness:

(Corporate Seal)

** Attach an appropriate Power of Attorney, valid and in effect as of the date of this affidavit, evidencing the authority of the Attorney-In-Fact to act in behalf of the corporation.

NON-COLLUSION AFFIDAVIT

INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

This Non-Collusion Affidavit is material to any contract pursuant to this bid. According to the Pennsylvania Antirigging Act, 73 P.S. 1611 et seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.

This Non-Collusion affidavit must be executed by the member, officer, or employee of the bidder who is authorized to legally bind the bidder.

Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval, or submission of the bid.

In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.

The term "complementary bid" as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any form of bid submitted for the purpose of giving a false appearance of competition.

Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____

County of _____

_____, being first duly sworn, deposes and says that:

He/She is _____ (Owner, Partner, Officer, Representative or Agent) of _____, the Bidder that has submitted the attached Bid or Bids;

He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

Such Bid is genuine and is not a collusive or sham Bid;

Neither the said Bidder nor any of its officers; partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication of conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Reading or any person interested in the proposed Contract;

The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and,

Neither the said Bidder nor any of its officers, partners, owners, agents or parties in interest, have any interest, present or prospective, that can be reasonably construed to result in a conflict of interest between them and the City of Reading, which the Bidder will be required to perform.

I state that _____ understands
(Name of Firm)

and acknowledges that the above representations are material and important, and will be relied on by the City of Reading in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from the City of Reading of the true facts relating to the submission of bids for this contract.

(Name and Company Position)

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

Notary Public

My Commission Expires

**PROVIDER'S CERTIFICATION OF NON-INDEBTEDNESS
TO THE CITY OF READING**

Provider hereby certifies and represents that Provider and Provider's parent company(ies) and subsidiary(ies) are not currently indebted to the City of Reading (the "City"), and will not at any time during the term of this Contract (including any extensions or renewals thereof) be indebted to the City, for or on account of any delinquent taxes, liens, judgments, fees or other debts for which no written agreement or payment plan satisfactory to the City has been established. In addition to any other rights or remedies available to the City at law or in equity, Provider acknowledges that any breach or failure to conform to this certification may, at the option of the City, result in the withholding of payments otherwise due to Provider and, if such breach or failure is not resolved to the City's satisfaction within a reasonable timeframe specified by the City in writing, may result in the offset of any such indebtedness against said payments and/or the termination of this Contract for default (in which case Provider shall be liable for all excess costs and other damages resulting from the termination).

NAME OF PROVIDER

By: _____
AUTHORIZED SIGNATORY

Title: _____
PRESIDENT OR VICE PRESIDENT

Attest: _____

RESOLUTION NO. 192-92

WHEREAS, reportedly, twenty-five cement manufacturing facilities in the United States are currently burning well over two billion pounds a year of hazardous waste as a source of fuel and additional profit in the cement manufacturing process; and

WHEREAS, approximately twenty cement manufacturing facilities are seeking permission to start this practice; and

WHEREAS, sufficient data and evidence as to the safety of cement products made from hazardous waste has not been proven; and

WHEREAS, it is in the best interest of the citizens of the City of Reading in regard to their health and quality of life that cement derived from hazardous waste be banned from any City projects.

NOW, THEREFORE, the Council of the City of Reading resolves that the City of Reading will not purchase cement from any facility that burns hazardous waste as fuel in its manufacturing process, nor allow the use of concrete made from this type of cement. This policy shall be reflected in city bid specifications.

PASSED COUNCIL April 1, 1993

WARREN H. HAGGERTY, JR.
Mayor

ATTEST:

RUTH M. THOMPSON
City Clerk

STATEMENT OF BIDDER'S QUALIFICATIONS

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

1. Name of Bidder: _____
2. Permanent main office address: _____
3. When organized: _____
4. If a corporation, where incorporated: _____
5. How many years have you been engaged in the contracting business under your present firm or trade name: _____
6. Contracts on hand: (Schedule these on an attached sheet, showing amount of each contract and the appropriate anticipated dates of completion.)
7. Have you ever failed to complete any work awarded to you? If so, where and why?

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

9. List the more important projects recently completed by your company on an attached sheet, stating the approximate cost of each, and the month and year completed.
10. List your major equipment available for this contract.

11. Describe experience in construction work similar in importance to this project on an attached sheet.

Statement of Bidder's Qualifications

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

13. Credit available: \$ _____

14. Give Bank reference: _____

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

16. (A) Have you ever been a party to or otherwise involved in any action or legal proceeding involving matters related to race, color, nationality or religion? _____ If so, give full details.

(B) Have you ever been accused of discrimination based upon race, color, nationality or religion in any action or legal proceeding including any proceeding related to any Federal Agency? _____. If so, give full details _____

17. All prospective bidders are required to present proof of an acceptable disposal method approved by the Pennsylvania Department of Environmental Protection. The proof may consist of a copy of a State Solid Waste Disposal Permit issued to the prospective bidder by the Pennsylvania Department of Environmental Protection, or a letter of approval from the Pennsylvania Department of Environmental Protection for the use of a proposed or existing disposal facility which has a permit or is under review for a permit. Same to be in accordance with Section 7 (a) application and permits, Pennsylvania Solid Waste Management - "Act 241."

Statement of Bidder's Qualifications

18. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the "City of Reading" in verification of the recitals comprising this Statement of Bidder's Qualifications.

19. Name, address, phone number, and contact person at surety company who will provide bonding for this contract:

20. Name, address, phone number, and contact person at insurance company who will provide insurance coverage for this contract:

21. The undersigned hereby authorizes any person, firm or corporation to furnish any information requested by the City of Reading in verification of the recitals comprising this Statement of Bidder's Qualifications.

DATED at _____ this ____ day of _____, 20____.

(NAME OF BIDDER)

BY: _____

TITLE: _____

6. If an individual or a partnership, give the:
 - A. Date or organization:
 - B. Name and address of all partners (state whether general or limited partnership):

7. If other than a corporation or partnership, describe your organization and name all principals or owners:

8. List states and categories in which your organization is legally qualified to do business giving all registration or license numbers.

9. List states in which partnership or trade name is filed.

10. List the types of work normally performed by your own forces.

11. Have you ever failed to complete any work awarded to you? If so, note when, where, and why:

12. Within the last five years, has any owner, officer or partner of your organization ever been an owner, officer or partner of another organization when it failed to complete a construction contract? If so, attach a separate sheet of explanation.

13. On a separate sheet, list major construction projects your organization has in process, giving the name or project, owner, architect, contract amount, percent complete, and scheduled completion date.

14. On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion, and percentage of the cost of the work performed with your own forces.

15. On a separate sheet, list the construction experience of the key individuals of your organization.
16. Trade References:
17. Bank References:
18. Name of Bonding Company and name and address of agent:
19. Attach a financial statement, audited if available, including Contractor's latest balance sheet and income statement showing the following items:
 - A. Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses):
 - B. Net Fixed Assets:
 - C. Other Assets:
 - D. Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries, and accrued payroll taxes):
 - E. Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares per values, earned surplus, and retained earnings):

Name of firm preparing financial statement and date thereof:

Is this financial statement for the identical organization named on page 00420-1?

If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

Will this organization act as guarantor of the contractor for construction?

Dated at _____ this ____ of _____, 20__.

Name of Organization: _____

BY: _____

TITLE: _____

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

Notary Public:

My Commission Expires:

EQUAL EMPLOYMENT OPPORTUNITY AND SECTION 3 QUESTIONNAIRE

(Please complete the following information and answer all questions; use an attached sheet as necessary.)

1. (a) Contractor: How many persons from the City of Reading _____, low income City residents _____, and minorities: _____ Black, _____ Hispanic, _____ White, _____ Asian/Pacific Islander, _____ Other, are on your present basic payroll?

(b) Subcontractor: How many persons from the City of Reading _____, low income City residents _____, and minority groups: _____ Black, _____ Hispanic, _____ White, _____ Asian/Pacific Islander, _____ Other, are on your present basic payroll?

2. How many City of Reading residents _____, low income City residents _____, and minorities: _____ Black, _____ Hispanic, _____ White, _____ Asian/ Pacific Islander, _____ Other, are presently in training programs run by your company, your subcontractors, and associations to which you or your subcontractors may belong or with unions with which you and your subcontractors have collective bargaining agreements?

3. Does your firm, subcontractors, associations to which you or they belong or unions with which you or your subcontractors have collective bargaining agreements a definite plan for creating career situations, training and employment for residents of the City of Reading, low income citizens, and minorities? _____. If so, please include a copy of the plan with your formal bid and specify the number of individuals (from the groups referred to previously), to be placed in apprenticeship or other training situations. When is the program scheduled to begin? _____ What portion of the program is already in operation?

4. What plans does your firm have to utilize business concerns located in, or owned in substantial part by persons residing in the City?

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, local custom or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Note: The penalty for making false statement in offers is prescribed in 18 U.S.C. 1001.

DATE: _____,

BY: _____
(NAME OF BIDDER) (TITLE)

OFFICIAL ADDRESS:

CONTRACTOR'S STATEMENT FOR PUBLIC DISCLOSURE *

1. a/ Name of Contractor:
b/ Address and Zip Code of Contractor:

2. If the Contractor is not an individual doing business under his own name, the Contractor has the status indicated below and is organized or operating under the laws of _____:
____ a corporation
____ a partnership known as:
____ a business association or a joint venture known as:
____ a Federal, State or Local government or instrumentality thereof
____ other (explain)

3. If the Contractor is not an individual or a government agency or instrumentality, give date of organization: _____

4. Names, addresses, title of position (if any), and nature and extent of the interest of the officers and principal members, shareholders, investors other than a government agency or instrumentality, are set forth as follows:
 - a/ If the Contractor is a corporation, the officers, directors, trustees, and each stockholder owning more than 10% of any share of stock.
 - b/ If the Contractor is a partnership, each partner, whether a general or limited partner, and either the percent of interest or a description of the character and extent of interest.
 - c/ If the Contractor is a business association or a joint venture, each participant and either the percent of interest or a description of the character and extent of interest.
 - d/ If the Contractor is some other entity, the officers, the members of the governing body, and each person having an interest of more than 10%.

* If space on this form is inadequate for any requested information, this should be furnished on an attached page which is referred to under the appropriate numbered item on the form.

NAME, ADDRESS & ZIP CODE	POSITION TITLE (if any) AND PERCENT OF INTEREST OR DESCRIPTION OF <u>CHARACTER AND EXTENT OF INTEREST</u>
5.	Name, address and nature and extent of interest of each person or entity (not named in response to Item 4) who has a beneficial interest in any of the shareholders or investors named in response to Item 5 which gives such person or entity more than a computed 10% interest in the Contractor (for example, more than 20% of the stock in a corporation which holds 50% of the stock of the Contractor, or more than 50% of the stock in a corporation which holds 20% of the stock of the Contractor).

NAME, ADDRESS & ZIP CODE	<u>DESCRIPTION OF CHARACTER AND EXTENT OF INTEREST</u>
6.	Names (if not given above) of officers and directors or trustees of any corporation or firm listed under Item 4 or Item 5 above:
7.	Is the Contractor a subsidiary of or affiliated with any other corporation or any other firm or firms? ___ YES ___ NO. If yes, list each such corporation or firm by name and address, specify its relationship to the Contractor, and identify the officers and directors or trustees common to the Contractor and such other corporation or firm:
8.	Other federal grant projects under Title I of the Housing and Community Development Act of 1974 (CP.L.93-383), as amended, in which the Contractor or any of the principals of the Contractor is or has been the contractor, or a stock-holder, officer, director or trustee, or partner of such a contractor:
9.	If the Contractor or a parent corporation, a subsidiary, an affiliate or a principal of the Contractor is to participate in the work or services as a Subcontractor or consultant:
a/	Name and address of such Subcontractor or consultant:
b/	Has such Subcontractor within the last 10 years ever failed to qualify as a responsible bidder, refused to enter into a contract after an award has been made, or failed to complete a contract? ___ YES ___ NO. If yes, explain:

c/ Outstanding contract bids of such Subcontractor or consultant:

<u>Awarding Agency</u>	<u>Amount</u>	<u>Date Opened</u>
	\$	

10. Brief statement respecting equipment, experience, financial capacity, and other resources available to such Subcontractor or consultant for the performance of the work or services involved in the contract, specifying particularly the qualifications of the personnel, the nature of the equipment, and the general experience of the Subcontractor or consultant.

11. a/ Does any member of the governing body or employee of the Local Public Agency or any officer or employee of the Local Public Agency who exercises any functions or responsibilities in connection with the awarding and/or carrying out of the contract have any direct or indirect personal interest in the Contractor or in the Contractor's performance under the contract? ___YES ___NO. If yes, explain:

b/ Does any member of the governing body of the locality in which the Public Improvement Project is situated or any other public official of the locality, who exercises any functions or responsibilities in the review or approval of the awarding and/or carrying out of the contract have any direct or indirect personal interest in the Contractor or in the Contractor's performance under the contract? ___YES ___NO. If yes, explain:

CERTIFICATION

I (We) _____ certify that this Contractor's Statement for Public Disclosure is true and correct to the best of my (our) knowledge and beliefs.

DATED: _____

DATED: _____

(SIGNATURE)

(SIGNATURE)

(TITLE)

(TITLE)

(ADDRESS & ZIP CODE)

(ADDRESS & ZIP CODE)

1 - If the Contractor is an individual, this Statement should be signed by such individual; if a partnership, by one of the partners; if a corporation or other entity, by one of its chief officers having knowledge of the facts required by this Statement.

2 - Penalty For False Certification: Section 1001, Title 18, of the U.S.C. provides a fine of not more than \$10,000, or imprisonment of not more than five years, or both, for knowingly and willfully making or using any false writing or document, knowing the same to contain any false, fictitious or fraudulent statement or entry in a matter within the jurisdiction of any Department of the United States.

(ONLY AS NEEDED)

CERTIFICATE OF ACKNOWLEDGMENT OF RECEIPT OF ADDENDUM

THE CITY OF READING

ADDENDUM NO. _____ TO BID FOR: _____

OPENING DATE: _____

NOTICE

This addendum must be signed, attached to, and returned with your proposal to the City of Reading by the time and date indicated above. This sheet is now part of the Contract Documents.

I, HEREBY CERTIFY, THAT THE CHANGES COVERED BY THIS ADDENDUM HAVE BEEN TAKEN INTO ACCOUNT WITH THE TOTAL BID PRICE.

Firm Name (Type or Print) _____

Authorized Signature _____ Title _____

Name (Type or Print) _____ Date _____

CONTRACT DOCUMENTS

C O N T R A C T

NOTE; This contract is not to be filled in until contract is awarded.

THIS AGREEMENT, made and concluded this _____ day of _____, in the year two thousand and _____, by and between the City of Reading, a municipal corporation of the Commonwealth of Pennsylvania, located in the County of Berks, said Commonwealth, party of the first part, and _____, Contractor, party of the second part, pursuant to law and to the provisions and requirements of the ordinance of the City of Reading, Pennsylvania.

WITNESSETH, that the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have agreed, and hereby do agree, the party of the first part for itself, its successors and assign, and the party of the second part for itself, himself, or themselves, its successors, or his or their executors and administrators as follows:

CONTRACTOR'S GENERAL AGREEMENT. The Contractor covenant, promises and agrees to and with the party of the first part, for the consideration hereinafter mentioned and contained, and under the penalty expressed in a bond bearing date of _____ and hereto attached, to furnish all the material, machinery, equipment, tools, labor and transportation, except as hereinafter otherwise provided, at his own cost, necessary or proper for the purpose of executing the work embraced in this contract in a good, substantial and workmanlike manner, and in strict accordance with the specifications pertaining to this contract a herein contained.

PARTS OF CONTRACT. The Location Map; Notice to Contractors; Bid Instructions; Documents to be Submitted with Bid; Contract Documents; Documents to be Submitted During the Course of the Contract; Wage Rate Determinations; Notice of Preconstruction Requirements and Pre-Construction Conference Questionnaire; Affirmative Action Requirements; General Provisions; Supplementary General Terms and Conditions; Technical Specifications; Supplementary Technical Specifications; and Correspondence and Supportive Documentation shall each form a part of the Contract.

THE CONTRACT SUM. The City shall pay the Contractor for the performance of the Contract, subject to additions and deductions provided therein, in current funds as follows: _____ (state here the lump sum amount, unit prices, or both as desired in individual cases.)

Where the quantities originally contemplated are so changed that application of the agreed unit price to the quantity of work performed is shown to create a hardship to the Owner or the Contractor, there shall be an equitable adjustment of the Contract to prevent such hardship.

TIME & MANNER OF DOING WORK. The party of the second part agrees to commence the construction of the work to be done under this contract, immediately upon receiving written notice from the Director of Public Works, or other applicable Director, so to do and to complete the entire work as specified in the technical specifications, it being expressly agreed and understood that the time of beginning, rates of progress and time of completion of the work are essential under this contract. Time is to be considered to be the essence of this contract.

STIPULATED DAMAGES. The Contractor shall begin work within ten (10) days of receipt of written notice from the applicable Director, to do so. If the Contractor fails to complete and finish the work in conformity with the terms and provisions of this Contract within the time hereinbefore specified, he shall pay to the City the sum of Five Hundred Dollars (\$500.00) for each and every day thereafter, including Sundays and holidays, that the finishing of the Contract is delayed, which sum shall be construed as stipulated and liquidated damages and not as a penalty and shall be deducted from the amount due by the terms of the Contract; provided, however, that in case of justifiable delay, the City shall extend the time for completion of said work as provided for in Article G.7, but no extension of time for any reason beyond the time fixed herein for the completion of the work shall be deemed a waiver by the City of the right to abrogate this Contract for abandonment for delay.

LIENS. Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the City a complete release of all liens arising out of this Contract, or receipts in full in lien thereof, and, if required in either case, an affidavit that so far as he has knowledge or information the release and receipts include all the labor and material for which a lien could be filed. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

BASIS OF CONTRACT. This contract is founded on _____

IN WITNESS WHEREOF, the said City of Reading has caused this Agreement to be executed by its Mayor, and its corporate seal to be hereunto affixed, duly attested by its City Clerk, and the party of the second part.

the day and year first above written.

CITY OF READING

By: _____
Mayor

ATTEST:

City Clerk

Signed and Sealed in the Presence of

CONTRACTOR

PRESIDENT

SECRETARY

PERFORMANCE BOND

Know All Men By These Presents that we, _____
(CONTRACTOR)

hereinafter called the PRINCIPAL, and _____
(SURETY)

hereinafter called the SURETY, a corporation organized and existing under the laws of
the _____ are held and firmly bound unto

_____ hereinafter called the OBLIGEE, as hereinafter
set forth, in the full and just sum of _____ Dollars

(\$ _____), lawful money of the United States of America, for the payment of which sum we bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

WITNESSETH THAT:

WHEREAS, the PRINCIPAL heretofore submitted to the OBLIGEE a certain PROPOSAL, dated
_____, 20____, to perform the WORK for the OBLIGEE, in connection with the
_____ as set forth in CONTRACT DOCUMENTS.

WHEREAS, the OBLIGEE is a "contracting body" under provisions of Act No. 385 of the General
Assembly of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967,
known and cited as the "Public Works Contractors Bond Law of 1967" (the "Act"); and

WHEREAS, the Act, in Section 3(a), requires that, before an award shall be made to the
PRINCIPAL by the OBLIGEE in accordance with the PROPOSAL, the PRINCIPAL shall furnish this
BOND to the OBLIGEE, with this BOND to become binding upon the award of the CONTRACT to the
PRINCIPAL by the OBLIGEE in accordance with the PROPOSAL; and

WHEREAS, it also is a condition of the CONTRACT DOCUMENTS that this BOND shall be
furnished by the PRINCIPAL to the OBLIGEE; and

WHEREAS, under the CONTRACTOR DOCUMENTS, it is provided inter alia, that if the
PRINCIPAL shall furnish this BOND to the OBLIGEE, and if the OBLIGEE shall make an award to the
PRINCIPAL, in accordance with the PROPOSAL, then the PRINCIPAL and OBLIGEE shall enter into a
CONTRACT with respect to performance of the WORK, the form of which CONTRACT is set forth in the
CONTRACT DOCUMENTS.

NOW, THEREFORE, the terms and conditions of this BOND are and shall be that if the
PRINCIPAL will truly and faithfully comply with and perform the WORK in accordance with the
CONTRACT DOCUMENTS, at the time and in the manner provided in the CONTRACT DOCUMENTS,
and if the PRINCIPAL shall satisfy all claims and demands incurred in or related to the performance of the
WORK by the PRINCIPAL, and if the PRINCIPAL shall indemnify completely and shall hold harmless the
OBLIGEE and all of its officers, agents and employees from any and all costs and damages which the
OBLIGEE and all of its officers, agents and employees may sustain or suffer by reason of the failure of
the PRINCIPAL to do so, and if the PRINCIPAL shall reimburse completely and shall pay to the OBLIGEE
any and all costs and expenses which the OBLIGEE and all of its officers, agents or employees may incur
by reason of any such default or failure of the PRINCIPAL, then this BOND shall be void; otherwise, this
BOND shall remain in force and effect.

This BOND, is executed and delivered under and subject to the Act, to which reference hereby is made.

