PROJECT MANUAL FOR

CITY OF CORBIN
SOUTHEAST REGIONAL INDUSTRIAL PARK

KOWA UTILITIES

KNOX COUNTY, KENTUCKY

CONTRACT 11: KOWA KENTUCKY WATER AND SANITARY SEWER EXTENSIONS

FEBRUARY, 2015

Project Manual

For

City of Corbin

Southeast Regional Industrial Park

KOWA Utilities

Knox County, Kentucky

Contract 11: KOWA Kentucky Water and Sanitary Sewer Extensions

MSE of Kentucky, Inc.

624 Wellington Way

Lexington, Kentucky 40503

(859) 223-5694

February 2015

CITY OF CORBIN
SOUTHEAST REGIONAL INDUSTRIAL PARK
KOWA UTILITIES
KNOX COUNTY, KENTUCKY
CONTRACT 11: KOWA KENTUCKY WATER AND SANITARY SEWER EXTENSIONS

TABLE OF CONTENTS

ADVERTISEMENT FOR BIDS
City of Corbin
KOWA Kentucky Utility Project
Corbin, Kentucky

Sealed bids for the construction of the KOWA Kentucky Utility Project for the City of Corbin, KY, will be received in the office of the Willard McBurney, Mayor, Corbin City Hall, 805 S. Main Street, Corbin, KY 40701, (606) 528-0669, until 2:00 p.m., local time, the 7th of April, 2015 and then at said office will be publicly opened and read aloud. General questions may be directed to Bruce Carpenter, Economic Development Director at 606-528-6390.

The work consists of approximately 700 l.f. of 8", C-900 water line; 300 l.f. of 8" gravity sewer; 1,800 l.f. of 6" pvc force main; and, a 20 hp duplex sewage lift station. The CONTRACT DOCUMENTS may be reviewed at the following locations:

MSE Web Site: mselex.com under Bid Opportunities
City of Corbin at location stated above

Copies of the Contract Documents may be obtained at the office of Lynn Imaging, 328 E. Vine St. Lexington, KY 40507, (859) 226-5850 upon receipt of a check made payable to Lynn Imaging in the amount of $150.00 (non-refundable) and a check made payable to MSE of Kentucky, Inc. of $100.00 (refunded when specs and plans are returned to Lynn Imaging within 30 days). All orders must be prepaid. There will be a 24 hour turn-around on all orders.

A certified check or bank draft, payable to the City of Corbin, government bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five percent of the bid shall be submitted with bid. The successful bidder will be required to furnish and pay for the following: 1) 5% Bid Bond; and 2) A performance and payment bond for 100% of the contract price.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract, Section 3, Segregated Facility, Section 109 and E.O. 11246 and Title VI Minority bidders are encouraged to bid.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the specifications and may waive any informalities or reject any and all Bids. Any proposal received after the time and date specified shall not be considered and will be returned unopened to the proposer.

Sealed bid should be labeled "KOWA Kentucky Utility Project". If mailed/shipped, bid should be enclosed in another envelop and addressed to: City of Corbin, 805 S. Main Street, Corbin, KY 40701. No Bidder may withdraw his Bid for a period of sixty (60) days after the actual date of the opening thereof.

State and Federal Wage Rates apply to this project.

Award will be made to the lowest, responsive, responsible bidder. Bidding is for the sole benefit of the City of Corbin.

The City of Corbin is an Equal Employment Opportunity Employer.

INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids

   The City of Corbin herein called the "Owner"), invites bids on the form attached hereto, all blanks lf which must be appropriately filled in. Each Bid must be submitted in a sealed envelope, addressed to City of Corbin, 805 S. Main Street, Corbin, Kentucky 40701. Each sealed envelope containing a Bid must be plainly marked on the outside as Bid for KOWA Utility Project, and the envelope should bear on the outside the BIDDER'S name, address and license number if applicable, and the name of the project for which the Bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the OWNER at the above address.

   The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 90 days after the date of the opening thereof.

2. Preparation of Bid: Each bid must be submitted on the prescribed form and accompanied by Certification of Bidder Regarding Equal Employment Opportunity, Form 950.1; Certification of Bidder (Contractor) Concerning Labor Standards and Prevailing Wage Requirements, Form 1421; Certification of Bidder Regarding Section 3 and Segregated Facilities: and Contractor Eligibility Certification Regarding Debarment, Suspension and Other Responsibilities. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certifications must be fully completed and executed when submitted.

   Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his/her address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

3. Subcontracts: The bidder is specifically advised that any person, for, or other party to whom it is proposed to award a subcontract under this contract:
   a. Must be acceptable to the Owner and have current eligibility status for federal programs; and
   b. Must submit Form 950.2, Certification by Proposed Subcontractor Regarding Equal Employment Opportunity, Certification of Proposed Subcontractor Regarding Section 3 and Segregated Facilities, and Subcontractor Eligibility Certification Regarding Debarment, Suspension and Other Responsibilities. Approval of the proposed subcontract award cannot be given by the Owner unless and until the proposed subcontractor has submitted the Certifications and/or other evidence showing that it has fully complied with any reporting requirements to which it is or was subject. Although the bidder is not required to attach such Certifications by proposed subcontractors to his/her bid, the bidder is here advised of this requirement so that appropriate action can be taken to prevent subsequent delay in subcontract awards.

4. Telegraphic/Facsimile Modification: Any bidder may modify his/her bid by telegraphic or facsimile communication at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic/facsimile modification over the signature of the bidder was mailed prior to the closing time. The communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is received within two days from the closing time, no consideration will be given to the telegraphic/facsimile modification.

5. Method of Bidding: The Owner invites the following bid(s):

KOWA Kentucky Utilities Project

6. Qualifications of Bidder: The Owner may make such investigations as s/he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

7. Bid Security: Each bid must be accompanied by cash, certified check of the bidder, or a bid bond prepared on the Bid Bond Form attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of 5% of the bid. Such cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or if no award has been made within 30 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid.

8. Liquidated Damages for Failure to Enter into Contract: The successful bidder, upon his/her failure or refusal to execute and deliver the contract and bonds required within 10 days after s/he has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid.

9. Time of Completion and Liquidated Damages: Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete- the project within 90 consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of $500 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

10 Conditions of Work: Each bidder must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible, the contractor, in carrying out the work, must employ such methods or

means as will not cause any interruption of or interference with the work of any other contractor.

11. Addenda and Interpretations: No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to Glen Ross, P.E. at MSE of Kentucky, Inc., 624 Wellington Way, Lexington, KY 40503 or glenross@mselex.com and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

12. Security for Faithful Performance: Simultaneously with his/her delivery of the executed contract, the contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner.

13. Power of Attorney: Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

14. Notice of Special Conditions: Attention is particularly called to those parts of the contract documents and specifications which deal with the following:

    a. Inspection and testing of materials. Insurance requirements.
    b. Wage rates.
    c. Stated allowances.

15. Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written in full.

16. Method of Award - Lowest Qualified Bidder: If at the time this contract is to be awarded, the lowest base bid submitted by a responsible bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract will be awarded on the base bid only. If such bid exceeds such amount, the Owner may reject all bids or may award the contract on the base bid combined with such deductible alternates applied in numerical order in which they are listed in the Form of Bid, as produces a net amount which is within the available funds. If all bids exceed funds available to finance the contract once all deductive alternatives have been applied, the owner may enter into negotiations with the three (3) lowest bidders. The only factor subject to negotiation, however, is price.

17. Obligation of Bidder: At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

18. Safety Standards and Accident Prevention: With respect to all work performed under this contract, the contractor shall:

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

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

c. Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

SECTION 00310 - BID FORM

CITY OF CORBIN
KOWA KENTUCKY – WATER AND SANITARY SEWER LINE EXTENSIONS

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as _____ (insert "a corporation", "a partnership", or "an individual" as applicable) to the City of Corbin (hereinafter "OWNER").
In compliance with your Invitation to Bid, BIDDER hereby proposes to furnish all equipment, materials, and labor for the work required to construct Project 2063-18 KOWA KENTUCKY Water and Sanitary Sewer Extensions, in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

BID SCHEDULE
PART 1 - WATER LINE WORK

Description	Quantity	Unit	Unit Price	Extension
1. Water Line. Furnish all material, equipment and labor and install water line, including trenching, all fittings, standard bedding, laying, backfilling, thrust-blocking and any other subsidiary work. Excavation is unclassified. Mechanical joint, cast iron fittings (elbows, tees, etc.) are required. Tracer wire is required.				
A. 8" MPVC Pipe, CL 200	700	L.F.	$_____	$_____
2. Steel Casing Pipe (Bored). Furnish all material, equipment and labor and install new steel casing for road crossing by augering, jacking, pushing, or boring where open cutting is not allowed. Does not include carrier pipe which is paid under Item 1.				
A. 12@ Steel Casing Pipe (Bored)	60	L.F.	$_____	$_____
3. Steel Casing Pipe (Open Cut). Furnish all material, equipment and labor and install new steel casing or cover pipe for highway crossing where open cutting is allowed. Does not include carrier pipe which is paid under Item 1.				
A. 12@ Steel Casing Pipe (Open-Cut)	40	L.F.	$_____	$_____
4. Gate Valve Assemblies. Furnish all material, equipment and labor and install gate valves and boxes set complete as specified including trenching, backfilling and concrete collars. Mechanical joint, cast iron only.				
A. 8@ Gate Valve Assemblies	1	Ea.	$_____	$_____
5. Fire Hydrant Assembly. Furnish all material, equipment and labor and install 6 inch fire hydrant assemblies including thrust blocking, excavation and backfilling. Excavation is unclassified. Mechanical joint, cast iron only.				
A. Fire Hydrant Assembly	1	Ea.	$_____	$_____
6. Tie-in to Existing Lines. Furnish all material, equipment and labor and install connections to existing mains including all pipe cutting, tapping valve, sleeves, fittings, bends, temporary connections for testing and flushing, disconnecting the existing main, capping, thrust blocks and restorations.				
A. Tap Existing 16@ Line	1	Ea.	$_____	$_____
B. Tie-In to Fire Vault	1	Ea.	$_____	$_____