The PRINCIPAL and the SURETY agree that any alterations, changes and/or additions to the CONTRACT DOCUMENTS, and/or any alterations, changes and/or additions to the WORK to be performed in accordance with the CONTRACT DOCUMENTS, and/or any alterations, changes and/or additions to the CONTRACT , and/or any giving by the OBLIGEE of any extensions of time for the performance of the WORK in accordance with the CONTRACT DOCUMENTS, and/or any act of forbearance of either the PRINCIPAL or the OBLIGEE toward the other with respect to the CONTRACT DOCUMENTS, and/or the reduction of any percentage to be retained by the OBLIGEE as permitted by the CONTRACT DOCUMENTS, shall not release, in any manner whatsoever, the PRINCIPAL and the SURETY, or either of them, or their heirs, executors, administrators, successors and assigns, from liability and obligations under this BOND; and the SURETY, for value received, does waive notice of any such alterations, changes, additions, extensions of time, acts of forbearance and/or reduction of retained percentage.

IN WITNESS WHEREOF, the PRINCIPAL and the SURETY cause this BOND to be signed, sealed and delivered this _____ day of _____, 20____.

(INDIVIDUAL PRINCIPAL)

(Seal)

Witness:

(Signature of Individual)

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

(Name of Partnership) (Seal)

Witness:

(Seal)

By: _____
(Partner)

Witness:

(Seal)

By: _____
(Partner)

Witness:

(Seal)

By: _____
(Partner)

(CORPORATION PRINCIPAL)

(Name of Corporation)

By: _____
(Vice) President

Attest:

(Assistant Secretary)

(Corporate Seal)

(OR, IF APPROPRIATE)

(Name of Corporation)

By: _____
(Authorized Representative)

Signed _____

(Title)

(CORPORATION SURETY)

(Name of Corporation)

By: _____
(Attorney-In-Fact)

Witness:

(Corporate Seal)

** Attach an appropriate Power of Attorney, valid and in effect as of the date of this affidavit, evidencing the authority of the Attorney-In-Fact to act in behalf of the corporation.

PAYMENT BOND

Know All Men by These Presents:

That We, _____ (CONTRACTOR) hereinafter called the PRINCIPAL, and _____ (SURETY) hereinafter called the SURETY, a corporation organized and existing under laws of the _____ of _____ are held and firmly bound unto _____, hereinafter called the OBLIGEE, as hereinafter set forth, in the full and just sum of _____ dollar (_____), lawful money of the United States of America, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Witnesseth That:

WHEREAS, the PRINCIPAL heretofore submitted to the OBLIGEE a certain PROPOSAL, dated _____, 20 __, to perform the WORK for the OBLIGEE, in connection with the _____ as set forth in the CONTRACT, DOCUMENTS; and _____ Public Works, City of Reading, Pennsylvania.

WHEREAS, the OBLIGEE is a "contracting body" under provisions of the Act of the General Assembly of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967, known as and cited as the "Public Works Contractors" Bond Law of 1967", P L 869 (the Act"): and

WHEREAS, the Act, in section 3(a), requires that, before an award shall be made to the PRINCIPAL by the OBLIGEE in accordance with the PROPOSAL, the PRINCIPAL shall furnish this BOND to the OBLIGEE, with this BOND to become binding upon the award of a CONTRACT to the PRINCIPAL by the OBLIGEE in accordance with the PROPOSAL: and

WHEREAS, it also is a condition of the CONTRACT DOCUMENTS that this BOND shall be furnished by the PRINCIPAL to the OBLIGEE; and

WHEREAS, under the CONTRACTOR DOCUMENTS, it is provided, inter alia, that if the PRINCIPAL shall furnish this BOND to the OBLIGEE, and if the OBLIGEE shall make an award to the PRINCIPAL in accordance with the PROPOSAL then the PRINCIPAL and the OBLIGEE shall enter into a CONTRACT with respect to performance of the WORK, the form of which CONTRACT is set forth in the CONTRACT DOCUMENTS.

NOW, THEREFORE, the terms and conditions of this BOND are and shall be that if the PRINCIPAL and any SUBCONTRACTOR of the PRINCIPAL to whom any portion of the WORK shall be subcontracted, and if all assignees of the PRINCIPAL and of any such SUBCONTRACTOR, promptly shall pay or shall cause to be paid, in full all money which may be due any claimant supplying labor or materials in the prosecution and performance of the WORK in accordance with the CONTRACT DOCUMENTS, including any amendment, extension or addition to the CONTRACT DOCUMENTS, for material furnished or labor supplied or labor performed, then this BOND shall be void; otherwise, this BOND shall be and shall remain in force and effect.

This BOND, as provided by the Act, shall be solely for the protection of claimants supplying labor or materials to the PRINCIPAL or to any SUBCONTRACTOR of the PRINCIPAL in the prosecution of the WORK covered by the CONTRACT DOCUMENTS, including any amendment, extension or addition thereto. The term "claimant", where used herein and as required by the Act, shall mean any individual, firm, partnership, association or corporation. The phrase "labor or materials", when used herein and as required by the Act, shall include public utility services and reasonable rentals of equipment, but only for periods when he equipment rented is actually used at the site of the WORK covered by the CONTRACT. As required by the Act, the provisions of this BOND shall be applicable whether or not the material furnished or labor performed enters into and becomes a component part of the public building, public work or public improvement contemplated by the CONTRACT DOCUMENTS.

As provided and required by the Act, the PRINCIPAL and the SURETY agree that any claimant, who has performed labor or furnished material in the prosecution of the WORK in accordance with the CONTRACT DOCUMENTS, including any amendment, extension or addition to the CONTRACT DOCUMENTS, and who has not been paid therefore, in full, before the expiration of ninety (90) days after the last day on which such claimant performed the last of such labor or furnished the last of such materials for which payment is claimed, may institute an action upon this BOND, in the name of the claimant, in assumpsit, to recover any amount due the claimant for such labor or material, and may prosecute such action to final judgment and may have execution upon the judgment; provided, however, that:

- (a) Any claimant who has a direct contractual relationship with any SUBCONTRACTOR of the PRINCIPAL, but has no contractual relationship, express or implied, with the PRINCIPAL, may institute an action upon this BOND only if such claimant first shall have given written notice, served in the manner provided in the Act, to the PRINCIPAL, within ninety (90) days from the date upon which such claimant performed in the last of the labor or furnished the last of the materials for which payment is claimed, stating, with substantial accuracy, the amount claimed and the name of the person for whom the WORK was performed or to whom the material was furnished; and
- (b) No action upon this BOND shall be commenced after the expiration of one (1) year from the day upon which the last of the labor was performed or material was supplied, for the payment of which such action is instituted by the claimant; and
- (c) Every action upon this BOND shall be instituted either in the appropriate court of the County where the WORK is to be performed or of such other County as Pennsylvania statutes shall provide, or in the United States District Court for the district in which the PROJECT, to which the CONTRACT relates, is situated, and not elsewhere.

This BOND is executed and delivered under and subject to the Act, to which reference hereby is made.

The PRINCIPAL and the SURETY agree that any alterations, changes and/or additions to the CONTRACT DOCUMENTS, and/or any alterations, changes and/or additions to the WORK to be performed in accordance with the CONTRACT DOCUMENTS, and/or any alterations, changes and/or additions to the CONTRACT, and/or any given by the OBLIGEE of any extensions of time for the performance of the WORK in accordance with the CONTRACT DOCUMENTS, and/or any act of forbearance of either the PRINCIPAL or the OBLIGEE toward the other with respect to the CONTRACT DOCUMENTS, and/or the reduction of any percentage to be retained by the OBLIGEE as permitted by the CONTRACT DOCUMENTS, shall not release, in any manner whatsoever, the PRINCIPAL and the SURETY, or either of them, or their heirs, executors, administrators, successors and assigns, from liability and obligations under this BOND; and the SURETY for value received, does waive notice of any such alterations, changes, additions, extensions of time, acts of forbearance and/or reduction of retained percentage.

If the PRINCIPAL is a foreign corporation (incorporated under the laws other than those of the Commonwealth of Pennsylvania) then further terms and conditions of this BOND are and shall be that the PRINCIPAL or the SURETY shall not be discharged from liability on this BOND, nor this BOND surrendered until such PRINCIPAL files with the OBLIGEE a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all bonus taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation, contributions, penalties and interest due the Commonwealth from said PRINCIPAL or any foreign corporation,

SUBCONTRACTOR thereunder or for which liability has accrued but the time for payment has not arrived, all in accordance with provisions of the Act of June 10, 1947, P.L. 493, of the Commonwealth of Pennsylvania.

In Witness Whereof, the PRINCIPAL and the SURETY cause this BOND to be signed, sealed and delivered this day _____ of _____, 20 __.

(INDIVIDUAL PRINCIPAL)

(Seal)

(Signature of Individual)

Witness:

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

(Seal)

(Name of Partnership)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

Witness:

By: _____
(Partner)

(Seal)

(CORPORATION PRINCIPAL)

(Name of Corporation)

By: _____
(Vice) President

Attest:

(Assistant Secretary)

(Corporate Seal)

(OR, IF APPROPRIATE)

(Name of Corporation)

By: _____
(Authorized Representative)

Signed _____

(Title)

(CORPORATION SURETY)

(Name of Corporation)

By: _____
(Attorney-In-Fact)

Witness:

(Corporate Seal)

** Attach an appropriate Power of Attorney, valid and in effect as of the date of this affidavit, evidencing the authority of the Attorney-In-Fact to act in behalf of the corporation.

WAGE RATE COMPLIANCE BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____,
(Contractor)

_____, (hereinafter
referred
(Full Address)

to as EMPLOYER), _____, Insurance Company, a corporation
organized (Surety Company)

and existing under the laws of the State of _____ (hereinafter referred to as SURETY),

are hereby severally held and firmly bound in the sum of _____ Dollars, being 50% of the

estimated or bidden price of the contract, lawful money of the United States of America, unto the City of

Reading, City Hall, 815 Washington Street, Reading, PA, 19601-3690, (hereinafter referred to as CITY),
as its interests may appear.

NOW THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that if Employer and any
subcontractors shall promptly pay wages due their employees for work performed under an agreement
dated _____, 20____ (including amendments thereto), between Employer and City based
on the minimum prevailing wages specified in said Agreement as published by the United States
Department of Labor and as reflected in a Contract between Employer and City, dated _____,
20__, then the above obligation shall be void, otherwise it shall remain in full force and effect.

The Surety's obligation under this Bond shall cover payments due as aforesaid for work performed by
employees during the period commencing _____, 20____, and ending with the
completion of the project in accordance with a certificate of Completion issuable by the City.

We, the said Employer and Surety, and each of us do bind and oblige ourselves, to the extent of our respective liabilities hereunder, as well as our heirs, executors, administrators, successors and assigns, and every one of them, firmly by these presents.

SIGNED, SEALED, AND DATED this _____ day of _____, 20_____.

(INDIVIDUAL PRINCIPAL)

(Seal)

(Signature of Individual)

Witness:

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

_____ (Seal)
(Name of Partnership)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

(CORPORATION PRINCIPAL)

(Name of Corporation)

By: _____
(Vice) President

Attest:

(Assistant Secretary)

(Corporate Seal)

(OR, IF APPROPRIATE)

(Name of Corporation)

By: _____
(Authorized Representative)

(CORPORATION SURETY)

(Name of Corporation)

By: _____
(Attorney-In-Fact)

Witness:

(Corporate Seal)

** Attach an appropriate Power of Attorney, valid and in effect as of the date of this affidavit, evidencing the authority of the Attorney-In-Fact to act in behalf of the corporation.

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

_____ hereinafter called the PRINCIPAL, and
(CONTRACTOR)

_____ hereinafter called the SURETY, a corporation organized and existing
(SURETY)

under laws of the _____ of _____, are held and
firmly

bound unto _____, hereinafter called the OBLIGEE, as hereinafter set (OWNER)

forth, in the full and just sum of _____ Dollars (\$_____),

lawful money of the United States of America, for the payment of which we bind ourselves, our heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these presents,

WITNESSETH THAT:

Whereas, the PRINCIPAL heretofore submitted to the OBLIGEE a certain PROPOSAL, dated _____,
20____ to perform the WORK for the OBLIGEE, in connection with the construction of _____
_____ as set forth in the

CONTRACT
DOCUMENTS as prepared by the CITY OF READING.

Now, therefore, the condition of this BOND shall be such that: If the PRINCIPAL shall remedy, without
cost to the OBLIGEE, all defects which may develop during the period of one (1) year from the date of
completion by the PRINCIPAL and final acceptance of the OBLIGEE of the WORK performed in
accordance with the CONTRACT DOCUMENTS, which defects, in the sole judgment of the OBLIGEE,
shall be caused by or shall result from defective or inferior materials or workmanship, and if the
PRINCIPAL shall satisfy all claims and demands arising from or related to such defects or growing out of
such defects. and if the PRINCIPAL shall indemnify completely and shall save harmless the OBLIGEE
from any and all costs and damages which the OBLIGEE may sustain or suffer by reason of the failure so
to do; and if the PRINCIPAL shall reimburse completely and shall pay to the OBLIGEE any and all costs
and expenses which the OBLIGEE may incur by reason of anv such default or failure of the PRINCIPAL,
then this BOND shall be void; otherwise, this BOND shall be and shall remain in full force and effect.

The PRINCIPAL and the SURETY agree that any alterations, changes and/or additions to the
CONTRACT DOCUMENTS, and/or any alterations, changes and/or additions to the WORK to be
performed in accordance with the CONTRACT DOCUMENTS, and/or any alterations, changes and/or
additions to the CONTRACT, and/or any giving by the OBLIGEE of any extensions of time for the
performance of the WORK in accordance with the CONTRACT DOCUMENTS, and/or any act of
forbearance of either the PRINCIPAL or the OBLIGEE toward the other with respect to the CONTRACT
DOCUMENTS, and/or the reduction of any percentage to be retained by the OBLIGEE as permitted by
the CONTRACT DOCUMENTS, shall not release, in any manner whatsoever, the PRINCIPAL and the
SURETY, or either of them, or their heirs, executors, administrators, successors and assigns from liability
and obligations under this BOND; and the SURETY for value received, does waive notice of any such
alterations, changes, additions, extensions of time, acts of forbearance and/or reduction of retained
percentage.

In Witness Whereof, the PRINCIPAL and the SURETY cause this BOND to be signed, sealed and
delivered this _____ day of _____, 20_____.

(INDIVIDUAL PRINCIPAL)

_____ (Seal)
(Signature of Individual)

Witness:

Trading and Doing Business as:

(PARTNERSHIP PRINCIPAL)

_____ (Seal)
(Name of Partnership)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

Witness:

(Seal)

By: _____

(Partner)

(CORPORATION PRINCIPAL)

(Name of Corporation)

By: _____
(Vice) President

Attest:

(Assistant Secretary)

(Corporate Seal)

(OR, IF APPROPRIATE)

(Name of Corporation)

By: _____
(Authorized Representative)

(CORPORATION SURETY)

(Name of Corporation)

By: _____
(Attorney-In-Fact)

Witness:

(Corporate Seal)

** Attach an appropriate Power of Attorney, valid and in effect as of the date of this affidavit, evidencing the authority of the Attorney-In-Fact to act in behalf of the corporation.

STATEMENT ACCEPTING PROVISIONS OF WORKERS' COMPENSATION ACT

STATE OF _____

ss.

COUNTY OF _____

The undersigned contractor has accepted the provisions of the Workers' Compensation Act of Pennsylvania, with all supplements, and has insured liability thereunder in accordance with the terms thereof with the insurance company whose signature is attached hereto.

For Individual

_____(SEAL)

FOR CORPORATION

(Name of Corporation)

By:_____
(Official Title)

Attest:_____
(Secretary or Asst. Secretary)

FOR PARTNERSHIP

(Name of Partnership)

By:_____(SEAL)

_____(SEAL)
(Partners)

_____(Name of Insurance Company)

By:_____
(Attorney-In-Fact)

STIPULATION AGAINST LIENS

WHEREAS, _____, hereinafter called the CONTRACTOR, has entered into a CONTRACT, dated _____, 20____, with _____ hereinafter called the CITY, to provide materials and perform labor necessary for the manufacture and furnishing of the: as set forth in the CONTRACT DOCUMENTS as prepared by the City of Reading.

NOW, THEREFORE, it is hereby stipulated and agreed by and between the said parties, as part of the said CONTRACT, and for the consideration therein set forth, that neither the undersigned CONTRACTOR, any SUBCONTRACTOR or material man, nor any other person furnishing labor or materials to the said CONTRACTOR under this CONTRACT shall file a lien, commonly called a mechanic's lien, for WORK done or materials furnished for the above manufacture.

This stipulation is made and shall be filed with the Berks County Prothonotary within ten (10) days after execution, in accordance with the requirements of Section 1402 of the Mechanics Lien Law of 1963 of the Commonwealth of Pennsylvania in such case provided.

IN WITNESS WHEREOF, the parties hereto have caused the signature of their proper officers to be affixed thereto on this _____ day of _____ 20__ .

(SEAL)

(CITY OF READING)

BY: _____

TITLE: _____

ATTEST:

BY: _____

TITLE: _____

(SEAL)

(CONTRACTOR)

ATTEST:

BY: _____

TITLE: _____

BY: _____

TITLE: _____

INDEMNITY AGREEMENT & HOLD HARMLESS

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned has entered into a contract with the CITY OF READING, dated _____, 20 __, providing for the _____

_____ City of Reading,
Pennsylvania.

NOW, THEREFORE, in consideration of the award of said contract to the undersigned, _____, as well as in further consideration of the sum of ONE DOLLAR (\$1.00) in hand paid to the said _____ by the City of Reading, receipt whereof is hereby acknowledged, the said _____ agrees to indemnify and save harmless the CITY OF READING, its officers, agents, servants, and employees against any and all loss, damage, costs and expenses which the said CITY may hereafter suffer, incur, be put to or pay by reason of any bodily injury (including death) or damage to property arising out of any act or omission in performance of the work undertaken under the aforesaid contract.

EXECUTED this ____ day of _____, 20__.

By: _____

Title: _____

ATTEST:

(Title)

NOTICE TO PROCEED

TO:

Project _____

Contract No. _____

Amount of Contract _____

You are hereby notified to commence work on the referenced contract on or before _____, 20____, and shall fully complete all of the work of said contract within _____ consecutive calendar days thereafter. Your completion date is therefore _____, 20____.

The contract provides for an assessment of the sum of \$ _____ as liquidated damages for each consecutive calendar day after the above established contract completion date that the work remains incomplete.

Dated this _____ day of _____, 20____.

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of foregoing Notice to Proceed is hereby acknowledged

By _____

this _____ day of _____ 20____.

By _____

Title _____

PREVAILING WAGE RATES

NOTICE

THE WAGE RATES TO BE USED AND ENFORCED FOR THE PROJECT WILL BE MADE AVAILABLE BY THE CITY PURCHASING COORDINATOR VIA CONTRACT ADDENDUM TEN DAYS PRIOR TO THE BID OPENING DATE.

SUPPLEMENTARY GENERAL TERMS AND CONDITIONS

1. Lead-Based Paint Hazard

The contractor is hereby specifically made aware of the HUD lead-based paint regulations, 24 CFR, Part 35, which are applicable to the construction or rehabilitation of residential structures. To the extent that the subject matter of this contract involves residential structures, the contractor will comply with the lead-based paint regulations.

2. Compliance With Air and Water Acts

The contract is subject to the requirements of the Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 32 USC 1251 et seq., and the regulations of the Environmental Protection Agency (EPA) with respect thereto, at 40 CFR Part 15, as amended from time to time.

The contractor and any of its subcontractors for work funded under the contract which is in excess of \$100,000 agree to the following agreements:

(a) A stipulation by the contractor or subcontractors that any facility to be utilized in the performance of any non-exempt contract or subcontract is not listed on the List of Violating Facilities issued by the EPA pursuant to 40 CFR 15.20.

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

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

(d) Agreement by the contractor that he will include or cause to be included the criteria and requirements in paragraph (a) through (d) of this Section in every non-exempt subcontract and requiring that the contractor will take such action as the Government may direct as a means of enforcing such provision.

In no event shall any amount of the assistance provided under this contract be utilized with respect to a facility which has given rise to a conviction under Section 113(c)(1) of the Clean Air Act or Section 309(c) of the Federal Water Pollution Control Act.

3. Interest of Members, Officers, or Employees of Public Body, Member of Local Governing Body, or Other Public Officials

No member, officer, or employee of the Public Body, or its designees or agents, no member of the governing body of the locality in which the program is situated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the program during his tenure or for one (1) year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the program assisted under the contract.

4. Prohibition Against Payments of Bonus or Commission

The assistance provided under the contract shall not be used in the payment of any bonus or commission for the purpose of obtaining HUD approval of the application for such assistance, or HUD approval of applications for additional assistance, or any other approval or concurrence of HUD required under this contract, Title I of the Housing and Community Development Act of 1974 or HUD regulations with respect thereto; Provided, however, that reasonable fees or bona-fide technical consultant managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as program costs.

5. Energy Conservation Provisions

The contractor must recognize mandatory standards and policies relating to energy efficiency contained in the Cost Effective Energy Conservation Measures.

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

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

7. Executive Order 11625 – Minority Business Enterprise

(a) It is the policy of the City to take positive steps to maximize the utilization of minority business enterprises in all contract activity administered by the City.

(b) The contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in the contract, the term "minority business enterprise" means a business, at least fifty percent (50%) of which is owned by minority group members, or in the case of publicly owned businesses, at least fifty-one percent (51%) of the stock is owned by minority group members. For the purpose of this definition, minority groups are members of Blacks, Hispanics, Asians, Native Americans, Alaskans, or Pacific Islanders.

8. Executive Order 12138 – Women's Business Enterprise

(a) It is the policy of the City to take positive steps to maximize the utilization of women business enterprises in all contracts administered by the City.