SUBTOTAL – PART 1 Water Construction $_____

BID SCHEDULE B PART 2 SEWER LINE WORK

Description	Quantity	Unit	Unit Price	Extension
1. Sanitary Sewer. Furnish all labor, equipment and materials and install 8" PVC SDR 35 sanitary sewer main, including all trenching, bedding, backfill, testing and related work. Unclassified excavation.				
A. Sanitary Sewer 0-6.0' Deep	78	L.F.	$_____	$_____
B. Sanitary Sewer 6.1-8.0' Deep	34	L.F.	$_____	$_____
C. Sanitary Sewer 8.1-10.0' Deep	46	L.F.	$_____	$_____
D. Sanitary Sewer 10.1-12.0' Deep	52	L.F.	$_____	$_____
E. Sanitary Sewer 12.1-14.0' Deep	22	L.F.	$_____	$_____
F. Sanitary Sewer 14.1-16.0' Deep	4	L.F.	$_____	$_____
G. Sanitary Sewer 16.1-18.0' Deep	4	L.F.	$_____	$_____
2. Standard Manhole. Furnish all labor, equipment and materials and install four foot diameter standard manholes, up to six feet in depth.				
Standard Manhole	2	Ea.	$_____	$_____
3. Drop Manhole. Furnish all labor, equipment and materials and install four foot diameter drop manhole, up to six feet in depth.				
Drop Manhole	2	Ea.	$_____	$_____
4. Vertical Extension for Manhole. Furnish all labor, equipment and materials and extend standard four foot diameter manhole, greater than six feet in depth.				
Vertical Extension	6	V.F.	$_____	$_____
5. Casing Pipe Installed by Boring and Jacking. Furnish all labor, equipment and materials and install steel casing pipe for sewer force main by boring and jacking.				
A. 12" Casing Pipe 40	40	L.F.	$_____	$_____
6. 8" Gravity Sewer Installed in Casing Pipe. Furnish and install 8" gravity sewer line in existing casing pipe. Furnish all labor, equipment and materials and install 8" diameter PVC gravity sewer in casing pipe.				
Gravity Sewer	60	L.F.	$_____	$_____
7. Duplex Pump Station. Furnish all labor, equipment and materials and install duplex sanitary sewage pump station. Includes all site work, access road, pumps, piping, wet well, valve vault control panel and electrical connection for complete installation.				
Duplex Pump Station		L.S.		$_____
8. Force Main Installed by Trenching. Furnish all labor, equipment and materials and install 6" diameter Class 200 PVC force main by trenching, bedding, thrust blocking and backfilling.				
Force Main	1,747	L.F.	$_____	$_____
9. Force Main Installed In Casing Pipe. Furnish all labor, equipment and materials and install 6" diameter Class 200 PVC force main in casing pipe.				
Force Main	40	L.F.	$_____	$_____

10. Air Release Valve. Furnish all labor and equipment and install air release valves.

Air Release Valves	1	Ea.	$_____	$_____

11. Connection to Existing Manhole. Furnish all labor, equipment and materials and connect force main to existing manhole. Reshape invert of existing manhole for new line.

Connection to Existing Manhole	1	Ea.	$_____	$_____

12. Surface Restoration. Includes furnishing all labor, equipment and materials and fertilizing, seeding and mulching disturbed lawns and other grassed areas.

Surface Restoration	L.S.	$_____

13. Other Costs. Mobilization, demobilization, project sign and other costs.

Other Costs	L.S.	$_____

SubTotal – PART 2 Sewer Construction $_____

TOTAL BID – PART 1 AND PART 2 COMBINED $_____

The bid prices shall include all labor, materials, overhead, profit, insurance, and other costs necessary to install the finished work of the several items called for. Changes shall be processed in accordance with the General Conditions.

By submission of this Bid, the BIDDER certifies, and in the case of a joint Bid, each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence Work under this contract on or before a date to be specified in the Notice to Proceed and to complete the work within ninety (90) days BIDDER further agrees to pay as liquidated damages, the sum of $1000 for each consecutive calendar day thereafter as provided in the General Conditions and the Special Conditions.

Accompanying this Proposal is a certified check or standard Bid Bond in the sum of _____ _____ Dollars ($_____), in accordance with the Information for Bidders. The BIDDER, by submittal of this Bid, agrees with the OWNER that the amount of the bid securitydeposited with this Bid fairly and reasonably represents the amount of damages the OWNER will suffer due to the failure of the BIDDER to fulfill his agreements as provided in this Proposal.

BIDDER acknowledges receipt of the following Addenda:

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

BIDDER understands that the OWNER reserves the right to reject any or all Bids and to waive any informalities in the Bidding.

BIDDER agrees that this Bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the actual date of bid opening.

Within ten (10) calendar days after receiving written notice of the acceptance of this Bid by the OWNER, the Bidder will execute and deliver to the OWNER four (4) copies of the Agreement and such other required Contract Documents.

BIDDER: _____
(Name of Company or Partnership)

By: _____
(Signature) (Date)

_____
(Print Name)

_____
(Title)

_____
(Address)

_____
(Phone Number)

Attested By: _____
(Signature) (Date)

Seal (If bid is by a corporation)

End of Section

BID BOND FORM

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto _____ as owner in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. Signed this _____ day of _____, 20___.

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

Now, THEREFORE,

(a.) If said Bid shall be rejected, or in the alternate.