(b) The contractor will utilize his best efforts to carry out this policy in the award of his subcontracts to the fullest extent consistent with the efficient performance of this contract.

As used in the contract, the term "women business enterprise" means a business, that is at least fifty-one percent (51%) owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

9. Age Discrimination Act of 1975

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

10. Section 504 Handicapped (if \$2,500 or over)

Affirmative Action for Handicapped Workers:

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

(b) The contractor agrees to comply with rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(c) In the event of the contractor's non-compliance with the requirements of this clause, actions for non-compliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

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

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

(f) The contractor will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

GENERAL PROVISIONS

GENERAL PROVISIONS

G.1 SUB-HEADINGS. The paragraph headings are inserted in these provisions and the following specifications for convenience only and shall not be considered as interpreting or limiting the application of paragraphs.

G.2 DEFINITIONS. The following terms and expressions used in this contract and specifications shall be understood as follows:

The expression "The City" shall mean the City of Reading, Pennsylvania, the party of the first part to this contract.

The word "Engineer" shall mean the Engineer, Architect, or other official in direct charge of the work for the City or his authorized representative as designated by the applicable Director.

The word "Inspector" shall mean an inspector of the City assigned to the inspection of materials, structures and workmanship under this contract.

The word "Contractor" shall mean the party of the second part to this contract, whether a corporation, partnership, or individual.

The word "Specifications" shall mean the specifications describing the work, the drawings, and the general provisions.

The word "Drawings/Plans" shall mean the general drawings, plans, maps, diagrams or illustrations accompanying these specifications, and such supplementary drawings as may be furnished from time to time.

The term "Materials" as used herein includes, in addition, to materials incorporated in the project used or to be used in the operation thereof, equipment and other materials used and/or consumed in the performance of the work.

Wherever in the specifications the words "to be," "to be done," "if," "as," "directed," "required," "permitted," "ordered," "instructed," "designated," "considered necessary," or words of like import are used, it shall be understood that the direction, requirement, permission, order, instruction, designation or decision of the Engineer is intended, and similarly the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, acceptable or satisfactory to, the applicable Director or the Engineer, unless the context show that another meaning is plainly intended.

G.3 SPECIFICATIONS AND DRAWINGS. The specifications and drawings are intended to cover all of the work that is known to be required to effect a complete installation. They are intended to be mutually explanatory of each other, but should any discrepancy or inconsistency appear or any misunderstanding arise as to the import of anything contained in either the specifications or the drawings, the interpretation of the doubtful portions will be made by the Engineer, whose decision shall, in all cases, be final and binding on the Contractor. Any materials or workmanship obviously necessary to satisfactory completion shall be furnished and installed whether or not specifically shown or mentioned. Any corrections of errors or omissions in the specifications or drawings, or both, may be made by the Engineer when such correction is necessary for the proper fulfillment of their intention as determined by him/her. Figures shall have preference over scale in reading dimensions. Copies of the specifications and drawings shall be kept constantly at the work. Any supplementary or detail drawings which may be made by the Engineer subsequent to the date of this contract, relating to the work herein contemplated, as showing more particularly the details of the work to be done, or specifications and the drawings furnished by the Contractor and approved by the Engineer, are, and are to be held to be, controlling parts of this contract insofar as they do not conflict with other provisions of the contract.

If the Contractor, in the course of the work, finds any discrepancy between the plans and the physical conditions of the locality, or any errors or omissions in the plans or in the layout as given by the points and instructions furnished by the Engineer, it shall be his duty to inform the Engineer, in writing, and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

G.4 ENGINEER TO DECIDE. All work under this contract shall be done in a manner acceptable to the Engineer, who shall determine the amount, quality, acceptability and fitness of the several kinds of work and material which are to be paid for hereunder, and shall decide all questions which may arise as to measurements of quantities and the fulfillment of the conditions of this contract on the part of the Contractor.

G.5 WORK TO BE DONE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS. The work at all stages of its completion must conform with the specifications and drawings and with the lines and grades and other instructions of the Engineer, as given from time to time during the progress of the work. In no case will any work in excess of the requirements of the drawings as interpreted by the Engineer be paid for unless authorized in writing by the Engineer.

G.6 RIGHT TO MAKE CHANGES IS RESERVED. The City reserves the right to make alterations in the location, lines, grade, plan, form dimensions, numbers or materials of the work herein contemplated, either before or after the commencement of construction. If such alterations diminish the amount of work to be done, they shall not form the basis for a claim for damage or for loss of anticipated profits from the work which may be dispensed with; if they increase the amount of work, such increase shall be paid for according to the quantity of work actually done and at prices stipulated for such work under this contract. All work actually done under a unit price (where applicable) contract, whether more or less than the quantity estimated or specified, shall be paid for by the determined units, on the basis of the bid per unit in the proposal.

G.7 EXTENSION OF TIME. If the Contractor is delayed at any time in the progress of the work by any act or neglect of the City, or by City employees, or by any other contractor employed by the City, or by changes ordered in the work, or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by any cause which the Engineer shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Engineer may decide subject to the approval of the applicable Director.

No such extension shall be made for delay due to rejection of defective materials or workmanship or for any delay occurring more than seven (7) days before claim therefore is made in writing to the Engineer. In the case of a continuing cause of delay, only one claim is necessary.

If no schedule or agreement stating dates upon which drawings shall be furnished is made, then no claim for delay shall be allowed because of any delay in the furnishing of drawings to the Contractor.

G.8 ADEQUATE PLANT AND METHODS. The Contractor shall furnish such construction plant and use such methods and appliances as will secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time specified. Before starting the installation of the construction plant, the Contractor shall submit to the Engineer, for approval, a plan showing the general arrangement of the plant to be installed and the proposed facilities for storage of materials and equipment. If at any time the plant or any portion of it shall appear to the Engineer to be, or likely to become, inadequate, incomplete, faulty or unsafe, the Contractor shall promptly obey the orders of the Engineer to supplement or to remove or replace the same; but the failure of the Engineer to issue such orders shall not relieve the Contractor of his responsibility for the efficiency, adequacy and safe operation of the plant.

He shall cover and protect his work from damage, and all injury to the same, before completion of the contract.

He shall be financially responsible for all damage to the party of the first part or its property, to other contractors, to the neighboring premises, or to any private or personal property, for any cause whatsoever, during the period of the contract.

G.9 WORKERS. The Contractor shall employ only competent and skillful employees to do the work, and whenever the Engineer shall notify the Contractor, in writing, that any person on the work is, in his/her opinion, incompetent, unfaithful or disorderly, uses threatening or abusive language to any official having supervision of the work, or is in any other way unsatisfactory, such person shall be discharged from the work and shall not again be employed on it except with the consent of the Engineer.

Neither party shall employ or hire any employee of the other party without the latter's consent.

G.10 WAGES. All employees directly employed on this work shall be paid wages which shall in no event be less than the minimum hourly wage rates for skilled, semi-skilled, and unskilled labor prescribed by the Commonwealth of PA Prevailing Wage Act, P.L. 987 as may be amended, if applicable.

G.11 PENALTY FOR FAILURE TO LIVE UP TO MINIMUM WAGE CONTRACT. A penalty shall be exacted from the Contractor in an amount equal to twice the difference between the minimum wage contained in the prescribed wage rates, and the wage actually paid to each laborer or mechanic for each day during which he has been employed at a wage less than that prescribed.

G.12 INSPECTORS TO REPORT VIOLATIONS. Every person assigned as an Inspector of the work to be performed under this contract, in order to aid in enforcing the fulfillment of the minimum wage requirements thereof, shall, upon observation or investigation, report to the applicable Director, all violations of minimum wage stipulations, together with the name of each laborer or mechanic who has been paid a wage less than that prescribed, and the day or days of such violation.

G.13 PENALTIES TO BE WITHHELD FROM MONEYS DUE THE CONTRACTOR. All minimum wage violation penalties shall be withheld and deducted for the use of the City from any moneys due the Contractor by the City; provided, that if the Contractor subsequently pays to all laborers and mechanics the balance of the amounts stipulated as minimum wages, the City shall pay to the Contractor the amounts so withheld.

G.14 CONTRACTOR'S RESPONSIBILITY FOR EMPLOYEES. The Contractor hereby assumes all responsibility for himself/herself, his/her agents and employees growing out of connection with the execution of the work called for by this contract, for the violation of, City ordinances and the laws governing contract work in the Commonwealth of Pennsylvania. The Contractor further agrees to hold the City of Reading harmless from all responsibility for employees on this work under the Workmen's Compensation Act of the Commonwealth of Pennsylvania, and to carry insurance on his/her employees, as provided thereby.

G.15 CONTRACTOR REPRESENTED ON THE WORK. The Contractor shall give personal attention constantly to the faithful prosecution of the work and shall be present, either in person or by a competent superintendent, on the site of the work, continuously during its progress. Such representative shall have authority to receive and to act without delay upon all instructions of the Engineer or assistants in the prosecution of the work in conformity with the contract.

Insofar as it is practicable, all orders given by the Engineer to the Contractor shall be in writing. In those cases where orders are given orally they shall be confirmed in writing. Orders or directions, written or oral, from the Engineer, delivered to the Contractor's office shall be considered as delivered to the Contractor.

G.16 REPRESENTATIVE MUST BE PRESENT. In case the Engineer or a representative may at any time have occasion to give directions regarding the work for the reason that the same is not, in the Engineer's opinion, being carried out in accordance with the provisions of this contract, and should there be no responsible representative of the Contractor on the ground empowered to receive such

instructions, the Engineer or a representative shall order that particular portion of the work to be stopped until such representative of the Contractor appears and receives instructions. It is hereby agreed that suspensions of the work for such cause shall not entitle the Contractor to claims for damage of any kind, nor to an extension of the time in which to complete the work to be done under this contract.

G.17 LEGAL ADDRESS OF CONTRACTOR. The address given in the bid or proposal upon which this contract is based is hereby designated as the legal address where all notices, letters and other communications to the Contractor shall be mailed or delivered prior to the beginning of the work provided for in this contract. The delivery at the above-named place, or depositing in a post-paid wrapper directed to the above place, in any post office box regularly maintained by the post office, of any notice, letter or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor and the date of said service shall be the date of such delivery or mailing.

G.18 CHANGE IN ADDRESS. Such address may be changed at any time by an instrument in writing executed and acknowledged by the Contractor and delivered to the City. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

G.19 LAWS, ORDINANCES AND REGULATIONS. The Contractor shall be fully informed as to all laws, ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction over the same, if any discrepancy or inconsistency shall be discovered in this contract, specifications or drawings, in relation to any such law, ordinance, population, order or decree, the contractor shall immediately report the same in writing to the Engineer. At all times the Contractor shall observe and comply with all laws, ordinances, regulations, orders and decrees which may be in effect during the progress of this contract; and shall indemnify and save harmless the City and its officers and employees against any claim or liability arising from the violation of any legal requirement in the prosecution of this contract.

G.20 INDEMNIFICATION OF CITY. In case any action at law, proceeding in eminent domain, or suit in equity may or shall be brought against the party of the first part, or any of its offices or agents, for or on account of the failure, omission or neglect of the Contractor or the subcontractors, his/her or their employees or agents, to do and perform any of the covenants acts, matters, or things by this contract undertaken to be done or performed by the Contractor or subcontractors, his/her or their employees or agents, or for any injury or damage caused by the negligence of the Contractor or subcontractors, his/her or their employees or agents, or for damage or injury for which the Contractor undertakes responsibility under the provisions of this contract, the Contractor shall immediately assume and take charge of the defense to such actions, proceedings or suits in like manner and to all intents and purposes, as if said actions, proceedings or suits had been brought directly against the Contractor; and the Contractor shall also indemnify and save harmless the party of the first part, its officers and agents, of and from all loss, cost or damage whatever arising out of such actions, proceedings or suits as may or shall be brought as aforesaid.

G.21 SUITS AND CLAIMS. The Contractor agrees to indemnify and save harmless the City of Reading, the applicable Director, the Engineer, and their assistants, from all suits or actions of every name and description, either in law or in equity, including proceedings in eminent domain for the recovery of consequential damages, or for or on account of use of patented appliance, brought against them or either of them, or for any damage or injuries received or sustained by any party or parties, person or persons, natural or artificial, either in the performance or as a result of the work under this agreement, regardless of whether such suits, actions or proceedings brought are based or grounded upon negligence of the Contractor, the subcontractors, or his/her or their agents, servants or employees. The Contractor further agrees that all or as much of the monies due under this agreement as shall be or may be considered necessary by the applicable Director, shall or may be retained, without any liability of the City to the Contractor, for interest thereon because of the retention thereof, until all such suits, proceedings or claims have been settled or terminated, and satisfactory evidence to that effect furnished to the applicable Director, provided however, that no such monies shall be retained by the City after six (6) years following

the completion and acceptance of the work under the contract, excepting for or on account of claims filed or suits or proceedings begun before the expiration of the applicable statute of limitations.

G.22 RESPONSIBILITY FOR INJURY. The Contractor shall assume all responsibility for loss, damage or injury to persons or property arising out of the nature of the work, from the actions of the elements, or from any unforeseen or unusual difficulties over which the City has no control, in addition to and without limiting the Contractor's liability under the other provisions of the contract.

G.23 CONTRACTOR'S CLAIMS FOR DAMAGE. If the Contractor claims compensation for any damage alleged to have been sustained by reason of any act or omission on the part of the City or any of its agents, he shall, within one (1) week after the sustaining of such damage, make a written statement to the Engineer of the nature of the damage sustained, and shall, on or before the fifteenth (15th) day of the month succeeding that in which any such damage shall have been sustained, file with the Engineer an itemized statement of the details and amounts of such damage, and unless such statement shall be made as so required, the claim for compensation shall be forfeited and invalid, and the Contractor shall not be entitled to payment on account of any such damage.

G.24 LINES AND GRADES. All lines and grades will be given by the Engineer, but the Contractor shall provide such material and give such assistance therefore as may be required by the Engineer, and the marks so given shall be carefully preserved. The Contractor shall keep the Engineer informed, a reasonable time in advance, of the time and places a which he/she intends to work, in order that lines and grades may be furnished and necessary measurements for record and payment made with the minimum inconvenience to the Engineer or delay to the Contractor. No claim for extra payment will be allowed for the cost to the Contractor of any material, work or delay occasioned by giving lines and grades, or making necessary measurements or inspections, as all such cost shall be considered to have been included in the price bid for the work.

G.25 INSPECTION. The Engineer will appoint such person or persons as may be deemed necessary to inspect properly the materials furnished and the work done under this contract, and to see that the same correspond strictly with these specifications. Such materials and workmanship shall always be subject to the approval of the Engineer, but no inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, nor any payment on account thereof, shall prevent the rejection of said work or materials at any time thereafter during the existence of this contract, should said work or materials be found to be defective, or not in accordance with the requirements of the contract.

The Contractor shall permit, or secure permission for the Engineer or a duly authorized Inspector or representative to enter any manufactory, shop or other place where any material for, or part of the work is being prepared, manufactured or constructed, at any time when such work is in progress. The Contractor shall furnish and prepare, or cause to be furnished or prepared, without charge, all such assistance, appliances, samples of materials and test specimens as may be ordered by the Engineer or such Inspector or representative for the purpose of making official tests and investigations. The Engineer shall be notified of the time and place of preparation, manufacture or construction of any material for, or part of the work which he/she may wish to inspect before delivery at the site of the work. Such notification shall be give a sufficient time in advance of the beginning of the work on such material or part to allow arrangements to be made for inspection and testing.

G.26 NIGHT WORK. No night work, except for the inspection of lighting, requiring the presence of the Engineer or Inspector will be permitted except in case of emergency, and then only with the written consent of the Engineer and to such an extent as may be judged necessary.

G.27 SUNDAY WORK. No Sunday work will be permitted, except in case of great emergency, and then only with the written consent of the Engineer, and to such extent as is absolutely necessary.

G.28 NO WORK IN BAD WEATHER. No work shall be done under this contract when, in the opinion of the Engineer, the weather is unsuitable for good and careful work to be performed. No concrete work shall be done on days on which the temperature falls below 25 degrees Fahrenheit. Should the severity of the weather continue such that the work cannot be prosecuted successfully, the Contractor, upon order of the Engineer, shall cease all such work until directed to resume the same. In the latter case, suitable extension of time shall be allowed to compensate for time actually lost as provided for in Article G.7.

G.29. NOT TO SUBLET OR ASSIGN. The Contractor shall give personal attention constantly to the faithful prosecution of the work and shall not assign, transfer, convey, sublet or otherwise dispose of this contract, or his/her title, right or interest in or to the same or any part thereof, nor shall the Contractor assign, by power of attorney or otherwise, any of the monies due or to become due, nor issue any order or orders or drafts on the Controller or Treasurer of the City of Reading for any monies due or to become due under this contract, unless by and with the consent of the City first duly had and obtained by resolution entered upon the minutes of said City.

G.30 RIGHT OF PROPERTY IN MATERIALS. Nothing in this contract shall be considered as vesting in the Contractor any right of property in materials used, after they shall have been attached to or incorporated in the work, nor in materials which have been estimated for partial payment, but all such materials, upon being so attached, incorporated or estimated, shall become the property of the City.

G.31 DEFECTIVE MATERIALS AND WORKMANSHIP. No materials of any kind shall be used until they have been examined and approved by the Engineer, who shall have full power to condemn any work and materials not in accordance with the specifications, and to require the Contractor to remove any work or materials so condemned. Inspections of the work shall not relieve the Contractor from any of his/her obligations to fulfill the contract as herein described, and defective work shall be made good, and unsuitable materials may be rejected, notwithstanding that such work or materials may have been previously overlooked by the Engineer and accepted or estimated for payment if the work or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall immediately make good such defect in a manner satisfactory to the Engineer, and if any material brought upon the ground for use in the work shall be condemned by the Engineer as unsuitable or not in conformity with the drawings or specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. If the Contractor shall fail to remove or replace any defective or damaged materials or work after reasonable notice, the Engineer may cause such material or work to be removed or replaced, and the expense thereof shall be borne by the Contractor.

G.32 RESPONSIBILITY FOR WORK. The Contractor shall be held responsible for any or all materials or work to the full amount of all payments made thereon, and shall be required to make good, at his/her own cost, any injury or damage which said materials or work may have sustained from any source or cause whatever before its final acceptance.

G.33 CONDITIONS UNDER WHICH CITY MAY COMPLETE WORK. If the work to be done under this contract shall be neglected or abandoned, or the contract or any claim thereunder shall be assigned by the Contractor otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing to the City's representative, that the rate of progress is insufficient or that the work, or any part thereof, is unnecessarily or unreasonably delayed, or that the Contractor is violating any of the provisions of this contract or carelessly executing any portion of the work, the City may notify the Contractor and surety in writing to fulfill the conditions of the Contract; and should the Contractor or the surety fail to comply with said notice within ten (10) days, the City may notify the Contractor and the surety to discontinue all work, or any part thereof; and thereupon the Contractor and the surety shall discontinue said work, or said part thereof as the City may designate; and the City may thereupon, by contract or otherwise, as it may determine, complete the work or such part thereof, and charge the expenses thereof to the Contractor or the surety; and may take possession of and use therein such materials, animals, machinery, equipment, implements and tools of every description as may be found upon the work. The expense so incurred shall be deducted and paid by the City out of any monies then due or to become due the Contractor under this contract; or any part thereof; and in case such expense is less than the sum which would have been payable under this contract if the same had been completed by

the Contractor, the Contractor shall be entitled to receive the difference, and in case such expense shall exceed the latter sum, the Contractor or the surety shall pay the amount of such excess to the party of the first part.

G.34 ALL PARTS OF WORK COVERED. The Contractor further agrees that the following clauses relative to the construction of the work shall apply to each and all of the separate parts of the work, as though specially mentioned under the different headings in the specifications:

Delivery of Materials - The Contractor shall be entirely responsible for delivery of all materials to the site of the work, making the arrangements therefore.

Engineer Shall Measure - No work shall be covered over or filled in until it shall have been inspected by the Engineer.

Materials Properly Stored - The materials to be used in construction shall be protected from deterioration and damage, and shall be so disposed of as not to endanger the work and in such manner that full access may be had at all times to all work under construction or completed.

Surplus Materials Removed - All parts of the work shall be kept in as neat and orderly condition as circumstances will permit and upon completion of the work, all surplus materials, earth, sand, rubbish and refuse of every kind, and all tools, machinery, equipment and other materials belonging to the Contractor shall be removed from the construction works and adjoining premises so as to leave everything in an acceptable condition, within a week after receipt of final certificate.

G.35 ESTIMATED QUANTITIES APPROXIMATE. In unit price contracts, the quantities of the various classes of work to be done and materials to be furnished under this contract, as estimated by the Engineer and listed in Specifications, attached hereto, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for the work under this contract; and neither the City nor the Council nor any member of the Council of the City of Reading is to be held responsible if any of the said estimated quantities shall be found to be not even approximately correct in the construction of the work; and the Contractor shall make no claim for damages on anticipated profits or loss of profit, because of a difference between the quantities of the various items of work actually done or materials actually furnished and the estimated quantities stated in the Specifications, or because of the entire omission of any of the quantities or items stated in the Specifications.

G.36 EXTRA WORK. The Contractor shall do any work not herein otherwise provided for which, in the opinion of the Engineer, is necessary for the proper completion of the work, but not such work will be allowed or paid for except on a written order of the Engineer, and there shall be no claim for extra work or materials or for damage sustained except under this Article. The extra work order issued by the Engineer shall specify the basis of payment for the extra work. Any extra work or changes in the work involving changes in the plans and/or specifications shall be approved by the applicable Director, prior to the execution of the work.