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

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

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

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

_____
Principal

_____
Surety

SEAL By: _____

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

CERTIFICATION OF BIDDER
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Instructions

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

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

For contracts over $10,000, the Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract. The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

Certification by Bidder

Name and Address of Bidder (include zip code)

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

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

3. Bidder has filed all compliance reports due under applicable instructions, including Monthly Employment Utilization Report (257)
   Yes No None Required

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

Yes No	
5. Bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained.	
Name and Title of Signer (please type)	
Signature	Date

CERTIFICATION OF BIDDER REGARDING SECTION 3

Name of Prime Contractor

KOWA Kentucky Utilities

Project Name

Project Number

The undersigned hereby certifies that:

a) Section 3 provisions are included in the Contract.

b) A Contractor Section 3 Plan was prepared and submitted as part of the bid proceedings (if bid exceeds $100,000).

Name & Title of Signer (print or type)

Signature

Date

CONTRACTOR SECTION 3 PLAN
(If bid exceeds $100,000)

_____ agrees to implement the following specific affirmative action steps directed at increasing the utilization of lower income residents and businesses within the County of Bourbon.

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

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

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

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

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

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

G. To insure that all appropriate project area business concerns are notified of pending subcontractual opportunities.

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

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

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

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

---

* Loans, grants, contracts and subsidies for $100,000 or less are exempt.

As officers and representatives of _____
(Name of Contractor)

We the undersigned have read and fully agree to this Section 3 Plan, and become a party to the full implementation of this program.

_____
Signature

_____ _____
Title Date

_____
Signature

_____ _____
Title Date

CONTRACTOR SECTION 3 PLAN (continued)

TABLE A
PROPOSED SUBCONTRACTS BREAKDOWN
FOR THE PERIOD COVERING _____through _____
(Duration of the CDBG-Assisted Project)

Column 1	Column 2	Column 3	Column 4	Column 5
TYPE OF CONTRACT (BUSINESS OR PROFESSION)	TOTAL NUMBER OF CONTRACTS	TOTAL APPROXIMATE DOLLAR AMT.	ESTIMATED NO. OF CONTRACTS TO SECTION 3 BUSINESSES*	ESTIMATE DOLLAR AMT. TO SECTION 3 BUSINESSES

* A Section 3 business is: one that is owned by Section 3 residents (low and very low income residents of the project area, public housing residents or persons with disabilities); one that employs Section 3 residents; or one that subcontracts to businesses that provide opportunities for low and very low income residents.

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

_____
Company

KOWA Kentucky Utilities

_____ _____
Project Name Project Number

_____ _____
EEO Officer-Signature Date

CONTRACTOR SECTION 3 PLAN (continued)

TABLE B
ESTIMATED PROJECT WORKFORCE BREAKDOWN

Column 1	Column 2	Column 3	Column 4	Column 5
JOB CATEGORY	TOTAL ESTIMATED POSITIONS	NO. POSITIONS CURRENTLY OCCUPIED BY PERMANENT EMPLOYEES	NO. POSITIONS NOT CURRENTLY OCCUPIED BY PERMANENT EMPLOYEES	NO. POSITIONS TO BE FILLED WITH SECTION 3 RESIDENTS*
OFFICERS SUPERVISORS				
PROFESSIONALS				
TECHNICIANS				
HOUSING SALES RENTAL/MANAGEMENT				
OFFICE CLERICAL				
SERVICE WORKERS				
OTHERS				

TRADE:

JOURNEYMEN				
HELPERS				
APPRENTICES				
MAXIMUM NO. TRAINEES				
OTHERS				

TRADE:

JOURNEYMEN				
HELPERS				
APPRENTICES				
MAXIMUM NO. TRAINEES				
OTHERS				

TRADE:

JOURNEYMEN				
HELPERS				
APPRENTICES				
MAXIMUM NO. TRAINEES				
OTHERS				

* Section 3 residents include low and very low income persons who live in the project area, public housing residents and persons with disabilities.

Company

KOWA Kentucky Utility

Project Name

Project Number

EEO Officer-Signature

Date

CERTIFICATION BY PROPOSED SUBCONTRACTOR
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

CERTIFICATION BY PROPOSED SUBCONTRACTOR
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Name of Prime Contractor	Project Number

Instructions

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

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the owner approves the subcontract or permits work to begin under the subcontract.

For subcontracts over $10,000, the Subcontractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes. The Subcontractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract. The Subcontractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

Subcontractor's Certification

Name and Address of Subcontractor (include zip code)

1. Subcontractor has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
   Yes___ No___

2. Compliance reports were required to be filled in connection with such contract or subcontract.
   Yes___ No___

3. Subcontractor has filed all compliance reports due under applicable instructions, including Monthly Employment Utilization Report (257)

Yes___ No___ None Required___	
4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended? Yes___ No___	
5. Bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained.	
Name and Title of Signer (please type)	
Signature	Date

CERTIFICATION OF PROPOSED SUBCONTRACTOR REGARDING SECTION 3

Name of Subcontractor

KOWA Kentucky Utilities

Project Name

Project Number

The undersigned hereby certifies that:

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

(b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid exceeds $100,000).

Name & Title of Signer (print or type)

Signature

Date

CONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

CONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

TO (Appropriate Recipient):	DATE
C/O	PROJECT NUMBER #
	PROJECT NAME KOWA Kentucky Utilities

1. The undersigned, having executed a contract with _____ for the construction of the above identified project, acknowledges that:

   (a) The Labor Standards provisions are included in the aforesaid contract;
   (b) Prevailing wage requirements are followed, including paying the higher of the Federal or State wage rate by labor classification.
   (c) Correction of any infractions of the aforesaid conditions, including infractions by any of his subcontractors and any lower tier subcontractors, is his responsibility.