G.37 MONTHLY ESTIMATES. Current payments for work done under this contract will be made as follows: on invoices submitted by the Contractor and approved by the Engineer or Architect. Ten percent (10%) of each General Contractor invoice request shall be retained by the City on this contract until it is completed up to City codes and contract specifications and approved by a City Official or person representing a City Official Architect or Engineer.

It is further agreed and understood that inclusion of any portion of the work in the monthly estimate shall not be construed as final approval or acceptance of the same.

G.38 CONTRACTOR SHALL PREPARE FOR FINAL INSPECTION. Upon the completion of the work the Contractor shall tear down and remove all temporary buildings and structures built by the Contractor, remove and thoroughly clear away all debris, forms and surplus materials and leave the site of the work in a neat and satisfactory condition, and shall notify the Engineer when the work is ready for final inspection.

G.39 WORK TO BE PROPERLY PERFORMED. It is expressly understood that acceptance of work and materials during construction will not imply final acceptance of the work, if the final inspection shall disclose faulty workmanship or materials; and all work of whatever kind that, during its progress and before it is finally accepted, may become damaged from any cause, shall be repaired in a manner satisfactory to the Engineer or, if necessary, shall be broken up and removed and replaced with good and satisfactory work by the Contractor at his own expense. All work of every description shall be the best of its respective kind; and everything not particularly specified herein shall be done and finished in the best manner, and as is usual in first-class work of the several kinds.

Failure or neglect on the part of the Engineer, or any authorized agents to condemn or reject any bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if such bad or inferior materials or work becomes evident at any time prior to the final acceptance of the work and the release of the Contractor by the Council of the City of Reading; nor shall it be construed as barring the City of Reading at any subsequent time from the recovery for damages of such sum of money as may be needed to build a new all portions of the work in which fraud was practiced or improper materials hidden, whenever found.

G.40 ACCEPTANCE AND FINAL PAYMENT. Upon receipt of written notice that the work is ready for final inspection and acceptance, the Engineer or Architect shall promptly make such inspection, and when he/she finds the work acceptable under the contract fully performed he/she shall promptly issue a final certificate, over his/her own signature, stating that the work provided for in this contract has been completed and is accepted under the terms and conditions thereof, and the entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor within (30) days after the execution of said final certificate.

G.41 WAIVER. Neither acceptance by the City, or any of its officers or employees, nor any order, measurement or certificate by the Engineer, nor any order by the City Council for payment of money, nor any payment for, nor any extension of time, nor any possession taken by the City or its officers or employees, shall operate as a waiver of any portion of this contract or of any power herein reserved to the City, or of any right to damage herein provided; nor shall any waiver of any breach of this contract be held to be a waiver of any other or subsequent breach. All remedies provided in this contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided.

G.42 ACCEPTANCE OF FINAL CERTIFICATE. The acceptance by the Contractor of payment of the final estimate shall be conclusive evidence of acceptance and approval of estimates, accounting and deductions, and of full payment by the City for all work, labor, materials and services done or furnished hereunder, and of full satisfaction, discharge, release and waiver of all claims and demand of; or on behalf of the Contractor against the City, arising out of this agreement and the execution thereof. It is hereby further agreed that the Contractor shall not be entitled to demand or receive payment except in the manner set forth in this contract; and the Contractor further agrees that the final payment of the amount due under this contract and payment of the bills rendered for work done and materials furnished in accordance with any alterations of the same, shall release the City of Reading from any and all claims and liabilities on account of the work performed and materials furnished under said contract, or any alteration thereof.

G.43 MAINTENANCE AFTER COMPLETION. The Performance Bond shall remain in force for one (1) year from the date of completion and acceptance of the work under this contract, as security against any and all damage which may result from defects of materials or workmanship which may become apparent prior to the expiration of the one-year maintenance period. During this period the Contractor shall, promptly upon notification from the Engineer, repair all breaks and failures due to defects of material or workmanship at his own expense. If the Engineer shall deem it necessary and shall so direct, such repairs shall be made within twenty-four (24) hours after service of notice. If the Contractor unnecessarily delays making repairs ordered, or if delay would cause serious loss or damage, the City may undertake to have such repairs made or defects repaired without previous notice, and the expense of such repairs

shall be borne by the Contractor or the surety. The Contractor shall be responsible for any damage resulting to any person or property from any violation of the guarantee and from unnecessary delays in making repairs.

G.44 PRICES. The City agrees to pay, and the Contractor agrees to receive, the price specified in the proposal submitted, as full compensation for furnishing all the materials called for, and for all labor and use of all machinery, equipment and tools necessary for executing the work contemplated in this contract; for all royalties, for patents and patented materials, appliances and processes; also for all loss or damage arising out of the nature of the work, or from the action of the elements, or from any unforeseen reasons, obstructions or difficulties which may be encountered in the prosecution of the work, for all risks of every description connected with the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of said work as herein specified, and for well and faithfully completing the work, and the whole thereof, according to the specifications and drawings and the requirements of the Engineer under them.

G.45 NO EXTRA COMPENSATION. The Contractor further agrees not to ask, demand, sue for, or recover for any extra compensation, for any materials furnished or work done under this contract, beyond the amounts payable for the several classes of work or kinds of materials herein enumerated, which shall be actually performed and furnished at the prices therefore herein agreed upon and fixed.

G.46 CONTRACTOR TO TAKE OUT ALL PERMITS. The Contractor shall take out all necessary permits required by agencies of the City of Reading and/or all other governmental agencies; shall give all notices required by law or ordinances; shall pay all fees and charges incident to the due and lawful prosecution of the work covered by the contract, and shall comply with all laws and regulations relating to buildings and public highways. All permits shall be at his expense.

G.47 NO CLAIM FOR EXTRA WORK. No claim for extra work or material shall be allowed to the Contractor, unless before the performance of all such extra work the applicable Director shall have first authorized the same in writing, and the price or prices to be paid therefore shall first have been agreed upon in writing between the Director and the Contractor, and the same shall have been done or furnished under a written order from the Director given before the performance of such extra work or the furnishing of such extra materials. All claims for extra work or materials in any month shall be made to the Director in writing before the fifteenth (15th) day of the following month, and failing to make such claim within the time required, the right of the Contractor to extra pay for such extra work or materials shall be deemed to have been waived and forfeited.

G.48 WORK TO BE DONE TO THE SATISFACTION OF THE CITY ENGINEER. All the work under this contract shall be done to the satisfaction of the City Engineer, who shall in all cases determine the amount, quality, acceptability and fitness of the several amounts of work and materials which are to be paid for hereunder and shall decide all questions which may arise as to the measurement of quantities in the fulfillment of this contract on the part of the Contractor, and shall determine all questions respecting the true construction or meaning of the plans and specifications, and the determination and decision thereon shall be final and conclusive; and such determination and decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money hereunder.

G.49 ENGINEER TO INSPECT AND REJECT. The Engineer shall inspect the materials furnished and the work done, and see that the same strictly correspond to the specifications, and he shall at all times have free access to the works, storehouse and yard of the Contractor, and shall be privileged to take such samples therefrom as he may deem necessary; and if the work, or any material brought on the grounds for the use of the work, or selected for the same, shall be condemned by the Engineer, as unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such materials from the work.

Before issuance of the final certificate the Contractor shall furnish evidence satisfactory to the Engineer that all payrolls, materials, bills and other indebtedness connected with the work have been paid.

It is understood and agreed by the parties hereto that the final estimate of the Engineer shall be evidence of the amount of work performed by the Contractor under and by virtue of this agreement, and shall be taken as the full measure of the compensation to be received by the Contractor. The aforesaid estimate shall be based upon the contract price for the furnishing of all the different materials and labor, and the performance of all the work mentioned in this contract, including the specifications, and where there may be any ambiguity therein, the Engineer's instructions shall be considered explanatory and the decision shall be final.

No inspection, approval or acceptance of any of the work herein contracted for, or of the materials used herein, or any payment on account thereof shall prevent the party of the first part from objecting to the acceptance of said work or materials at any time during the existence of this contract. Neither the inspection of the applicable Director, or Division Head, or the City Engineer or any of their employees nor any order, measurement or certificate by the City Engineer nor any order by the Director for the payment of money, nor any payment for, or acceptance of, the whole or any part of the work, by the Director of the Division of Planning, nor any extension of time, nor any possession taken by the Director or his employees, shall operate as a waiver of any provision of this contract, or any power herein reserved to the party of the first part, or of any right to damage herein provided; nor shall any waiver of any breach of this contract be held to be a waiver of any other subsequent breach.

Any remedy provided in this contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided; and in addition to all other suits, actions or legal proceedings the party of the first part shall be entitled to as of right.

G.50 CONTRACTOR NOT TO DISCOMMODE PRIVATE COMPANIES. The Contractor shall afford while the work is underway, the necessary facilities to any and all companies owning railway tracks, pipes, subway ducts, or other surface, sub-surface or super-surface construction on the line of the work, in the preservation of the same from injury, all without charge therefore the expense to the City.

G.51 EXAMINATIONS. At any time before or after completion of the work, should the City Engineer require it, the Contractor shall make such openings, and to such extent, through such part or parts of the work, as the City Engineer may direct, and shall restore the work so distributed to the satisfaction of the City Engineer; and should the work, in the opinion of the City Engineer, whose decision shall be final and conclusive therein, be found faulty in any respect, the whole of the expense incurred thereby shall be defrayed by the Contractor, according to and upon the prices herein set forth, but if otherwise, by the City.

PENNSYLVANIA HUMAN RELATIONS ACT CONDITIONS

GENERAL

The CONTRACTOR shall conform to the provisions of Act No. 222 (October 27, 1955) and as amended and supplemented, known as the "Pennsylvania Human Relations Act", and in accordance with the provisions of the Regulations of the Pennsylvania Human Relations Commission, as adopted March 8, 1974, 4 Pa.B. 409, amended March 7, 1975, 5 Pa. B. 434, 16 Pa. Code Chapter 49.

NON-DISCRIMINATION PROVISION

During the term of this CONTRACT, the CONTRACTOR shall agree to the following provisions

(a) The CONTRACTOR shall not discriminate against any employee, applicant for employment, independent contractor or any other person because of race, color, religious creed, ancestry, national origin, age or sex.

The CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees or agents are treated during employment, without regard to their race, color, religious creed, ancestry, national origin, age or sex. Such affirmative action shall include, but is not limited to, the

following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training.

The CONTRACTOR shall post in conspicuous places, available to employees, agents, applicants for employment and other persons, a notice, to be provided by the OWNER, setting forth the provisions of this nondiscrimination clause.

(b) The CONTRACTOR shall in advertisements or requests for employment, placed by it or on its behalf, state that all qualified applicants will receive consideration for employment without regard to race, color, religious creed, ancestry, national origin, age or sex.

(c) The CONTRACTOR shall send each labor union or workers' representative or understanding, a notice advising said labor union or workers' representative of its commitment to this nondiscrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by the CONTRACTOR.

**6th & CANAL PUMP STATION – PLUG VALVES REPLACEMENT PROJECT
TECHNICAL SPECIFICATIONS
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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 REQUIREMENTS OF DIVISION 01

- A. Work in this Specification is divided into descriptive Sections which are not intended to identify contractual limits between Subcontractors, nor between the Contractor and its Subcontractors. The Contractor shall be responsible for organizing division of labor and supply of Products and Services essential for the detail coordination and completion of the Work. Engineer will review requests for information from Contractor and respond in writing to requests for information about the Contract Documents. Engineer's response to each request will be made within five (5) days. If appropriate, Engineer will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

1.02 STATEMENT OF WORK

- A. The Work included for this project is replacement of two (2) existing 42-inch plug valves with new 42-inch plug valves with electric motor actuators and associated equipment. The existing 42-inch ductile iron pipe shall be cut to remove each existing valve and fittings and replaced with new pipe, valves and fittings in kind as close to the original configuration as possible. Connection between existing 42-inch pipe and new 42-inch pipe shall be made with dresser style couplings as specified. The work shall include traffic control as needed; erosion control as needed; and restoration. See following attachments: ATTACHMENT 1 – Enlarged Meter Vault Yard Piping Plan & Valve Actuator Foundation Detail; ATTACHMENT 2 – Pump Station Force Mains P&ID; ATTACHMENT 3 – 42-inch Force Main Record Drawings.
- B. The Work shall be complete in place and all materials, services or labor not specifically mentioned in the Specifications or shown on the Drawings necessary for the project shall be performed or supplied at no additional cost to the City.
- C. The project shall be completed in a workmanlike manner by qualified personnel. All work shall be constructed in accordance with these technical specifications herein.
- D. No equipment or material may be placed on any public road or similar right-of-way. All detour routing is the responsibility of the Contractor. The Contractor shall maintain a neat and organized work area at all times in a manner to accommodate emergency response vehicles requiring access to the site (Fire, Police and Ambulance).

1.03 COORDINATION OF THE WORK

- A. The Contractor is responsible for control of traffic in a safe and efficient manner at all times during construction.

1.04 SPECIAL CONDITIONS

- A. Access to the site shall be via existing stone/gravel drive.
- B. The estimated quantities under the price bids as shown on the Proposal are approximate only, are not guaranteed, and are subject to final checking as actually constructed on the project site. The Contractor shall notify the Engineer, in writing, should the quantities to be installed exceed five percent (5%) of the total Contract amount due to actual field conditions. Any quantities in excess of the original total Contract as bid shall not be authorized by the City/Engineer without issuance of a Contract Change Order, prior to actual installation and verification by the Engineer.

- C. Quantities for payment will be determined by actual measurements taken in the field by the Engineer as the Work progresses. Payments shall be made on the basis of UNIT PRICES and/or LUMP SUM PRICES as shown in the Proposal/Bid Schedule.
- D. Excess material shall be removed from the project site and disposed of properly by the Contractor.
- E. The Contractor shall use caution so as not to disturb or cover property corners located within the project area. The Contractor shall be responsible to re-establish any property corner or other monument disturbed during construction at no cost to the City or property Owner.
- F. The Contractor shall not operate any existing or new valves and/or equipment that is part of the 6th & Canal Pump Station. The Contractor shall request 48 hours in advance when any valves and/or equipment require to be operated under any and all circumstances.
- G. Any existing curb, sidewalk, pavement or other property damaged by the Contractor shall be repaired as required by the Engineer at no expense to the City.

1.05 WORK SEQUENCE

- A. The Contractor shall submit a proposed sequence and schedule of work prior to the preconstruction meeting. The Contractor shall begin THE WORK by replacing the existing plug valve directly upstream from the EAST METER VAULT.

1.06 RESIDENT NOTIFICATION

- A. Following receipt of Notice to Proceed and, not less than seventy-two (72) hours prior to the start of any work at the site, the Contractor shall provide a "Resident Notification" to all businesses and residents residing within 1,000 feet of the work site.
- B. The Resident Notification shall provide a brief description of the work, tentative dates and times the work will be in progress, expected delays, and other inconveniences, and twenty-four hour, seven-day contact information for the Contractor.
- C. A copy of the Resident Notification shall be submitted to the Engineer. The Resident Notification is incidental to all work contained within this Contract.

PART 2 SITE LOCATION AND CONDITIONS

2.01 6TH & CANAL PUMP STATION PLUG VALVES REPLACEMENT PROJECT

- A. The work is located at 520 Canal Street in the City of Reading, PA 19601.
- B. Contractor is responsible to verify all site conditions and shall locate any utility or other physical elements that may interfere with work prior to commencing with the work. Report all inconsistencies between site conditions and Contract Documents to the Engineer prior to commencement of Work.

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 RELATED SECTIONS

- A. City-Contractor Agreement.

1.02 ACCEPTANCE OF PROPOSAL

- A. The City of Reading reserves the right to award any portions of the project based on the availability of funds. The basis for award shall be made for the total of all items in each PROPOSAL.

1.03 COMPLETION DATE

- A. Substantial Completion of the Contract shall be within 240 calendar days and ready for final payment within 270 calendar days from the date of the Notice to Proceed.

1.04 APPLICATIONS FOR PAYMENT

- A. Submit three (3) copies of each application on a standard AIA form.
- B. Content and Format: Utilize Bid Form for listing items and unit prices in Application for Payment.
- C. Submit at intervals of no less than one per month.

1.05 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time.
- B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 10 days.
- C. The Contractor may propose a change by submitting request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 33 00.
- D. Lump Sum Price Change Order: Based on Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.
- E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Work Directive Change. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.
- F. Work Directive Change: Engineer may issue a directive, signed by the City, instructing the

Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Price or Contract Time. Promptly execute the change.

- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Engineer will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.

1.06 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.
- C. When defective Work is to remain, the lump sum or unit price will be reduced 40 percent or more, at the discretion of the Engineer.
- D. The authority of the Engineer to assess the defect and identify payment adjustment is final.

1.07 UNIT PRICES

- A. Authority: Measurement methods delineated in the individual specification sections (if any) complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take measurements and compute quantities. The Engineer will verify measurements and quantities.
- C. Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Actual quantities provided shall determine payment.
 - 1. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit prices contracted.
 - 2. If the actual Work requires a change in quantity, the Owner or Contractor may claim for a Contract Price adjustment, in accordance with and subject to the terms and limitations noted in the General Conditions and Supplementary Conditions.
- D. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals, temporary relocations and protection; erection, application or installation of an item of the Work; overhead and profit.
- E. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit Price for Work which is incorporated in or made necessary by the Work.
- F. Measurement of Quantities:
 - 1. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness, or by standard volume of liquid measure.
 - 2. Measurement by Area: Measured by square dimension using mean length and width or radius.
 - 3. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

1.08 DESCRIPTION OF PAY ITEMS

- A. The individual pay items of this Project include all labor, materials, equipment, supplies, delivery, storage, disposal, traffic control, erosion control, protection, overhead and profit to provide the Work, complete in-place as required by the specifications and described below:
1. Item 1 - Mobilization and General Conditions
 - a. Includes temporary facilities including on-site sanitary facilities, project organization and scheduling, attendance at pre-construction and field meetings, ongoing cleanup during project and administration.
 - b. Eligibility for payment of this item is as follows:
 - 1) 30% after submittal of insurance certificates, payment and performance bonds, and project construction schedule.
 - 2) 7% during each month of work progress, up to a maximum aggregate total of 80%.
 - 3) Balance after submittal of operation and maintenance manuals.
 - c. Measurement: Lump Sum
 2. Item 2 - Bonds and Insurances
 - a. Includes all insurances, payment, wage rate and performance bonds.
 - b. Measurement: Lump Sum
 3. Item 3 – 42-inch Ductile Iron Force Main
 - a. Includes all labor, equipment and material necessary for unclassified excavation, installation, backfill, warning tape, testing, flushing all pipe, to the lines and elevations, as shown on the plans, in accordance with the specifications and details.
 - b. Includes traffic control as needed, bedding, pipe encasement, trench sheeting and bracing, megalugs, metallic pipe wedges and all associated items complete.
 - c. Measurement: Linear Foot
 4. Item 4 – 42-inch Ductile Iron Fittings
 - a. Includes all labor, equipment, and materials necessary for unclassified excavation, installation, bedding, backfill, warning tape and test mechanical joint fittings and related restraints in accordance with the specifications and details.
 - b. Measurement: Each
 5. Item 5 – 42-inch Plug Valves
 - a. Includes all labor, equipment, and materials necessary for unclassified excavation, installation, backfill, testing, roadway box, joint connections and warning tape as shown on the plans and in accordance with the specifications and details.
 - b. Measurements: Each
 6. Item 6 – Electric Motor Actuators
 - a. Includes all labor, materials and equipment necessary to excavate for and place concrete foundation, installation, backfill and test electric motor actuator as shown on the plans, in accordance with the specifications and details.
 - b. Measurement: Each

7. Item 7 – 42-inch Pipe Couplings
 - a. Includes all labor, materials, and equipment necessary to backfill, and install pipe coupling in accordance with the specifications and details.
 - b. Measurement: Each
8. Item 8 – Contract Coordination
 - a. Includes all labor, equipment and materials to coordinate work with other contractors as required to provide complete operational facilities as specified in accordance with the specifications and Contract Documents.
 - b. One third of lump sum amount shall be paid every 3 months of contract time.
 - c. Measurement: Lump Sum.
9. Item 9 – Surface Restoration Detail 2 for Grass Areas on Drawing C-502
 - a. Includes all labor, equipment and material necessary to provide permanent restoration in unpaved grass areas either lawn or field.
 - b. All topsoil, grading, raking, landscaping, seeding, and mulching to achieve complete restoration shall be included.
 - c. Prior to any partial payment, all restored grass areas shall be covered at least 80 percent with established grass.
 - d. Measurement: Square Yard
10. Item 10 – Stone Drive Areas Restoration
 - a. Includes all labor, equipment and material necessary to excavate and install Stone Drive Detail 6 shown on Drawing C-502 including removal and disposal of any temporary material and backfill material in accordance with the specifications and details.
 - b. Measurement: Square Yard
11. Item 11 - Erosion Control
 - a. Includes all labor, equipment and materials for erosion control throughout the project area at all times in accordance with the specifications and drawing details. This lump sum shall include all labor, equipment and materials for implementation of erosion controls per Details 1, 2 and 4 shown on Drawing C-503. Include 100 feet of Filter Fabric Fence.
 - b. For each of the referenced details, payment shall be based on one third of the lump sum bid for Item 11.
 - c. Measurement: Lump Sum.
12. Item 12 - Demobilization and Closeout
 - a. Includes all cleanup and restoration of site and surrounding areas.
 - b. Eligibility for payment of this item is as follows:
 - 1) 50% after submittal and acceptance of the Substantial Completion form.
 - 2) Remaining balance (50%) after submittal of as-built documentation, all test result reports, certifications, maintenance bond, instructions and procedure/training for City personnel and

after complete and final clean-up of work area and removal of all temporary facilities.

c. Measurement: Lump Sum.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

1.02 FIELD ENGINEERING

- A. The Contractor shall check all lines, grades, and measurements established by the Contractor and necessary in the prosecution of the Work. Such checking by the Engineer is not relief of responsibility to perform all Work in accordance with the Drawings, Specifications, and the lines and grades given.
- B. The Contractor shall be responsible for preserving and maintaining all survey points, line, structure, culvert, slope, grade, and other stakes as placed, until acceptance of the project, and if any of these surveying controls are carelessly or willfully disturbed or destroyed by construction operations, replace as needed at no cost to the City.
- C. There shall be no separate payment for this work. This work is incidental to the completion of the project.