2. He certifies that:
   (a) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor., Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended (40 U.S. C. 276a-2(a)).

   (b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designed as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. He certifies that:

   (a) The legal name and the business address of the undersigned are:

(b) The undersigned is:

(1) A SINGLE PROPRIETORSHIP	(3) A CORPORATION ORGANIZED IN THE STATE OF:
(2) A PARTNERSHIP	(4) OTHER ORGANIZATION (Describe)

(c) The name, title and address of the owner, partners, or officers of the undersigned are:

NAME	TITLE	ADDRESS

(d) The names and addresses of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state)

NAME	ADDRESS	NATURE OF INTENT

(e) The names, addresses and trade classifications of all other building construction contractors in which undersigned ha a substantial interest (if none, so state):

NAME	ADDRESS	TRADE CLASSIFICATION

Date_____ _____
(Contractor)

By:_____

WARNING

U.S. Criminal Code, Section 1010, Title 18, U.S. C., provides in part: “Whoever …… makes, passes, utters, or publishes any statement knowing the same to be false….. shall be fined not more than $5,000 or imprisoned not more than two years, or both.”

SECTION 00490 - NOTICE OF AWARD

TO: _____
_____
_____
_____
_____

PROJECT Description:_____
_____
_____

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated _____, 20_____, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of $_____.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this_____ day of_____, 20____.

_____
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by_____. this the _____
day of _____, 20____.

By _____

Title _____

CONTRACT FORM

THIS AGREEMENT, made this _____day of _____, 20___, by and between _____
_____, Herein called “Owner,”
(Corporate Name of Owner

herein through its_____, and

_____
STRIKE OUT (a corporation) (a partnership)
INAPPLICABLE (an individual doing business as _____
TERMS _____

of_____, County of _____, and State of_____
hereinafter called “Contractor”

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER to commence and complete the construction as described as follows:

hereinafter called the project, for the sum of _____ Dollars ($_____) and all extra work in connection therewith, under the terms as stated in the General and Special Conditions of the Contract; and at his (its or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, Supplemental General Conditions and Special Conditions of the Contract, the plans, which include all maps, plats, blue prints and other drawings and printed or written explanatory matter thereof, the specifications and contract documents therefore as prepared by MSE of Kentucky, Inc.,herein entitled the Architect/Engineer, and as enumerated in Paragraph 1 of the Supplemental General Conditions, all of which are made a part hereof and collectively evidence and constitute the contract.

The Contractor hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the OWNER and to fully complete the project within 270 consecutive calendar days thereafter. The Contractor further agrees to pay, as liquidated damages, the sum of $500 for each consecutive calendar day thereafter as hereinafter provided in Paragraph 19 of the General Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in the General Conditions of the Contract, and to make payments on account thereof as provided in Paragraph 25, "Payments to Contractor,” of the General Conditions.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in six (6) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

(Seal)
ATTEST

_____
(Owner)

_____ By _____
(Secretary)

_____ _____
(Witness) (Title)

(Seal)

_____
(Contractor)

_____ By _____
(Secretary)

_____ _____
(Witness) (Title)

_____
(Address and Zip Code)

NOTE: Secretary of the Owner should attest. If Contractor is a corporation, Secretary should attest.

BONDING REQUIREMENTS

Construction project bids estimated to exceed $25,000 must include bidder security. An acceptable form of bidder security is a bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his/her bid, execute such contractual documents as may be required within the time specified.

Construction contracts or subcontracts exceeding $25,000 must include:

a. A performance bond on the part of the contractor for 100 percent of the contract price as it may be increased. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor’s obligations under such contract.

b. A payment bond on part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of the City of Corbin, do hereby certify as follows:

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

_____
Signature

_____
Date

GENERAL CONDITIONS
Table of Contents

GENERAL CONDITIONS
Including Federal Labor Standards Provisions

1. Contract and Contractor Documents

   The project to be constructed and pursuant to this Contract will be financed with assistance from the Kentucky Community Development Block Grant Program and is subject to all applicable Federal laws and regulations.

   The plans, specifications and addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions on page 30, shall form part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.

2. Definitions

   The following terms as used in this contract are respectively defined as follows:

   (a) "Contractor": A person, firm or corporation with whom the contract is made by the Owner.

   (b) "Subcontractor": A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with, the Contractor.

   (c) "Work on (at) the project": Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Prime Contractor and any Subcontractor.

3. Additional Instructions and Detail Drawings

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

The Contractor shall submit promptly to the Architect/Engineer two copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Architect/Engineer and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Architect/Engineer with two corrected copies. If requested by the Architect/Engineer the Contractor must furnish additional copies. Regardless of corrections made in or approval given to such drawings by the Architect/Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the plans and specifications, unless he notifies the Architect/Engineer in writing of any deviations at the time he furnishes such drawings.

5. Materials, Services and Facilities

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

   (b) Any work necessary to be performed after regular working hours, on Sunday or Legal Holidays, shall be performed without additional expense to the Owner.

6. Contractor's Title to Materials

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

7. Inspection and Testing of Materials

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

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

8. "Or Equal" Clause

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

9. Copyrights and Patents

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

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

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

(d) Any copyrightable work resulting from this Agreement is available to the author for such, but the City and the Department of Local Government reserve the option for unlimited use and license to such work. Any discovery or invention shall be reported promptly to the City and the Department of Local Government for the determination as to whether patent protection should be sought and how the rights of any patent shall be disposed of and administered in order to protect the public interest.

10. Surveys, Permits and Regulations

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

The Contractor shall procure and pay all permits, licenses and approvals necessary for the execution of this Subcontract.

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

11. Contractor's Obligations

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

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

12. Weather Conditions

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

13. Protection of Work and Property – Emergency

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

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Architect/Engineer, in a diligent manner. He shall notify the Architect/Engineer

immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Architect/Engineer for approval.

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

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

14. Inspection

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

15. Reports, Records and Data

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

16. Superintendence by Contractor

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

17. Changes in Work

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

(a) Unit bid prices previously approved.

(b) An agreed lump sum.

(c) The actual cost of

1. Labor, including foremen.
2. Materials entering permanently into the work.
3. The ownership or rental cost of construction plant and equipment during the time of use on the extra work.

4. Power and consumable supplies for the operation of power equipment.
5. Insurance.
6. Social Security and old age and unemployment contributions.

18. Extras

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

19. Time for Completion and Liquidated Damages

It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commended on a data to be specified in the “Notice to Proceed”.

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

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

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

It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by

such extension shall be of the essence of this Contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; provided, further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

(a) To any preference, priority or allocation order duly issued by the Government.
(b) To unforeseeable cause beyond the control and without fault or negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and severe weather.
(c) To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

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

20. Correction of Work

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

21. Subsurface Conditions Found Different

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

22. Claims for Extra Cost

No claim for extra work or associated cost shall be allowed unless the same was done in pursuance of a written order of the Architect/Engineer approved by the Owner, as aforesaid and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of subparagraph 17(c) of the General Conditions, the Subcontractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

23. Right of Owner to Terminate Contract

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

The Owner may terminate this Contract at any time by giving at least ten (10) days notice in writing to the Contractor. If the Contract is terminated by the Owner as provided herein, the Contractor will be paid for the time provided and expenses incurred up to the termination date. If the Contract is terminated due to the fault of the Contractor, the above paragraph relative to termination shall apply.

24. Construction Schedule and Periodic Estimates

Immediately after execution and delivery of the Contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish on forms to be supplied by the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

25. Payments to the Contractor

(a) Not later than the _____day of each calendar month the Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this Contract, but to insure the proper performance of this Contract, the Owner shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all work covered by this Contract; provided, that the Contractor shall submit his estimate not later than the _____ day of the month; provided, further, that on completion and acceptance of each separate building, public work, or other division of the Contract, on which the price is stated separately in the Contract, payment may be made in full, including retained percentages thereon, less authorized deductions.

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

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

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

26. Acceptance of Final Payment Constitutes Release

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner

and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligations under this Contract or the performance and payment bond.

27. Payments by Contractor

The Contractor shall pay (a) for all transportation and utility services not later than the _____day of the calendar month following that in which services are rendered, (b) for all materials, tools and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the ___ day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof, not later than the __day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used, and (c) to each of his Subcontractors, not later than the __ day following each payment to the Contractor, the respective amount allowed the Contractor on account of the work performed by his Subcontractors to the extent of each Subcontractor's interest therein.

28. Insurance

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

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

(b) Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and maintain during the life of this Contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the amounts specified in Supplemental General Conditions.

(c) Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall either (1) require each of his Subcontractors to procure and to maintain during the life of his subcontract Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplemental General Conditions specified in

subparagraph (B) hereof, or (2) insure the activities of his policy, specified in subparagraph (b) hereof.

(d) Scope of Insurance and Special Hazards: The insurance required under subparagraphs (b) and (c) hereof shall provide adequate protection for the Contractor and his Subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by him and, also against any of the special hazards which may be encountered in the performance of this Contract as enumerated in the Supplemental General Conditions.

(e) Builder's Risk Insurance (Fire and Extended Coverage): Until the project is completed and accepted by the Owner, the Owner or Contractor (at the Owner's option as indicated in the Supplemental General Conditions. Form HUD-4238-N) is required to maintain Builder's Risk Insurance (fire and extended coverage) on a 100 percent completed value basis on the insurable portion of the project for the benefit of the Owner, the Contractor, and Subcontractors as their interests may appear. The Contractor shall not include any costs for Builder's Risk Insurance (fire and extended coverage) premiums during construction unless the Contractor is required to provide such insurance, however, this provision shall not release the Contractor from his obligation to complete, according to plans and specifications, the project covered by the Contract, and the Contractor and his Surety shall be obligated to full performance of the Contractor's undertaking.

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

29. Contract Security

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

30. Additional or Substitute Bond

If at any time the Owner for justifiable cause shall be or become dissatisfied with any Surety or Sureties, then upon the performance or payment bonds, the Contractor shall within five (5) days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be

made until the new Surety or Sureties shall have furnished such an acceptable bond to the Owner.

31. Assignments

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

32. Mutual Responsibility of Contracts

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

33. Separate Contracts

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

34. Subcontracting

(a) The Contractor may utilize the services of specialty Subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty Subcontractors.
(b) The Contractor shall not award any work to any Subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the Subcontractor, which statement shall contain such information as the Owner may require.
(c) The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
(d) The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind Subcontractors to the Contractor

by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

(e) Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

35. Architect/Engineer’s Authority

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

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

36. Stated Allowances

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

37. Use of Premises and Removal of Debris

The Contractor expressly undertakes at his own expense:

(a) To take every precaution against injuries to persons or damage to property.