1.03 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a preconstruction conference after receipt of signed Contract.
- B. Attendance Required: City representatives, Engineer, Contractor's on-site superintendent/foreman, Contractor's project manager, Subcontractor's foremen.
- C. Agenda: Distribution of Contract Documents; submission of list of Subcontractors and the construction progress schedule; designation of personnel representing the parties in Contract and mobile phone and email contact numbers; procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures; project scheduling; use of premises by Contractor; City requirements; layout; procedures for testing; procedures for maintaining record documents; and inspection and acceptance of work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 31 00
PROJECT MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contractor participation in pre-construction conference.
- B. Contractor administration of progress meetings.

1.02 PRECONSTRUCTION CONFERENCE

- A. Engineer will administer site pre-construction conference at Project site for clarification of City and Contractor responsibilities in use of site and for review of administrative procedures.

1.03 PROGRESS MEETINGS

- A. Schedule and administer Project meetings throughout progress of the Work at weekly intervals and/or called meetings.
- B. Contractor shall make physical arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within four days to participants, and those affected by decisions made at meetings.
- C. Attendance: Job superintendent, Subcontractors and suppliers; City and Engineer as appropriate to agenda topics for each meeting.
- D. Suggested Agenda: Review of Work progress, status of progress schedule and adjustments thereto, delivery schedules, submittals, maintenance of quality standards, pending changes and substitutions, compliance with schedule and potential delays and other items affecting progress of Work.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 PROPOSAL INFORMATION

- A. Sealed Proposals shall be submitted as stated in the INSTRUCTIONS TO BIDDERS

1.02 SUBMITTAL PROCEDURES

- A. Transmit each submittal to the Engineer on an accepted transmittal form.
- B. Sequentially number the transmittal forms. Resubmittals shall have original number with an alphabetic suffix indicating the resubmittal sequence.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing/cut sheet and detail number(s), and specification section number, as appropriate.
- D. Apply Contractor's stamp with Contractor's identification, signed or initialed with date, certifying that the review, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Electronic submissions with electronic certification are acceptable. All certifications shall be submitted with certifications applied in a permanent manner and in an Adobe PDF format.
- E. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.
- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals. All parties receiving reviewed submittals should promptly report any inability to comply with submittal comments.

1.03 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit initial progress schedule in triplicate at preconstruction conference for Engineer review.

1.04 SHOP DRAWINGS

- A. Submit three (3) copies for review to the Engineer.
- B. After review, reproduce and distribute three (3) copies to the Engineer.

PART 2 PRODUCTS AND PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.
- C. Perform work by persons qualified to produce workmanship of specified quality.
- D. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

1.02 QUALITY ASSURANCE/QUALITY CONTROL

- A. When manufacturer instructions conflict with specifications, request Engineer clarification before proceeding.
- B. Comply with manufacturers' handling, storage and installation instructions
- C. If manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

1.03 REFERENCES - PENNDOT

- A. Conform to Penn DOT Publication 408/current edition, and all other standards referenced in these Contract Documents, as of date for receiving bids.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 TEMPORARY CONSTRUCTION FACILITIES

- A. All temporary services and facilities required for construction purposes shall be furnished solely by the Contractor, at no additional cost to the City.

1.02 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades required by Penn DOT Publication 213M.
- C. Protect vehicles in accordance with Penn DOT Publication 213M.

1.03 PARKING

- A. Do not allow personal vehicles to park within street/road rights-of-way.

1.04 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipes and storm drainage structures.
- C. Remove waste materials, debris, and rubbish from site periodically and dispose off-site in a proper fashion.

1.05 SANITARY FACILITIES

- A. Provide, maintain, and pay for portable toilet facilities and enclosures, adequate in size and number at all times for the number of workers on the Site. Service temporary toilets at manufacturer's recommended frequency for the number of persons served. Post a service record with name and phone number of servicing agent on each unit.

1.06 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade equipment, facilities, and materials prior to Final Inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.
- D. After Final Inspection, remove temporary traffic control facilities.

PART 2 PRODUCTS AND PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.01 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Products does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Operation and Maintenance Manuals:
 - 1. O&M manuals shall be provided by the Equipment Manufacturer at least 2 weeks prior to the shipment of major equipment components.
 - 2. Each manual shall be a bound, indexed binder prepared specifically for the Project rather than general equipment instructions.
 - 3. Installation and maintenance instructions for the specific equipment, including the installation and startup sequences, maintenance items, and troubleshooting checkpoints.
 - 4. Provide printed, tabbed, and bound instructions covering details pertaining to installation, care, and maintenance of equipment and data. Identify parts with a number and a description.
 - 5. Provide 3 hardcopies and 3 electronic copies (.pdf with sections tabbed/linked) on jump drives to the OWNER.

1.02 CERTIFICATIONS

- A. Shall be submitted to the Engineer in triplicate as required by various specification sections.

1.03 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight, climate controlled enclosures.
- B. At no time shall the Contractor infringe on the rights of City residents and/or property Owners. The Contractor shall be responsible to repair and/or replace damaged property to the property owner's satisfaction at no cost to the property owner or the City.
- C. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

- D. Store materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- E. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

1.05 MISCELLANEOUS

- A. The Contractor shall, unless otherwise specified elsewhere herein, procure all necessary licenses, pay contracting charges and fees, and give all notices necessary and incident to the proper and lawful prosecution of the Work.
- B. All surplus materials shall be disposed of by the Contractor at a location determined by the Contractor. The Contractor shall be responsible for all costs associated with property use, all necessary permits and approvals and correction of all damages or conditions to the property owner's satisfaction.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01 70 00

CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 CLOSEOUT PROCEDURES

- A. Submit written certification that Contractor has complied with Contract Documents, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Provide all submittals to Engineer that are required by Contract Documents.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.02 FINAL CLEANING

- A. Execute final cleaning and site restoration prior to final inspection.
- B. Clean debris from storm drainage systems.
- C. Clean site; sweep paved areas. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- D. Remove all temporary services and facilities used during construction prior to final inspection.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 RELATED REFERENCES

- A. Drawings and general provisions.
- B. Related Sections
 - 1. Section 40 05 57 Electric Motor Actuators

1.2 DESCRIPTION OF WORK

- A. The Work within this section includes, but is not limited to, the furnishing of all equipment, labor and materials and performing all operations necessary to provide and place concrete as specified in accordance with the Specifications, applicable Drawings and Contract Documents. The electric motor actuator foundation detail, Attachment 1, is designed for construction as cast-in-place concrete. The Contractor may use a precast concrete flattop slab meeting ASTM C478 and shall be designed by the electric motor actuator manufacturer and submitted for review by the Engineer.

1.3 REFERENCES

- A. ACI 302 Guide for Concrete Floor and Slab Construction.
- B. ACI 304 Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- C. ACI 305R Hot Weather Concreting.
- D. ACI 306R Cold Weather Concreting.
- E. ACI 308 Standard Practice for Curing Concrete.
- F. ACI 318 Building Code Requirements for Reinforced Concrete.
- G. ASTM C31 Method of Making and Curing Concrete Test Specimens in the Field.
- H. ASTM C33 Concrete Aggregates.
- I. ASTM C94 Ready Mixed Concrete.
- J. ASTM C150 Portland Cement.
- K. ASTM C260 Air Entraining Admixtures for Concrete.
- L. ASTM C494 Chemicals Admixtures for Concrete.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Concrete supplier must be included in the latest list of approved concrete suppliers published by the Pennsylvania Department of Transportation.
- C. Acquire cement and aggregate from same source for all work.
- D. Conform to ACI 305R when concreting during hot weather.
- E. Conform to ACI 306R when concreting during cold weather.

1.5 SUBMITTALS

- A. Submit proposed mix design to Engineer for review prior to commencement of Work.

1.6 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of embedded utilities and components which are concealed from view.
- B. Accurately record any deviations from the design in size, depth, location or extent of concrete structures.

1.7 COORDINATION

- A. Coordinate the placement of embedded pipes, sleeves, and joint devices with erection of concrete formwork and placement of form accessories.

PART 2 **PRODUCTS**

2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type II A, Air Entraining Moderate Sulfate Resistant, Portland type.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: Clean, potable, and not detrimental to concrete.

2.2 ADMIXTURES

- A. Air Entrainment: ASTM C260.
- B. Chemical: ASTM C494 Type A Water Reducing, Type D Water Reducing and Retarding, or Type E Water Reducing and Accelerating.

2.3 ACCESSORIES

- A. Bonding Agent: ASTM C-881 type II, Grade 2, Class B or C, solvent free, moisture-insensitive, structural epoxy resin adhesive.
- B. Non Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

2.4 CONCRETE MIX

- A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.
- B. Provide concrete to the following criteria:
 - 1. Foundations shall be Type AAA, PennDOT Form 408 Specifications, Section 704.
- C. Use accelerating admixtures in cold weather only when approved by Engineer. Use of admixtures will not relax cold weather placement requirements.
- D. Do not use calcium chloride.
- E. Use set retarding admixtures during hot weather only when approved by Engineer.
- F. Add air entraining agent to normal weight concrete mix for all Work.

PART 3 **EXECUTION**

3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause obstructions to placing of concrete.

3.2 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- C. Coordinate the placement of joint devices and waterstops with erection of concrete formwork and placement of form accessories.
- D. Dampen subgrade sufficiently to prevent water loss from concrete.
- E. Do not place concrete on frozen subgrades.

3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304, except as specifically modified by the Contract Documents.
- B. Notify Engineer minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, pipes and sleeves are not disturbed during concrete placement.
- D. Use vibration equipment of internal type and not the type attached to forms or reinforcement.
- E. Do not use vibrators to spread concrete.
- F. Cold Weather Concreting: In general, perform cold weather concrete work in accordance with ACI306F; additional requirements as follows:
 - 1. If water or aggregate is heated above 100 degrees F, combine water with aggregate in the mixer before cement is added. Do not mix cement with water or with mixtures of water and aggregate having a temperature greater than 100 degrees F.
 - 2. Provide materials and methods for protecting concrete from freezing during freezing or near-freezing weather. Do not use frozen materials or materials containing snow or ice.
 - 3. Surfaces which the concrete is to come in contact with must be free of frost, snow and ice.
 - 4. Concrete placed in forms shall have a temperature of 50 degrees F. or higher after placement.
- G. Hot Weather Concreting: In general, perform hot weather concrete work in accordance with ACI 305R; additional requirements as follows:
 - 1. Temperature of concrete delivered at the job site shall not exceed 90 degrees F.
 - 2. Cool ingredients before mixing to prevent temperature in excess of 90 degrees F.
 - 3. Make provisions for windbreaks, shading, fog spraying, sprinkling or wet cover when necessary.
- H. Saw cut joints within 24 hours after placing. Use 3/16- inch thick blade, cut into 1/4 depth of slab thickness. Cuts should be made at 10-foot intervals in both directions in accordance with ACI 302.1R-6.
- I. Screed floors level, maintaining surface flatness of maximum 1/4 inch in 10 feet (non-cumulative).

3.4 CONCRETE FINISHING

- A. General: Finish concrete surfaces true and even, free from open or rough areas, depressions on projections. Remove surface defects and honeycombing over 1/4 inch by surface wetting and repair with neat Portland cement.
- B. Provide finish of all exposed surfaces in accordance with the following:
 - 1. Broom Finish: Obtained by lightly drawing a stiff-bristled push broom across a previously Float finish surface which has sufficiently hardened to support the weight of the broom. Draw the broom over the surface perpendicular to the direction of travel. USE AS FINAL FINISH ON EXTERIOR SURFACES FOR PEDESTRIAN TRAFFIC.
 - 2. Smooth Rubbed Finish: Obtained by rubbing a spade Finished vertical surface not later than one day after form removal. Rub water drenched surfaces with a Carborundum brick to a uniform finish free of form marks, projections and surface irregularities. USE AS FINAL FINISH ON VERTICAL SURFACES.

3.5 CURING AND PROTECTION

- A. General: Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures and mechanical injury. Curing shall be by either water curing or sealing methods in accordance with ACI 308. Cure concrete continuously for a minimum of 7 days at ambient temperatures above 40 degrees F.
- B. Hot Weather Curing: See Hot Weather Concreting this section.
- C. Cold Weather Curing: See Cold Weather Concreting this Section.
- D. Application Rate of Liquid Membrane-Forming Compounds: Compound shall restrict the loss of water to not more than 0.055 g/sq. cm of surface in 72 hours when tested in accordance with ASTM C 156.

3.6 FIELD QUALITY CONTROL

- A. Tests of cement and aggregates may be required to ensure conformance with specified requirements.
- B. Take three concrete test cylinders but not less than one set of cylinders for each continuous pour.
- C. Take one slump test for each set of test cylinders taken.
- D. Batch slips and visual observation of concrete properties may be accepted.

3.7 PATCHING

- A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb (over 1 inch in size or 1/4 inch deep) or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.
- C. Patch imperfections as directed.

3.8 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Engineer.
- C. Do not patch, fill, touch up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

SECTION 31 23 16

TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches and pits for utility pipeline and structure installation.
2. Backfilling and compaction.

B. Related Sections:

1. Section 33 31 23 – Force Main Piping.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D1556 - Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

C. Commonwealth of Pennsylvania:

1. HB2627, Act 187 of 1996, as amended, a/k/a The Underground Utility Line Protection Law.

D. Pennsylvania Department of Transportation (PennDOT):

1. Publication 408, Specifications.

1.3 DEFINITIONS

- ###### A. Utility:
- Any underground conductor or underground pipe or structure used in providing electric or communication service, or an underground pipe used in carrying or providing gas, oil or oil product, sewage, water, or other service to one or more consumers or customers of such service and the appurtenances thereto regardless of whether such line or structure is located on land owned by a person or public agency or whether it is located within an easement or right-of-way. The term shall include storm drainage and traffic sensing and signal control loops.

1.4 SUBMITTALS

- ###### A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- ###### B. Product Data: Submit supplier's source and gradation data for all aggregates.

- ###### C. Materials Source: Submit name of imported fill materials suppliers.

- D. Delivery Tickets: Submit duplicate delivery tickets indicating actual aggregate materials delivered to Project site.
- E. Prior to commencement of any excavations on project site, provide written documentation of notification required by HB2627, Act 187 of 1996, as amended, including all code or serial numbers received from utility companies or One-Call System.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with PennDOT Specifications, and as directed herein.
- B. Contractor is solely responsible for specifying, designing, installing, using and maintaining sheeting, sheet piling, shoring, bracing and all other trench support facilities. The neglect, failure, or refusal of the Engineer to order the use of sheeting or sheet piling; or to order a better quality or larger sizes of timber or steel members; or to order sheeting, sheet piling, bracing, or shoring to be left in place; or the failure to give any orders or directions as to the manner or methods of driving or placing sheeting, sheet piling, bracing or shoring shall not in any way or to any extent relieve the Contractor of any or all obligations under this Contract.

1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.
- C. Verify depths of existing utilities to remain; determine excavation clearances and if temporary support is required.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Crushed Aggregate: PennDOT, No. 2A.

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Excavate trenches and lay utilities to lines and grades indicated on Drawings.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.
- C. Alternately, maintain grade alignment of trench and pipe using string line parallel with grade line and vertically above centerline of pipe.
 - 1. Establish string line on level batter boards at intervals of not more than 20 feet.
 - 2. Install batter boards spanning trench, rigidly anchored to posts driven into ground on both sides of trench.
 - 3. Set three adjacent batter boards before laying pipe to verify grades and line.
 - 4. Determine elevation and position of string line from elevation and position of offset points or stakes located along pipe route.
 - 5. Do not locate pipe using side lines for line or grade.

3.2 PREPARATION

- A. Comply with notification requirements of HB2627, Act 187 of 1996, as amended, and request underground utilities to be located and marked within and surrounding construction areas.

- B. Provide serial number and date of One-Call System inquiry to Engineer prior to commencement of any excavations.
- C. Protect workers and the public in the work area.
- D. Establish temporary traffic control when trenching is performed in or adjacent to public right-of-way. Relocate controls as required during progress of Work.
- E. Identify required lines, levels, contours, and datum locations.
- F. Protect plant life, lawns and other features remaining as portion of final landscaping.
- G. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- H. Maintain and protect above and below grade utilities not otherwise indicated to be removed.

3.3 TRENCHING

- A. Excavate subsoil required for utility installation
- B. Use hand excavation methods within 2 feet of known or suspected existing utility facilities.
- C. Do not advance open trench more than 50 feet ahead of installed pipe.
- D. Cut trenches sufficiently wide to enable installation and allow inspection.
- E. Remove water or materials that interfere with Work.
- F. Excavate bottom 3 feet of trenches maximum 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. Do not interfere with 45 degree bearing splay of nearby foundations.
- I. When Project conditions permit, slope side walls of excavation starting 3 feet above top of pipe. When side walls can not be sloped, provide sheeting and shoring, trench boxes, or other means to protect excavation and surrounding areas.
- J. Do not excavate beyond limits of easement or right-of-way. If trench parallels a state highway, do not excavate within state highway right-of-way unless specifically permitted by Highway Occupancy Permit.
- K. When subsurface materials at bottom of trench are loose, soft or not capable of compaction in place, notify Engineer, and request instructions before proceeding. Excavate to greater depth if directed by Engineer until suitable material is encountered. Backfill with Type 2A aggregate and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Correct over-excavated areas with compacted No. 2A aggregate.
- M. Trim excavation. Remove loose matter.
- N. Remove excess subsoil not intended for reuse, from site.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations as needed to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

- A. Backfill trenches to contours and elevations indicated with unfrozen fill materials.
- B. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Systematically place fill material in continuous layers and compact in accordance with schedule at end of this section.
- D. Employ placement method that does not disturb or damage utilities in trench. Use vibratory compaction methods after backfill has been placed 12 inches above pipes.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Do not leave more than 20 feet of trench open at end of working day.
- G. Protect open trench to prevent danger to the public at all times. Install and securely anchor traffic load rated trench plates over all open trenches at the end of each work day.

3.6 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.7 FIELD QUALITY CONTROL

- A. Perform compaction tests on trench subgrade and backfill in accordance with ASTM D2922, if deemed necessary by Engineer.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.8 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact backfill subjected to vehicular traffic during construction.

3.9 SCHEDULE

- A. Backfill to Finished Subgrade Elevation:
 - 1. Within public road right-of-way: No. 2A coarse aggregate, 8 inch layers, compacted to 97 percent of maximum dry density.
 - 2. Within private roads and paved or stone driveways: No. 2A coarse aggregate, 8 inch layers, compacted to 97 percent of maximum dry density.
 - 3. Within lawn and landscaped areas: Clean Soil Fill, 12 inch layers, compacted to 92 percent of maximum dry density.

END OF SECTION

SECTION 33 31 23

FORCE MAIN PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The Work within this section includes, but is not limited to, the furnishing of all equipment, labor and material and in performing all operations to remove existing piping and fittings and install force main piping with fittings, joint materials, and appurtenances, and all testing required, in accordance with Specifications, Drawings, and Contract Documents.

1.2 RELATED REFERENCES

- A. Drawings and provisions of the Contract including General and Supplementary Conditions and all Division 01 Specification sections apply to this section.
- B. Related Sections:
 - 1. Section 31 23 16 - Trenching.
 - 2. Section 40 05 62 – Eccentric Plug Valves

1.3 QUALITY ASSURANCE

- A. Referenced standards shall be the following:
 - 1. American National Standard Institute (ANSI).
 - 2. American Society for Testing and Materials (ASTM).
 - 3. American Water Works Association (AWWA).

1.4 SUBMITTALS

- A. Certificates: Contractor shall submit three copies of each manufacturer's certification attesting that the materials meet or exceed Specification requirements.
- B. Shop Drawings: Submit manufacturer's descriptive and technical product data for pressure pipes, fittings, and all other materials specified in this section prior to the start of Work for approval in accordance with Section 01 33 00.

PART 2 MATERIALS

2.1 DUCTILE IRON PIPE AND FITTINGS

- A. Pipe: All pipe shall be ductile iron in full accordance with the Specifications as set forth in ANSI/AWWA C151/A21.51 and AWWA C104, latest edition, with wall thickness in full accordance with the Specifications as set forth in ANSI/AWWA C150/A21.50.
- B. Thickness: Minimum pipe thickness shall be Class 51 for all pipe. Joints shall be mechanical joint type in full accordance with ANSI/AWWA C111/A21.11, latest edition.
- C. Linings: Cement mortar linings shall be in full accordance with ANSI/AWWA C104/A21.4, latest edition, except the thickness of linings shall not be less than 1/8 inch.
- D. Fittings: Ductile iron, double thickness cement lined (1/8-inch), pressure rating 350 psi, asphaltic seal coating on inside and outside, compact body style per AWWA C153. All fittings shall be provided with restrained joint ends.