(b) To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractors.

(c) To place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.

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

(e) Before final payment to remove all surplus material, false-work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition.
(f) To effect all cutting, fitting or patching of his work required to make the same to conform to the plans and specifications and, except with the consent of the Architect/Engineer, not to cut or otherwise alter the work of any other Contractor.

38. Quantities of Estimate

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

39. Lands and Rights-of-Way

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

40. General Guaranty

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

41. Conflicting Conditions

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

42. Notice and Service Thereof

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

43. Provisions Required by Law Deemed Inserted

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and

enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

44. Protection of Lives and Health

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

45. Subcontracts

"The Contractor will insert in any subcontracts the Federal Labor Standards Provision contained herein and such other clauses as the Department of Housing and Urban Development may, by instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made."

46. Conflict of Interest

No person who is an employee, agent, consultant, officer or elected or appointed official of recipient or subrecipient who exercises or has exercised any functions or responsibilities with respect to KCDBG activities or who is in a position to participate in a decision making process or gain inside information with regard to such activities may obtain a financial interest or benefit from a KCDBG activity, have an interest or benefit from the activity or have an interest in any contract, subcontract or agreement with respect to a CDBG activity or its proceeds, for themselves or those with whom they have family or business ties. The prohibition applies during their tenure and for one year thereafter.

47. Interest of Member of or Delegate to Congress

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

48. Other Prohibited Interests

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

Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract or any other contract pertaining to the project.

49. Use and Occupancy Prior to Acceptance by Owner

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

(a) Secures written consent of the Contractor except in the event, in the opinion of the Architect/Engineer, the Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
(b) Secures endorsement from the insurance carrier and consent of the surety permitting occupancy of the building or use of the project during the remaining period of construction.

Or

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

50. Photographs of the Project

If required by the Owner, the Contractor shall furnish photographs of the project, in the quantities and as described in the Supplemental General Conditions.

51. Suspension of Work

Should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

52. Access to Records

The Contractor shall maintain accounts and project records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Contract and such other records as may be deemed necessary by the City/County to assure proper accounting for all project funds, both CDBG and non-CDBG shares. These records will be made available to the City, the Department of Local Government, Commonwealth of Kentucky Finance & Administration Cabinet, Commonwealth of Kentucky Auditor of Public Audits, Commonwealth of Kentucky Legislative Research Commission, U.S. Department of Housing and Urban Development, the U. S. Department of Labor, and the Comptroller General of the United States, or any of their duly authorized representatives. These parties shall have access to any books, documents, papers and records of the Contractor which are directly pertinent to the project, for the purpose of making audit, examination, excerpts, and transcriptions. All records shall be maintained for five years after project closeout.

53. Federal Labor Standards Provisions (HUD-401 0,2-84)

Applicability

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

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

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

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

1. The work to be performed by the classification requested is not performed by a classification in the wage determination;
2. The classification is utilized in the area by the construction industry; and

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

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

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

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

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

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

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal Contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of

the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and Basic Records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project). Such records shall contain the name, address and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1 (b)(2)(B) of Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under 0MB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U. S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under 0MB Control Number 1215-0149.)

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

1. That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;
2. That each laborer or mechanic (including each helper 1 apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3.
3. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph A.3(ii)(b) of this section.

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

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant 20 CFR Part 5.12.

4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on

the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

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

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

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

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

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

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

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

    (ii) No pan of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis- Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

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

11. Complaints, Proceedings, or Testimony by Employees.
    (a) No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other

manner discriminated against by the Contractor or subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under Contract to his employer.

B. Contract Work Hours and Safety Standards Act (over $100,000). As used in this paragraph, the terms "laborers' and "mechanics" include watchmen and guards.

1. Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.
3. Withholding For Unpaid Wages and Liquidated Damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.
4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for

compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

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

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

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

54. Anti-Kickback Act

Attachment to Federal Labor Standards Provisions, So-Called "Anti-Kickback Act" and Regulations Promulgated Pursuant Thereto by the Secretary of Labor. United States Department of Labor. Title 18, U.S.C., Section 874 (HUD-4010, 2-76) (Replaces section 1 of the Act of June 13, 1934 (48 Stat. 948, 40 U.S.C., Section 276B) pursuant to the Act of June 25, 1948, 62 Stat. 862).

Kickbacks from Public Works Employees

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

Section 2 of the Act of June 13, 1934, as amended (48 Stat. 948, 62 Stat. 862,63 Stat. 108, Stat. 967, 40 U.S.C., section 276c).

The Secretary of Labor shall make reasonable regulations for contractors and subcontractors engaged in the construction, prosecution, completion or repair of buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States, including a provision that each contractor shall furnish

weekly a statement with respect to the wages paid each employee during the preceding week. Section 1001 of Title 18 (United States Code) shall apply to such statements.

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

Title 29 – Labor; Subtitle A – Office of the Secretary of Labor, Part 3 – Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by loans or grants from the United States.

Section 3.1 – Purpose and scope

This part prescribes "anti-kickback" regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally-assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No.14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 – Definitions.