- E. Restrained Joints: Restrained joints shall be capable of being deflected after assembly. The joints shall be designed for a water working pressure of 250 psi with a minimum safety factor of 2:1. Acceptable manufacturer shall be EBAA Iron, Inc. – MEGALUG Series 1100.
- F. Pipe Couplings: Acceptable manufacturers of pipe couplings shall be Dresser Manufacturing Division of Dresser Industrial, Inc. – Dresser Style 38. Couplings to be epoxy-fusion coated A36 steel with Type 304 stainless steel fasteners and accessories.
- G. Mechanical Joint Retainer Glands: Retainer glands shall be UL listed ductile iron meeting ANSI/AWWA C111 and of adequate construction to withstand twice the rated working pressure of the adjoining pipe or fitting, whichever is greater. Set screws shall be heat treated A151 4140 steel. All components of dissimilar metal shall be protected from corrosion by hand application of a bituminous coating.
- H. Tie Rods: The rods shall be constructed of suitable material and adequate dimensions to withstand at least twice the rated working pressure of the adjoining pipe or fitting, whichever is greater. All components of dissimilar metals shall be protected from corrosion by hand application of a bituminous coating.

2.2 PIPE ENCASEMENT

- A. Polyethylene film in tube form to be used for encasement of piping, fittings and valves. Polyethylene film to be 8 mil linear low density polyethylene designed for direct burial and meeting the requirements of AWWA C105 and/or ANSI A21.5.
- B. See Detail #4 on Record Drawing C-501.

2.3 INSPECTION

- A. Field Inspection: All pipe and appurtenances shall be furnished, installed and tested for defects in material and/or workmanship in the manner specified and in the presence of and accepted by the Owner/Engineer.
- B. Disposition of Defective Material: All material found during the progress of the Work to have cracks, flaws or other defects will be rejected by the Owner/ Engineer. All defective materials furnished by the Contractor shall be promptly removed by him from the site at his own expense.

2.4 HANDLING OF MATERIAL

- A. Placement of Damaged Material: The Contractor shall replace, at his own expense, all material furnished by him and found defective in manufacture or damage in handling after delivery by the manufacturer. This shall include the furnishing of all materials and labor required for replacement of installed material. Any material furnished by the Owner that becomes damaged after acceptance by the Contractor shall be replaced by the Contractor at his own expense.
- B. Responsibility for Safe Storage: The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the Work, until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times. All equipment and materials subject to damage from freezing shall be drained and stored in a manner, which will protect them.
- C. Hauling: All materials furnished by the Contractor shall be delivered and distributed at the site by the Contractor. Materials furnished by the Owner shall be picked up by the Contractor at points designated and hauled to and distributed at the site.
- D. Care of Pipe Coating and Lining: Pipe and fittings shall be hauled so the lining will not

be damaged. If, however, any part of the lining is damaged, the repair shall be made by the Contractor at his expense in a manner satisfactory to the Engineer.

PART 3 EXECUTION

3.10 MAINTENANCE OF FLOW

- A. The Contractor shall be responsible for coordinating and maintaining maintenance of flow. This will be considered incidental Work and will be included in the Contract unit price per linear foot of pipe. The Contractor shall submit his plans for maintenance of flow prior to the start of construction for approval by the Owner and Engineer.

3.11 PIPE INSTALLATION

- A. General: All pipe, fittings and valves shall be laid and maintained to the required lines and grades with fittings and valves at required locations; spigots centered in bells; and all valves plumb. The pipe shall be laid in the backfill materials as specified and/or detailed. See details on Record Drawings C-501 and C-502.
- B. Pipeline Expansion – can be minimized by extending the joint after assembly and prior to setting the joint deflection. The average pullout required is 0.04 feet per fitting for 42-inch pipe.
- C. Connection to Existing Force Main – The Contractor shall excavate and determine the exact location(s) points of connection on existing force main piping and determine what type of fittings and/or joints are required. The Contractor shall review exact locations for connections to existing force main with the Engineer and Owner prior to ordering materials and starting work for connection to existing force main piping.
- D. Caution in Excavation: The Contractor shall proceed with caution in the excavation and preparation so that the exact location of underground utilities or structures, both known and unknown, may be determined, and he shall be held responsible for the repair of such utilities or structures when broken or otherwise damaged.
- E. Subsurface Explorations: Whenever, in the opinion of the Engineer, it is necessary to explore and test pit to determine the location of existing pipe, valves or structures, the Contractor shall make the excavations and backfill as specified for such purposes.
- F. Depth of Pipe: All pipe, fittings and appurtenances shall be installed to match existing grade(s) or as encountered in the field.
- G. Handling of Pipe Material: Proper implements, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the Work. All pipe, fittings, valves, etc. shall be carefully lowered into the trench piece by piece by means of a derrick, ropes or other suitable tools or equipment, in such a manner as to prevent damage to sewer line materials, protective coatings and linings. Under no circumstances shall such materials be dropped or dumped into the trench.
- H. Hammer Test: The pipe and fittings shall be inspected for defects and while suspended above grade, be rung with a light hammer to detect cracks.
- I. Cleaning Pipe and Fittings: All lumps, blisters and excess coal tar coating shall be removed from the bell and spigot end of each pipe.
- J. Installing Pipe: Every precaution shall be taken to prevent foreign material from entering the pipe while the pipe is being paced in the line. During laying operations no debris, tools, clothing or other materials shall be placed in the pipe.

- K. Cutting Pipe: The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner, without damage to the pipe, so as to leave a smooth end at right angles to the axis of the pipe.
- L. Permissible Deflection of Joints: If deflection is required, make after joint is assembled. The amount of deflection shall not exceed 50% of the maximum limits as specified in AWWA C600, latest revision.
- M. Unsuitable Conditions for Laying Pipe:
 - 1. No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable.
 - 2. The pipe and connections shown on the Drawings are based on available information, however, should existing piping and/or fittings when exposed vary in type from that shown on the Drawings, the Contractor shall provide necessary fittings for the connection and install same at the Bid price.
- N. Variations: No claims for extra Work shall be allowed except for changes made after trenching has been done.
- O. Mechanical Joints:
 - 1. The spigot end of the pipe shall be centrally located in the bell so that the rubber gasket is evenly sealed.
 - 2. All loose rust or foreign matter shall be removed from the inside surfaces of the bell and outside surface of the spigot prior to assembly. Bolts shall be tightened uniformly with a ratchet wrench so as to effect the joint seal. The normal range of bolt torques to be applied are:

<u>Bolt Size Inches</u>	<u>Torque-Ft.Lbs</u>
1	100-120
1¼	120-150
 - 3. If effective sealing is not attained at the maximum torque indicated above, the joint shall be disassembled and reassembled thoroughly after thorough cleaning.

3.12 FITTINGS AND VALVES

- A. General: Valves and fittings shall be set and jointed to pipe in the manner heretofore specified for cleaning, installing and jointing pipe.
- B. Force Main Pipe: Shall be drained to dry wells from which the water can be pumped.

3.13 ANCHORAGE

- A. Anchorage for bends shall be provided with mechanical joint restraints specified in the contract documents.
- B. Tie Rods: Metal harness of tie rods of adequate strength to prevent movement may be used. Steel rods, clamps and bolts shall be galvanized and painted with two coats of asphalt type paint.

3.14 HYDROSTATIC TESTING

- A. Leakage Test:
 - 1. After the pipe, fittings and valves have been installed as specified, all newly laid pipe or any valve sections thereof shall be subjected to a hydrostatic pressure of 150 psi.

2. Leakage is defined as the quantity of water to be supplied into the newly installed pipe, or any valved section thereof, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.
 3. Piping installation will not be accepted until the leakage is less than 0.5 gallons per hour for 100 feet of 42-inch pipe.
 4. The duration of the test under pressure shall be 2 hours when joints are exposed and 4 hours when joints are covered.
- B. Procedure: Each valved section of pipe shall be slowly filled with water and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The pump, pipe connections and all necessary apparatus including gauges, shall be furnished by the Contractor. The Contractor will make all taps into the pipe and furnish all necessary assistance for conducting the tests.
 - C. Variation From Permissible Leakage: Should any test of pipe laid disclose leakage greater than that specified, the Contractor shall, at his own expense, locate, repair and replace the defective joints, pipe or fittings until the leakage is stopped.
 - D. The Engineer/Owner shall be present during operating of valves.
 - E. The Contractor shall schedule the pressure and leakage test at least 48 hours in advance of the test day with the Engineer.
 - F. The pressure and leakage tests shall be monitored by the Engineer.
 - G. All field joints of fittings and valves shall be exposed and examined during pressure and leakage test.
 - H. If the test is applied against an existing valve and the Contractor has determined that said valve is passing, the Contractor shall excavate the valve so the Engineer can sound the valve.

PART 4 MEASUREMENT AND PAYMENT

4.1 FORCE MAIN PIPING

- A. All measurements shall be based upon completion of Work performed in strict accordance with the Contract Documents. Partial payment will be made on completed sections of the lines, which have passed the leakage test and have been backfilled to grade.
- B. This Work shall be paid for at the Contract unit price, per linear feet and shall include all pipe, polyethylene encasement, excavation, bedding, backfill, fittings, joint restraint, and anchorages complete in place.

4.2 PLUG VALVES

- A. This Work shall be paid for at the Contract unit price, and shall include all polyethylene encasement, excavation, bedding, backfilling and restraints complete in place.

4.3 COUPLINGS

- A. This Work shall be measured and payment made for the Contract unit price each and shall include excavation, bedding, backfill, joint restraints, polyethylene encasement, complete in place.

4.4 HYDROSTATIC TESTING

A. This Work shall be incidental.

4.5 DEWATERING & MAINTENANCE OF FLOW

A. This Work shall be incidental.

END OF SECTION

SECTION 40 05 57

ELECTRIC MOTOR ACTUATORS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes general information, products, and execution for electric motor actuators.
- B. Related Sections:
 - 1. Section 01 60 00 – Material and Equipment.
 - 2. Section 03 30 00 – Cast-In-Place Concrete.
 - 3. Section 40 05 62 – Eccentric Plug Valves.

1.2 REFERENCES

- A. American Water Works Association (AWWA):
 - 1. C542 – Electric Motor Actuators for Valves and Slide Gates

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Product data sheets for make and model.
 - 2. Complete actuator information, descriptive literature, specifications, and identification of materials of construction.
 - 3. Factory mechanical drawings of the complete actuator assembly including the electric motor, pedestal, and rod extensions.
 - 4. Open/close and throttling sizing calculations.
 - 5. Maximum torque capabilities of the operator mechanism and the operating torque requirement for each valve under the specified operation condition.
 - 6. Motor and actuator characteristic data and nameplate data.
 - 7. Actuator Mechanical Contactor or Solid-State Starter Manufacturer, model number, cut-sheet, etc.
 - 8. Factory electrical drawings showing schematic representation of the complete power and control circuitry and wiring diagrams showing interconnections, wire designations, and terminal numbers for remote operation and position indication by the OWNER. Each actuator drawing shall be identified with the respective valve number or tag number indicated in the Bill of Materials, electric actuator schedule, or on the P&IDs in the I&C Drawings.
 - 9. Factory installation and services information giving full installation and adjustment instructions, and part listings for field replaceable parts.
 - 10. Listings of normal starting and running currents, and full nameplate data from the motor.
 - 11. Drawings shall be provided in electronic media on standard IBM computer compatible hi-speed USB flash drives and in quality hardcopy media.
- B. Quality Control Submittals: For electric actuators, certified copies of reports covering proof-of-design testing of the actuators in accordance with AWWA C542, Section 5, together with an affidavit of compliance in accordance with AWWA C542, Section 6.3, shall be submitted to the ENGINEER before the actuators are shipped.
- C. O&M Manuals:
 - 1. Shop Drawing Submittals as previously outlined.
 - 2. Quality control Submittals as previously outlined.
 - 3. The Manufacturer shall submit installation and O&M instructions in a manual

presenting full details for installation, care, and maintenance of equipment furnished under this Contract.

4. Manual:

- a. O&M manuals shall be provided by the Equipment Manufacturer at least 2 weeks prior to the shipment of major equipment components.
- b. Each manual shall be a bound, indexed binder prepared specifically for the Project rather than general equipment instructions.
- c. Installation and maintenance instructions for the specific equipment, including the installation and startup sequences, maintenance items, and troubleshooting checkpoints.
- d. Provide printed, tabbed, and bound instructions covering details pertaining to installation, care, and maintenance of equipment and data. Identify parts with a number and a description.
- e. Provide 3 hardcopies and 3 electronic copies (.pdf with sections tabbed/linked) on jump drives to the OWNER.

D. For electric actuators, certified copies of reports covering proof-of-design testing of the actuators in accordance with AWWA C542, Section 5, together with an affidavit of compliance in accordance with AWWA C542, Section 6.3, shall be submitted to the ENGINEER before the actuators are shipped.

E. Extra Materials: Furnish, box, tag, and clearly mark on exterior, identify each item with the Manufacturer's name, description, part number for shipment and long-term storage, and deliver the following extra materials prior to 75% of the Substantial Completion date:

1. Two (2) fuses, for every actuator, of every size and type of fuse internal to the actuator. Provide one spare battery for every applicable actuator.

F. Warranty Documentation:

1. Sample warranty.
2. Warranty.

1.4 QUALITY ASSURANCE

A. Equipment Manufacturer Qualifications: A minimum of 10 years of documented experience in the Work of this Section.

B. UL Compliance: Materials manufactured within the scope of UL shall conform to UL Standards and have an applied UL listing mark.

C. Performance and Design Requirements:

1. General:

- a. Actuators and appurtenances shall be designed for the conditions and requirements as specified in the respective valve sections.
- b. Liberal factors of safety shall be used throughout the design, especially in the design of parts subject to intermittent or alternating stresses. In general, working stresses shall not exceed 1/3 of the yield point or 1/5 of the ultimate strength of each material.

2. Valve actuators:

- a. Each actuator shall be designed for modulating service and to open or close the valve under operating conditions.
- b. The actuators and gear train shall be designed for the full design head rating of the valve and the actual fluid velocity through the valve not less than 16 fps.
- c. Valve actuators shall be provided and adjusted by the Valve Manufacturer. Actuator mounting arrangements and positions shall facilitate O&M and shall be determined by the Valve Manufacturer.

3. Limit switches: see Section 2.3 paragraph A.1.f.

D. Manufacturer's Training:

1. The Actuator Manufacturer shall supply a factory-trained field service representative to provide O&M training for the actuators. The representative shall be a full-time employee of the Manufacturer who is qualified to do field training presentations.
2. Training shall consist of a minimum of 4 hours and include both a classroom presentation and a field presentation. The training shall be specific to the products installed and the application.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and handling of the valves shall be in accordance with the Manufacturer's recommendations in their O&M manual. Upon delivery, equipment shall be stored in a safe, secure area protected from damage, vandalism, and weather (e.g. sun, precipitation, and flooding).

1.6 SITE CONDITIONS

A. Environmental Requirements: Materials and equipment shall be designed and constructed for continuous operation, at rated current and voltage, at the elevation shown on the Drawings, minus 22°F to 140°F ambient temperature and 100% relative humidity.

1.7 WARRANTY

A. Manufacturer: Warranty for one year from the Substantial Completion date for the satisfactory performance and installation of the electric valve actuator system and associated appurtenances **OR** Plug Valves and Actuators shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment. The warranty shall be based on whichever is the later date.

PART 2 PRODUCTS

2.1 MANUFACTURER TYPE, MODEL & ACCESSORIES

A. EIM, Series M2CP, no substitutes.

B. Actuator Type - MGB-WR6L-N (PO7143)--Buried Gear box with 2" Nut, with Stem extension to Floor stand with EIM (M2CP) Actuator. Actuator Model DGUA-3, AC power, 3 Phase, 60Hz, 480V, 87 RPM, 172 Ft-lbs PO Torque, modulating service with 4-20mA in/out.
FSDIR: Accessories - Dial indicating floorstand with straight/rigid couplings and steel extension. Length to be determined by the Contractor.

2.2 MATERIALS

A. Except as modified or supplemented herein, materials used in the manufacture of actuators shall be in accordance with AWWA C542.

2.3 COMPONENTS

A. Electric Actuators:

1. General:

a. The electric motor-operated actuator shall be designed to develop sufficient operating torque to unseat, open, and close the valve under operating conditions specified herein. Electric actuator shall include the electric motor, double-reduction gearing, removable valve stem drive nut/bushing, position limit switches, mechanical overload torque switches, ductile iron gear case and

automatic declutchable handcrank. The mechanical actuator design shall have a minimum of ten years of proven dependable service.

b. The complete actuator shall be furnished fully factory wired, tested, and ready for interconnection with the electric power source and external remote control dry-contact interposing relays furnished by others.

c. All gearing and bearings shall be oil or grease lubricated and shall be suitable for year-round service based on prevailing ambient temperature conditions from -22°F to 140°F and up to 100% relative humidity.

d. The actuator shall be furnished with a hand crank located in a 90 degree plane from the actuator output drive, with a maximum pull requirement of 60 pounds for valve travel loads. An external manual declutch lever shall be provided to place actuator in the manual mode. No more than 10 pounds force on the declutch lever shall be required to engage manual operation even when the valve has been tightly seated. The lever shall be capable of being padlocked to prevent manual or motor operation. To prevent valve drift or repositioning during declutching, movement of the declutch lever from motor to manual shall not disengage the electric actuator's self-locking worm gearing from the driven load independent of any auxiliary bevel, spur, or worm gear drives. Motor operation shall not cause the hand crank to rotate and hand crank operation shall not cause the motor to rotate. Handcrank shall operate in the clockwise direction to close the valve.

e. The reversing starter, control transformer and local controls shall be integral with the valve actuator, suitably housed to prevent breathing and condensation. The starter shall be suitable for 60 starts per hour and of rating appropriate to motor size. The controls supply transformer shall be fed from two of the incoming three phases and incorporate overload protection. It shall have the necessary tapping and be adequately rated to provide power for energizing of the contactor coils; 24V DC output for remote controls (maximum 5W/VA); and supply for all the internal electrical circuits.

f. Limit switches shall be geared to the drive mechanism and in step with actual valve position at all times, whether operation is by power or manual mode. Switches shall be activated by a rotor type design. Contacts shall be silver and have a rating of 10 amps at 120 VAC, a minimum of (3) N.O. and (3) N.C. contacts shall be provided for each direction of travel. The limit switch gear mechanism shall be enclosed to prevent entrance of foreign matter or wire entanglement.

g. The actuator shall include an adjustable torque switch to interrupt the motor power circuit when an obstruction is encountered in either direction of travel or when torque seating of valves is required for tight shut off. The torque switch shall have a calibrated dial for adjustment and have means to ensure maximum actuator rating is not exceeded. Contacts shall have the same construction and rating as the limit switch. Mechanical torque springs for load control shall be field replaceable without need of actuator dismantling or removal of the worm assembly. Torque switch shall operate in both motor and hand wheel mode of operation.

2. Electrical Control and Operation:

a. Provide power and control terminal strips, space heater (25 watt) housed in a control compartment meeting Nema 6 (submersible). Enclosure shall have a bonded O-ring seal and a hinged cover. Cover bolting shall be captive stainless hex head screws.

b. Provide built-in controls with an integrated modular package, completely wired and removable/ replaceable by removal of four (4) captive screws. Motor leads and power supply leads shall be terminated to the terminal strips located on the modular control package. Power supply terminals (5 points minimum) and control supply terminal (48 points minimum) shall be physically isolated from each other to protect against transient voltages. The terminal strips shall be completely

shrouded with a high impact resistant plastic cover to avoid accidental terminal contact by personnel. Terminal screws shall be pre-inserted and shall be made of nickel plated steel. The module is to include a snubber circuit to provide control voltage protection for switches and electronic modules for voltage surges. All electrical components of the modular package, such as reversing contactor, transformer, shall be unidirectional plug connected to provide easy removal and replacement without concern for proper wiring connections. All control requirements such as modulating control shall be plug-in printed circuit type boards having gold plated contact connectors. All PC boards must be temperature rated -40 to +70 degree C. Ease of replacement or upgrading shall be provided.

c. Local operation shall include open-stop-close pushbuttons furnished integrally mounted. Pushbuttons shall be double o-ring sealed and include a protective silicone boot. Seal material shall be resistant to ozone and ultraviolet light. Provide integrally mounted push buttons to permit operation of the buttons when the electrical enclosure cover is open. The actuator shall include two (2) long life high intensity LED type pilot lights to indicate open, closed and intermediate valve position (both lights on). Red shall indicate valve open and green shall indicate valve closed. An LED pilot light shall be furnished to indicate power is on. Provide one LED pilot light to indicate torque switch trip. The actuator shall include a 3-position selector switch, for local (hand)-off-remote (auto) control. The switch shall be pad lockable in any position. A tumbler key lock is required.

d. Analog position control service shall provide up to 1200 starts per hour for 3-phase motors. Provide positioning accuracy of up to +/- 1.0%, for operating times of 15 seconds or greater. Provide a reversing contactor, which is both electrically and mechanically interlocked. The system shall be EIM Futronic II.

e. Rotary selector or integral push button control station to provide full valve operation, using the electric motor, while operating isolated from the remote control equipment.

1) Rotary selector switch, 3-position, local-off-remote and pad lockable in any position.

2) Switch leads brought to the terminal strip:

- a) To allow for remote indication of switch position.
- b) To provide remote open and close contact power.
- c) To provide a means of disabling local control power.

3) Valve function rotary selector switch for open-close-stop operation:

- a) Operate when selector switch is in the local position.
- b) Field configurable for push and hold control.

4) Provide LED indicating lights:

- a) Red: Full open.
- b) Green: Full closed.
- c) Red and green: Modulating.

f. Remote controls: Valve position and actuator status indication shall be provided by 8 contacts which can be selected to indicate any position of the valve. Contacts shall be NO or NC selectable. Contacts shall maintain and update position indication during handwheel operation. Contacts shall be rated 5 amperes, 250 VAC or 30 VDC.

g. Electric actuators for modulating service shall include:

1) Control module for position modulating type service. The control module shall be mounted within the controls compartment. The module shall accept a standard 4 mA to 20 mA DC analog input signal with a load impedance of not greater than 400 ohms. The control module shall contain adjustments for span, zero, gain, and deadband.

2) Solid-state starter that is EIM Digital Futronic IV. Position accuracy shall be +/- 0.50% for 15 seconds or greater operating time.

3) Actuators shall be suitable for up to 1,200 starts per hour for 3 phase power.

3. Electric motor:

- a. Voltage and phasing shall be 480 volt, 3-phase, 60 Hz, 1.0 SF, reversing, totally enclosed, non-ventilated.
- b. Produce actuator output of 1 1/2 times the required valve operating torque. The actuator and motor enclosure shall meet NEMA 6 (temporary submersible 6 feet/24 hours) and actuator shall be capable of operation under maximum specified loads with +/- 10% voltage variation of the nominal power voltage. The motor shall have Class F insulation with Class B thermal overload sensors embedded in the motor windings to limit the motor temperature to a Class B temperature rise. Motors shall be complete assemblies capable of being removed, repaired and electrically and dynamically tested as independent assemblies without being assembled to the actuator. The actuator shall not require recalibration when the motor is changed or replaced. Motor leads shall not be routed through any area with rotating mechanical power train components.
- c. Anti-friction bearings, lubricated and sealed against contamination.
- d. Motor overload protection via thermal switches.

B. Actuator Gearing:

1. General:

- a. Motor speed reduction shall use double-reduction gear train with hardened steel spur or helical gears and self-locking worm/worm gear set. The worm shall be heat-treated alloy steel and have worm thread surface rolled or ground. The worm gear shall be bronze. Non-metallic power train gears are not acceptable. All rotating power train gears and shafts shall be supported on antifriction bearings. All thrust components shall be supported on tapered roller bearings.
- b. Manufactured in accordance with AGMA standards.
- c. Self-locking worm gear supplemented by spur gear attachment if necessary.
- d. Shall be sufficient to seat, unseat, and rigidly hold the valve in any intermediate position under design conditions.
- e. Double reduction with the capability of quickly changing the output speed with a simple gear change.
- f. Maximum torque required at the input shaft under design conditions shall not exceed 150 foot-pounds.

2. Submergence: Same submergence rating as the electric actuator.

3. Worm gearing:

- a. Worm wheel gear shall be one-piece bronze construction.
- b. Worm shall be hardened steel alloy with ground and polished threads.
- c. Totally enclosed and sealed.
- d. Grease lubricated.
- e. Lubricant compatible for a temperature range of -50°F to 120°F.
- f. Ball or tapered roller bearings used throughout.

4. Stem nuts:

- a. High tensile strength bronze.
- b. 2-piece nut arrangement to simplify field replacement.

2.4 FINISHES

A. Shop Painting:

1. Ferrous metal surfaces, except bearing and finished surfaces and stainless steel components of valve actuators and accessories, shall be shop painted for corrosion protection. The Manufacturer's standard coating will be acceptable, provided it is functionally equivalent to and compatible with any other shop and field coatings used in the project.
2. The following surfaces shall be painted:

Polished or Machined Surfaces

Other Surfaces
Actuators and Accessories

Rust-Preventive Compound

Epoxy enamel
Universal primer

PART 3 EXECUTION

3.1 GENERAL

A. Equipment provided under this Section shall be fabricated and assembled in accordance with the Contract Documents, engineering data, instructions, and recommendations of the Equipment Manufacturer, unless exceptions are noted by the ENGINEER.

B. Actuators shall be furnished with necessary parts and accessories in accordance with the Contract Documents or otherwise required for a complete, properly operating installation and shall be the latest standard products of a Manufacturer regularly engaged in the production of actuators.

C. Governing Standards:

1. Except as modified or supplemented herein, powered actuators shall be in accordance with AWWA C542.

D. The power supply to electric actuators shall be in accordance with Drawings under the 6th & Canal Pump Station Phase II Upgrade Project.

E. Marking:

1. Each actuator shall be marked with the Manufacturer's name, model number, and the country of origin. An identifying serial number shall be stamped on a corrosion-resistant plate attached to the actuator.
2. Each actuator shall be factory tagged or marked to identify the actuator and the applicable valve by number or service as indicated on Attachment 2 - P&ID5.

3.2 INSTALLATION

A. In accordance with the Manufacturer's instructions and recommendations.

3.3 QUALITY CONTROL

A. Manufacturer's Field Services:

1. The Actuator Manufacturer shall supply a factory-trained field service representative to inspect the installation of the actuators. The representative shall be a full-time employee of the Manufacturer qualified to do field service Work.
2. The Manufacturer's field service representative shall be on-site as often as required to properly oversee the installation of the actuators and to assist with troubleshooting, and as a minimum shall be there for a minimum of 3 hours per actuator, spread out over 2 separate trips. The representative shall also be available for providing the Manufacturer's certificate of proper installation.

PART 4 MEASUREMENT AND PAYMENT

4.1 ELECTRIC MOTOR ACTUATORS

A. This Work shall be paid at the Contract unit price, and shall include all specified and/or shown items including but not limited to electric motor actuator with accessories and concrete foundation complete in place.

END OF SECTION

SECTION 40 05 62
ECCENTRIC PLUG VALVES

PART 1 GENERAL

1.1 REQUIREMENTS

- A. Plug Valves shall meet AWWA C517 and AWWA C111 for end connection.
- B. Plug Valves shall be rated for 150 psi minimum with no leakage.
- C. Plug Valves shall open by turning counter clockwise.
- D. Plug Valves to have a minimum Cv value of 58,000 gpm at 1.0 psi pressure drop.
- E. Related Sections:
 - 1. Section 01 60 00 – Material and Equipment.
 - 2. Section 33 31 23 – Force Main Piping.
 - 3. Section 40 05 57 – Electric Motor Actuators.

1.2 SUBMITTALS

- A. Submit product data, shop drawings and O&M manuals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 QUALITY ASSURANCE

- A. Valves and Actuators shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.
- B. Each valve and electric motor actuator shall be assembled, adjusted and tested as a unit by the valve manufacturer.

PART 2 PRODUCTS

2.1 ECCENTRIC PLUG VALVES – BASIS OF DESIGN – DEZURIK

- A. Plugs shall be solid one piece, ductile iron ASTM 536 Grade 65-45-12. The plug shall have a cylindrical seating surface eccentrically offset from the center of the shaft. Plug shall not contact the seat until at least 90% closed. Resilient plug facing shall be Chloroprene (CR).
- B. Valve bodies shall be Cast Iron ASTM A126 Class B. Ports shall be rectangular (AWWA C517). Bearings shall be sleeve type and made of sintered, oil impregnated permanently lubricated type 316 stainless steel, ASTM A743 Grade CF8M through 36" (900mm). The upper and lower plug journals shall be fitted with ASTM A240 type 316 stainless sleeves with body bearings of ASTM B30, Alloy C95400 aluminum bronze.
- C. Seats shall be 1/8" thick welded overlay of not less than 95% pure nickel. Seat shall be at least 1/2" wide, 1/8" thick through entire width and raised. The raised surface shall be completely covered with nickel to insure that the resilient plug face contacts only the nickel seat. Bearings shall be stainless steel.

- D. Valve shall have sleeve type metal bearings and be Type 316 stainless per ASTM A743. Packing shall be PTFE. Packing gland shall permit inspection, adjustment or complete replacement of packing without disturbing any part of the valve or actuator assembly, except the gland follower.
- E. Pressure ratings shall be 150 psi (1035 kPa). Every valve shall be given a certified hydrostatic shell test and seat test, with test reports being provided with delivery of each valve.
- F. All valves larger than 6" shall be installed with worm gear actuators. All gearing shall be enclosed in a cast iron housing, with outboard seals to protect the bearings and other internal components. The actuator shaft and gear quadrant shall be supported on permanently lubricated bronze bearings.
- G. Buried actuators shall be 90% grease filled. Input shaft and fasteners shall be stainless steel. Actuator mounting brackets shall be totally enclosed.
- H. Coating or Paint: SB 0 - 4 mils minimum (non-stainless steel parts) of Blue DeZURIK Epoxy (NSF Std. 61) on Exterior and Standard (SP10) surface preparation.
- I. Manufacturer:
 - 1. Basis of Design: **DeZurik**, PEC, 42.5, MJ, CI, T, CRX, FSDIR Modified.
 - 2. No substitutes.
 - 3. Valve & Actuator Contact: John M. Dezzi
North East Technical Sales, Inc.
171 Ruth Road
Harleysville, PA 19438
Main office 215-513-1000
Direct 267-933-6624
Fax 215-513-2155
jdezzi@netechsales.com
www.netechsales.com

2.2 VALVE BOX

- A. Valve box provided shall be 7" inside diameter, cast iron, asphaltic coated 3-piece adjustable, and round head lid with the word "**SEWER**" printed on top.
- B. Manufacturers: Bingham & Taylor, Mueller, and Tyler Union.

PART 3 EXECUTION

3.1 INSTALLATION

- A. After removing existing valves, install new valves and related equipment in accordance with manufacturer's recommendations.
- B. For valves installed in a horizontal pipeline, install the valve so the plug rotates up when opened. Where drain-back does not exist, install the valve with the higher pressure, when closed, against the end opposite the seat.
- C. Provide valve box length as required to accommodate valve depth.
- D. Valve box shall be flush or slightly below flush with the finish concrete.
- E. Clean dirt and debris from each valve immediately after installation.
- F. Protect valve coatings from damage. Repair any damage to coatings in accordance with manufacturer's recommendations.
- G. Engineer to inspect all valve boxes prior to concrete work to verify proper alignment and access to valve top.

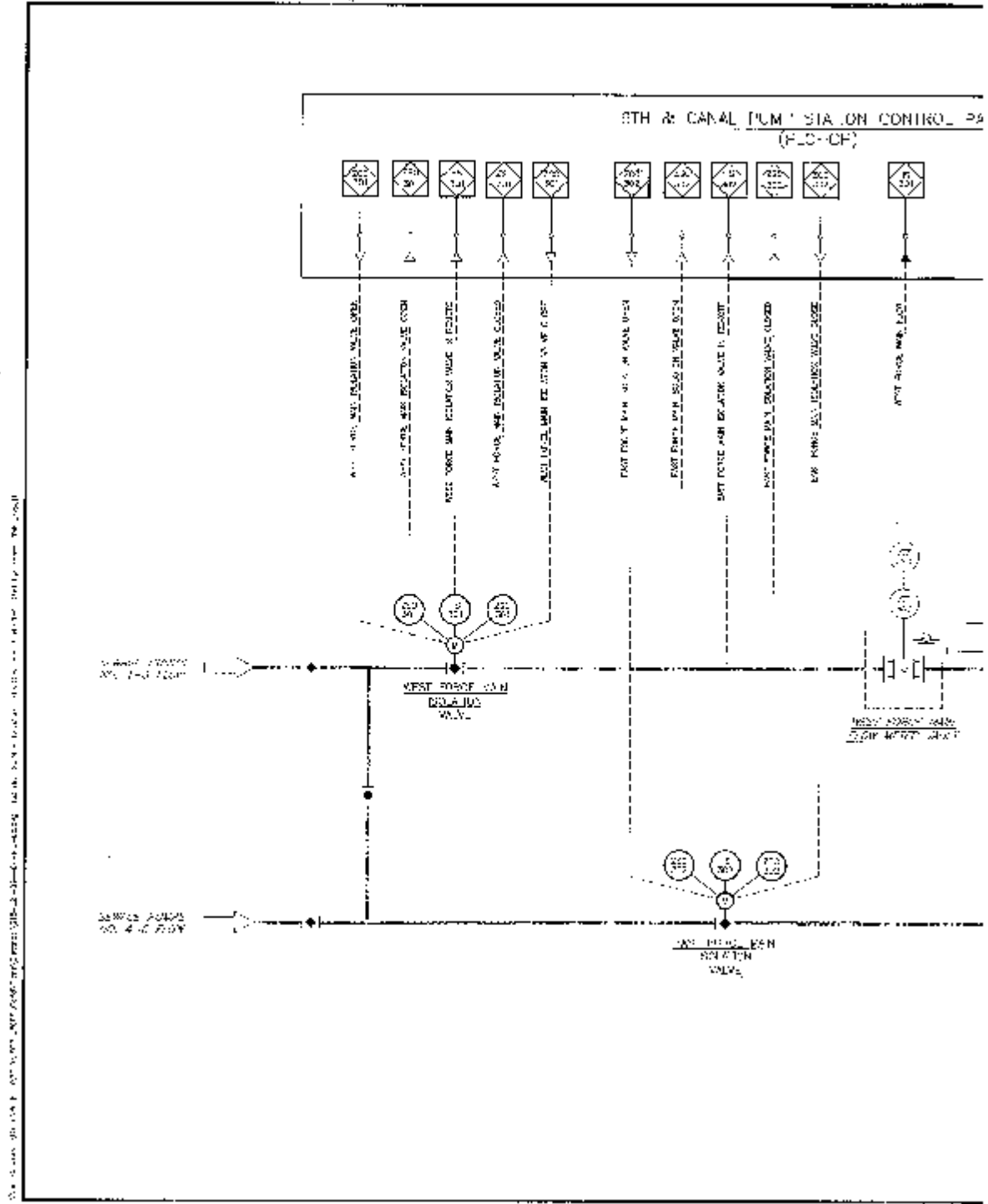
END OF SECTION

ATTACHMENT 1

ENLARGED METER VAULT YARD PIPING PLAN & VALVE ACTUATOR FOUNDATION DETAIL



ATTACHMENT 2
PUMP STATION FORCE MAINS P&ID



6th & Canal Pump Station Plug Valves Replacement Project
 City of Reading Pennsylvania

ATTACHMENT 3

42-INCH FORCE MAIN RECORD DRAWINGS
G-001, G-002, C-101, C-401, C-501, C-502, C-503, D-401,
D-501, E-101

42-INCH FORCE MAIN - 6TH & CANAL PS TO ANGELICA CREEK

CITY OF READING PROJECT #2001-12



CITY OF READING

315 Washington Street
Reading, PA 19601

RECORD DRAWINGS
NOVEMBER 4, 2014

DRAWINGS PURTY

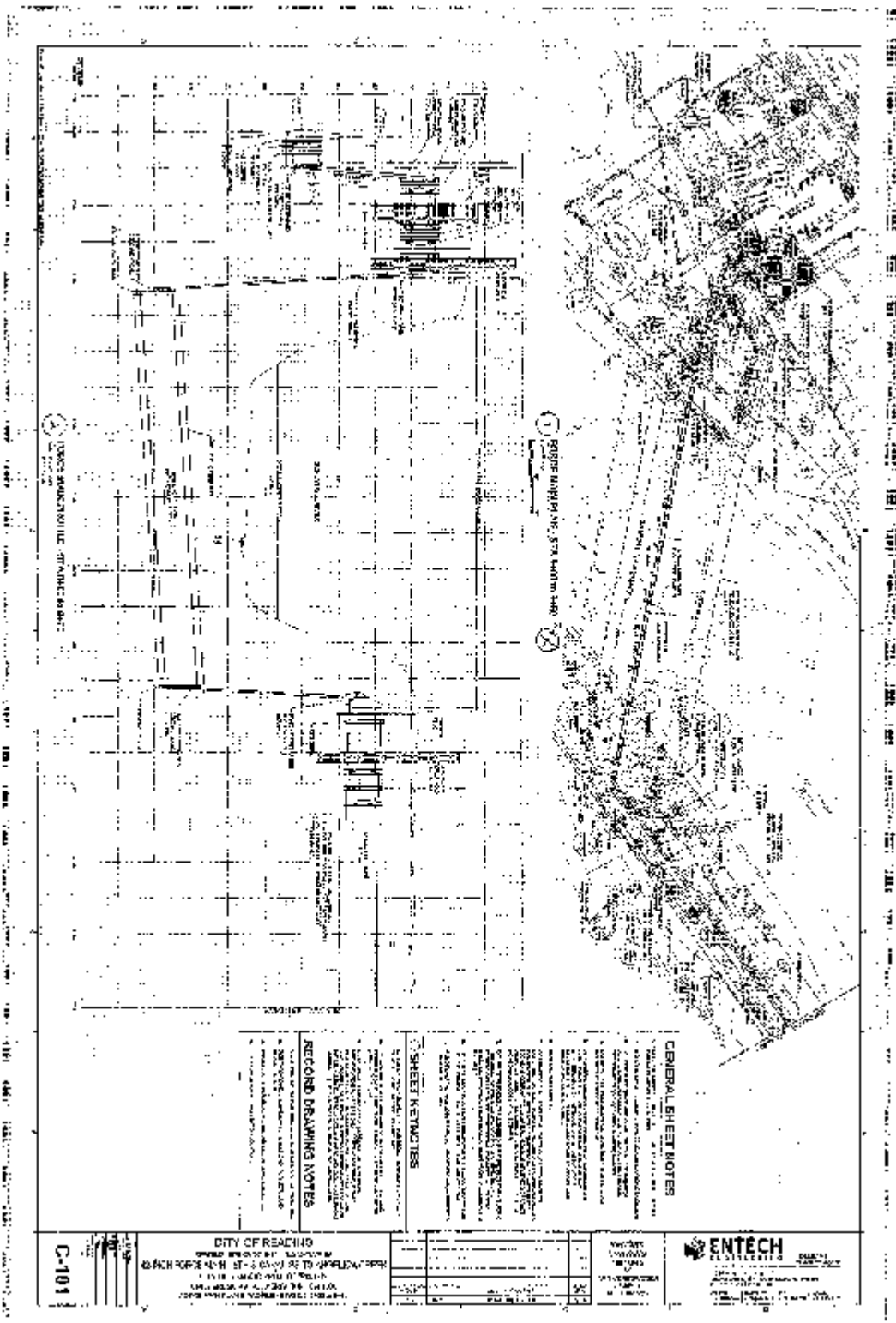
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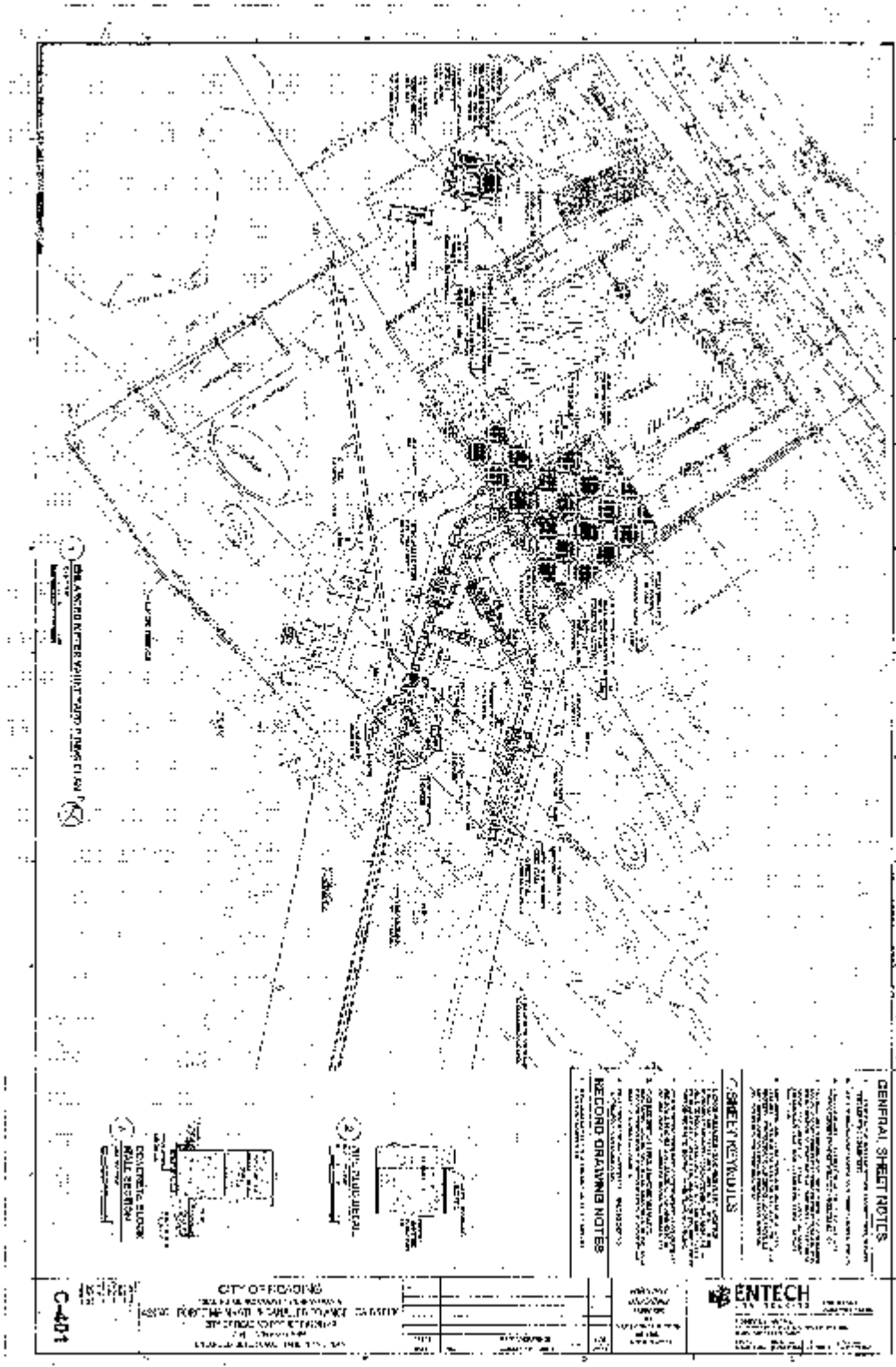
GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CITY OF READING STANDARD SPECIFICATIONS FOR PUBLIC WORKS, LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF READING AND ANY AFFECTED AGENCIES.
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES.
4. ALL UTILITIES SHALL BE PROTECTED AND DEEPER THAN THE PROPOSED TRENCHES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES AND STRUCTURES.
6. ALL TRENCHES SHALL BE PROTECTED WITH APPROVED METHODS AND MATERIALS.
7. ALL EXCAVATIONS SHALL BE PROTECTED WITH APPROVED METHODS AND MATERIALS.
8. ALL WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
9. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL WORK PERFORMED.
10. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE CITY ENGINEER.

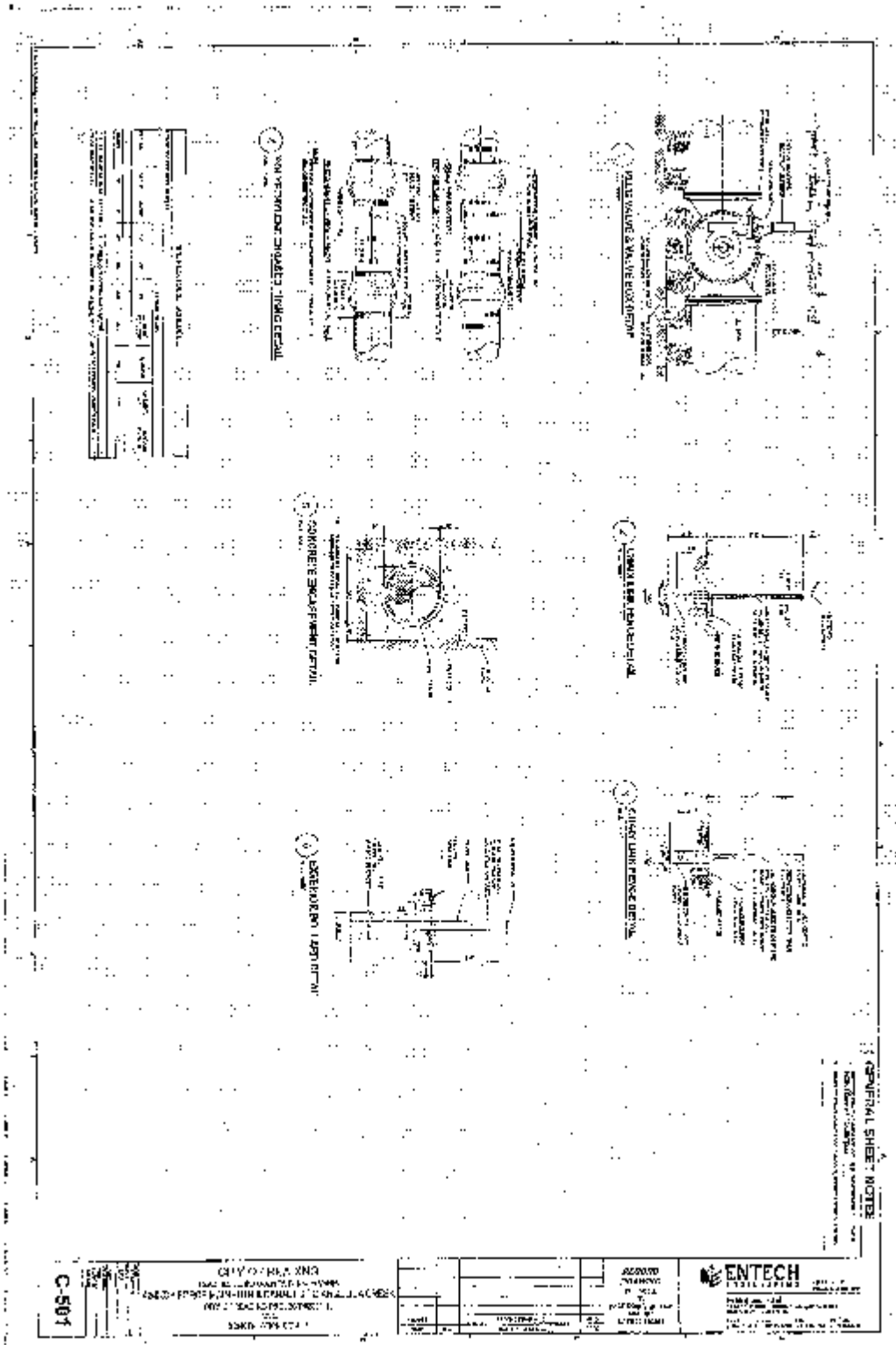
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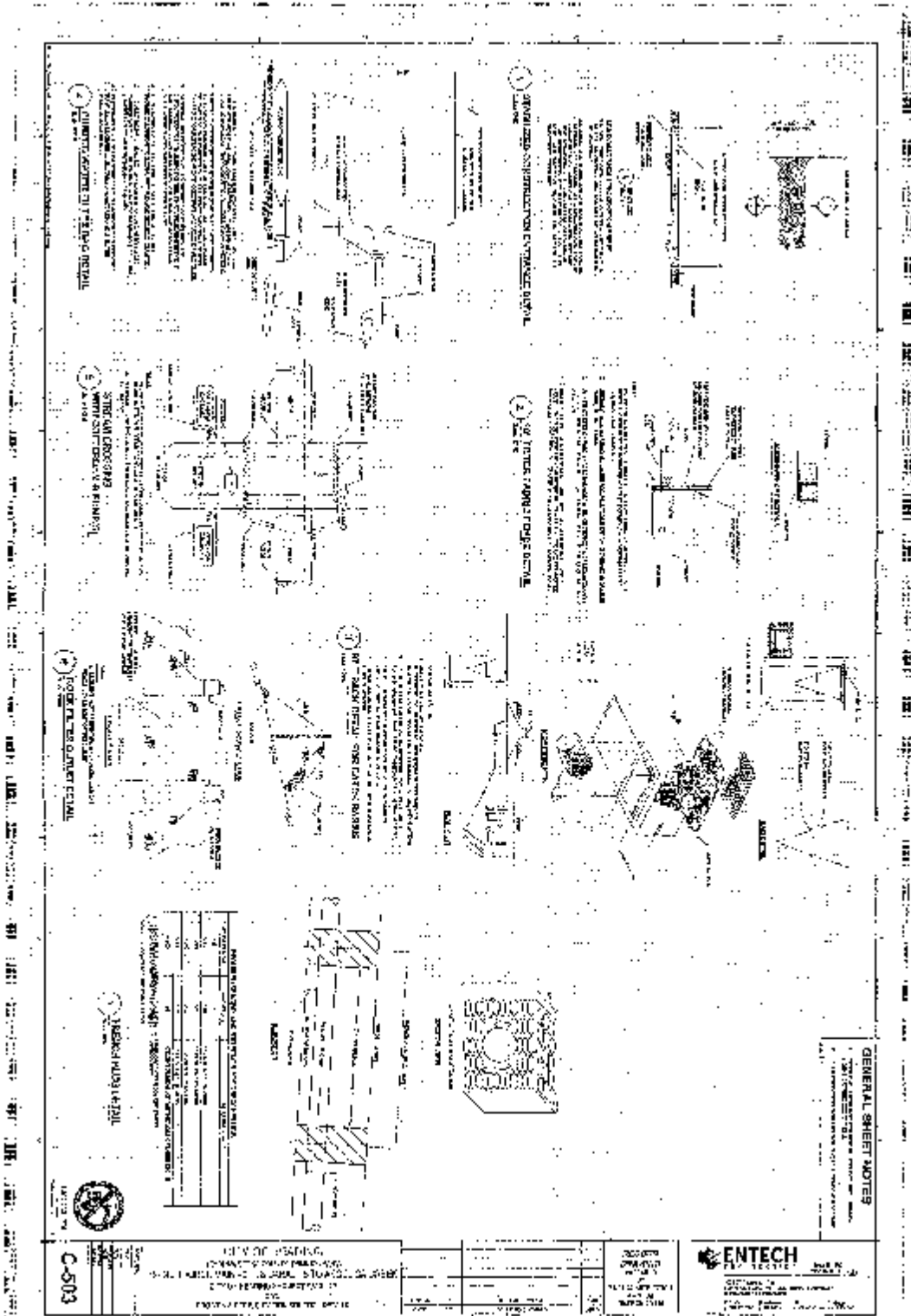


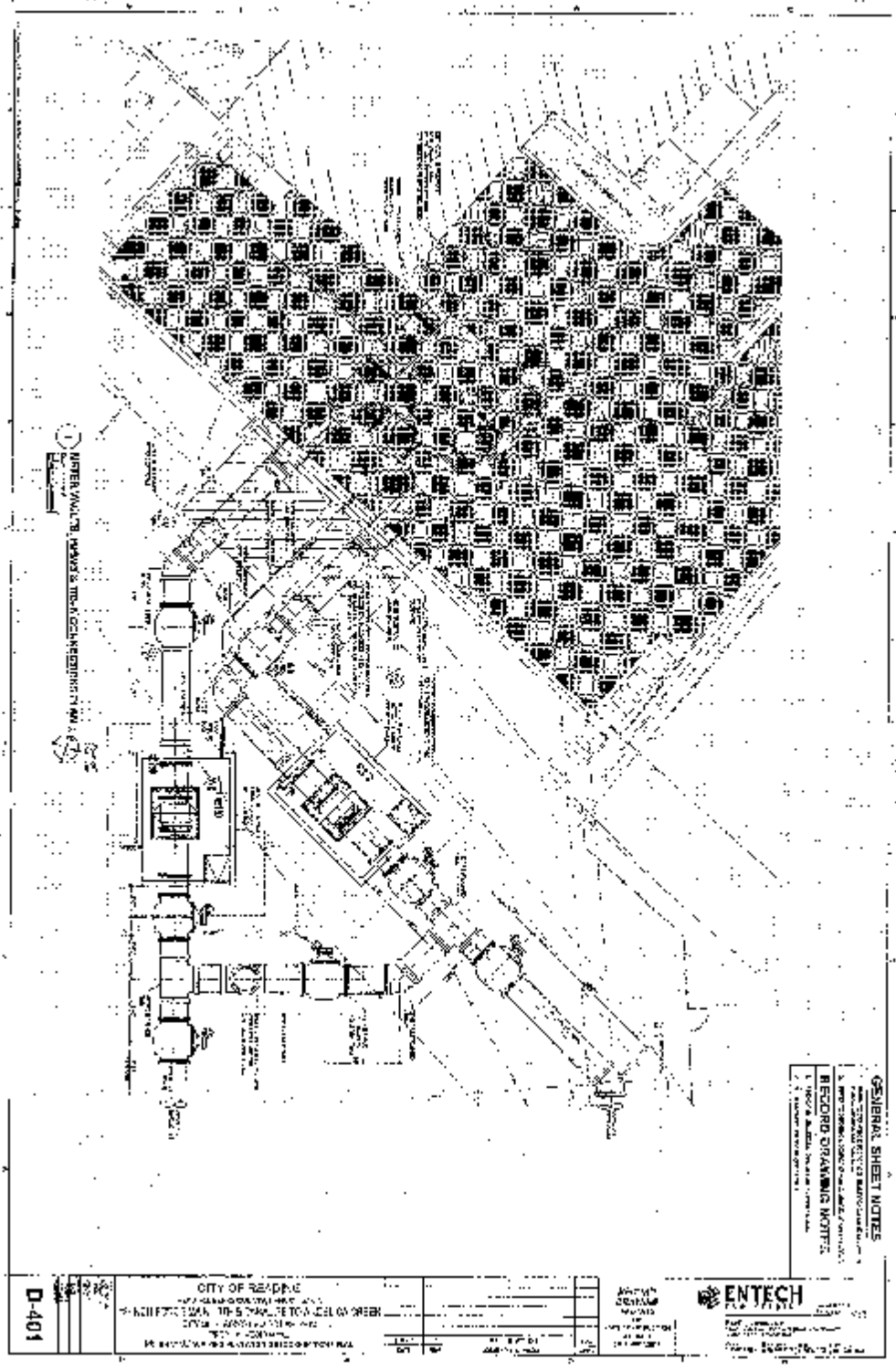
6th & Canal Pump Station Plug Valves Replacement Project
 City of Reading Pennsylvania



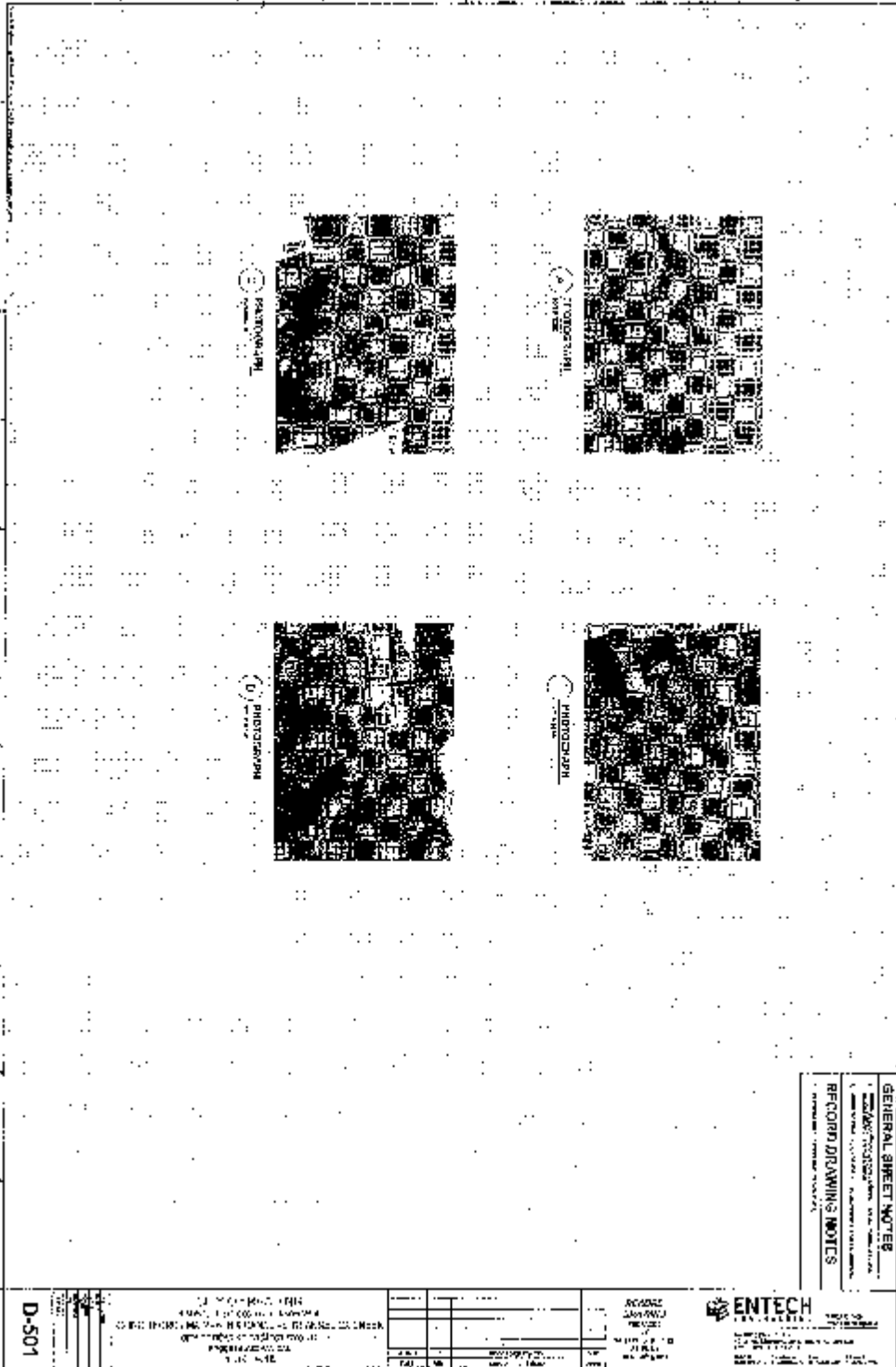
6th & Canal Pump Station Plug Valves Replacement Project
 City of Reading Pennsylvania







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 City of Reading Pennsylvania



GENERAL SHEET NOTES
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS AND BRIDGES, 2014 EDITION, LATEST REVISIONS.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATERWAYS AND MARINE FACILITIES, 2014 EDITION, LATEST REVISIONS.

RECORD DRAWING NOTES
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS AND BRIDGES, 2014 EDITION, LATEST REVISIONS.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATERWAYS AND MARINE FACILITIES, 2014 EDITION, LATEST REVISIONS.

D-501

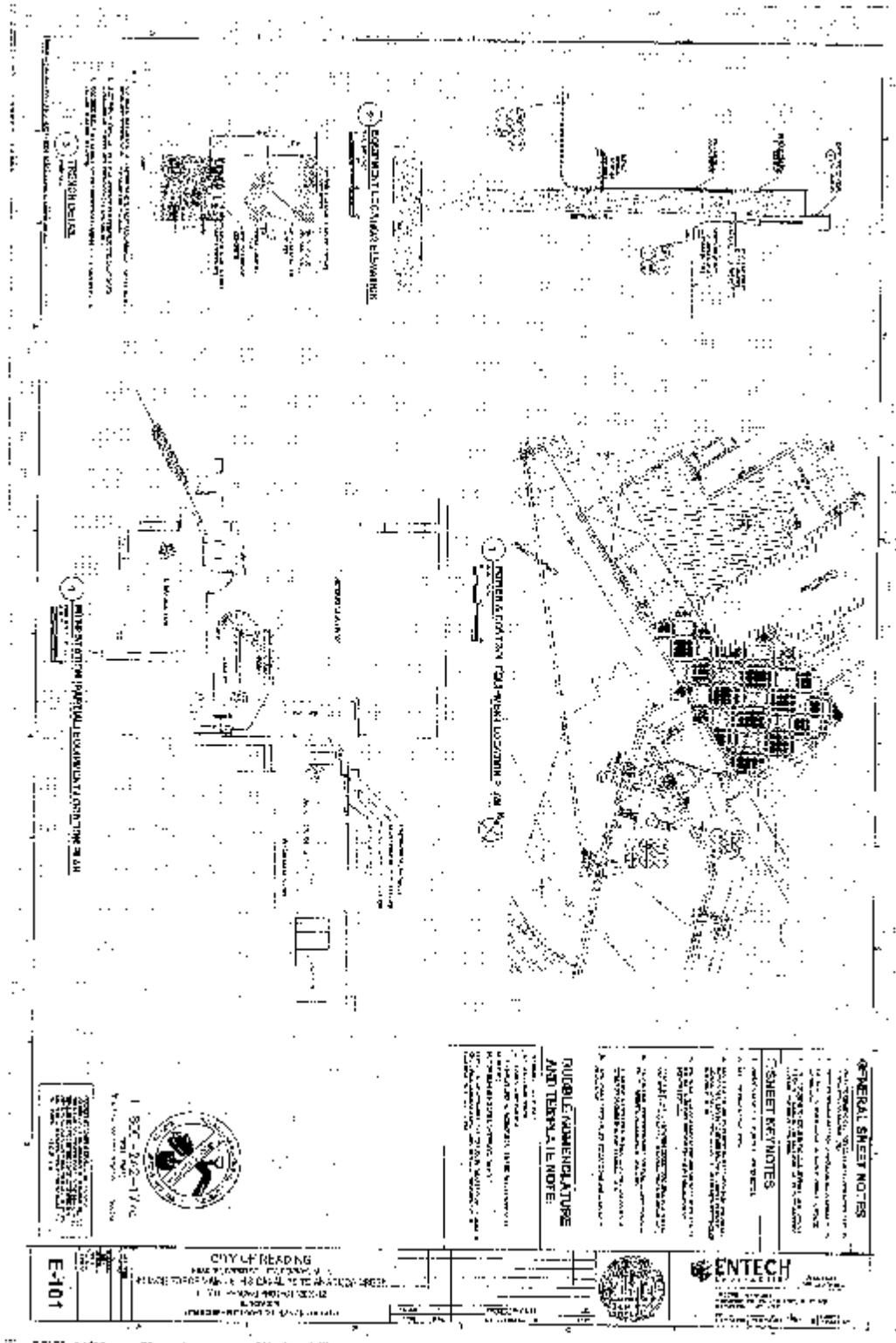
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 CITY OF READING, PENNSYLVANIA
 PROJECT NO. 2014-001
 SHEET NO. D-501

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2	ISSUED FOR CONSTRUCTION	08/14/2014	J. BELL	J. BELL
3	ISSUED FOR RECORD	08/14/2014	J. BELL	J. BELL

SCALE: AS SHOWN
 DRAWN BY: J. BELL
 CHECKED BY: J. BELL
 DATE: 08/14/2014



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 1000 W. MARKET STREET, SUITE 200
 READING, PA 19601
 TEL: 610-376-1000
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 City of Reading Pennsylvania