As used in the regulations in this part:

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

they are manufactured or furnished) is not a "building" or “work” within the meaning of the regulations in this part.

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

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

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

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

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

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

Section 3.3 – Weekly statement with respect to payment of wages

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

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages and shall

be on form WH 348, "Statement of Compliance," or on an identical form on the back of WH 347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office.

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

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

(29 F.R. 95, Jan. 4 1964, as amended at 33 FR 10186, July 17, 1968)

Section 3.4 – Submission of weekly statements and the preservation and inspection of weekly payroll records.

(a) Each weekly statement required under SS 3.3 shall be delivered by the contractor or subcontractor within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.
(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 – Payroll deductions permissible without application to or approval of the Secretary of Labor.

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

(a) Any deduction made in compliance with the requirements of Federal, State or local law, such as Federal or State withholding income taxes and Federal social security taxes.
(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or

interest. A "bona fide prepayment of wages'. is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

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

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing *either* from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing. or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, That the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contribution toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided, however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost' of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 431 of this title. When such a deduction is made the additional records required under SS 516.27(a) of this title shall be kept.

Section 3.6 – Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under SS 3.5. The Secretary may grant permissions whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;
(b) The deduction is not otherwise prohibited by law;
(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work to be done, and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and
(d) The deduction serves the convenience and interest of the employee.

Section 3.7 – Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under SS 3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.
(b) The application shall identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions only on specific, identified contracts, except upon a showing of exceptional circumstances.
(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of SS 3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.
(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.
(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 – Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of SS 3.6; and shall notify the applicant in writing of his decision.

Section 3.9 – Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under SS 3.6 are prohibited.

Section 3.10 – Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand. or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 – Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see SS 5.5(a) of this subtitle.

SUPPLEMENTAL GENERAL CONDITIONS
Including Equal Opportunity Provisions

1. Enumeration of Plans, Specifications and Addenda
2. Stated Allowances
3. Special Hazards
4. Contractor's and Subcontractor's Public Liability, Vehicle Liability and Property Damage Insurance
5. Photographs of Project
6. Schedule of Occupational Classifications and Minimum Hourly Wage Rates
7. Builder's Risk Insurance
8. Special Equal Opportunity Provisions
9. Certification of Compliance with Air and Water Acts
10. Special Conditions Pertaining to Hazards, Safety Standards and Accident Prevention
11. Energy Efficiency
12. Access to Records
13. Wage Rate Determination(s)
14. Contract Work Hours and Safety Standards Act

1. Enumeration of Plans, Specifications and Addenda

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

DRAWINGS

General Construction: Nos._____

Heating and Ventilating: Nos._____

Plumbing: Nos._____

Electrical: Nos._____

Nos._____

Nos._____

SPECIFICATIONS:

General Construction:	Page_____ to _____, inclusive
Heating and Ventilating:	Page_____ to _____, inclusive
Plumbing:	Page_____ to _____, inclusive
Electrical:	Page_____ to _____, inclusive
	Page_____ to _____, inclusive
	Page_____ to _____, inclusive

ADDENDA:

No. _____ Date _____ No. _____ Date _____

No. _____ Date _____ No. _____ Date _____

2. Stated Allowances

Pursuant to Paragraph 36 of the General Conditions, the Contractor shall include the following cash allowances in his proposal

(a) For _____ (Page_____ of Specifications) $_____

(b) For _____ (Page_____ of Specifications) $_____

(c) For _____ (Page_____ of Specifications) $_____

(d) For _____ (Page_____ of Specifications) $_____

(e) For _____ (Page_____ of Specifications) $_____

(f) For _____ (Page_____ of Specifications) $_____

3. Special Hazards

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

4. Contractor's and Subcontractor's Public Liability, Vehicle Liability and Property Damage Insurance

As required under paragraph 28 of the General Conditions, the Contractor's Public Liability Insurance and Vehicle Insurance shall be in an amount not less

than $_____ for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than $_____ on account of one accident, and Contractor's Property Damage Insurance in an amount not less than $_____.

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

5. Photographs of Project

   As provided in paragraph 30 of General Conditions, the Contractor will furnish photographs in the number, type and stage as enumerated below:

6. Schedule of Occupational Classifications and Minimum Hourly Wage Rate as required under paragraph 52 of the General Conditions.

   Given on pages_____, _____, and

7. Builder's Risk Insurance

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

   * Strike out one.

8. Special Equal Opportunity Provisions

   A. 3-Paragraph Equal Opportunity Clause for Activities and Contracts Not subject to Executive Order 11246, as Amended (applicable to Federally assisted construction contracts and related subcontracts $10,000 and under)

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

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

      2. The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by contracting

officer setting forth the provisions of this nondiscrimination clause. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, or sex or national origin.

3. Contractors shall incorporate forgoing requirements in all subcontracts.

B. Executive Order 11246 (contracts/subcontracts above $10,000)

1. Section 202 Equal Opportunity Clause

During the performance of this Contract, the Contractor agrees the following:

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

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

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

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

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

purposes of investigation to ascertain compliance with such rules, regulations and others.

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

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

2. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246) (applicable to contract/subcontracts exceeding $10,000)

a. 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.

b. The goals and 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:

Goals for Minority Participation	Goals for Female Participation
4.5	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the Contractor performs construction work in a geographic area located outside of the covered area, it shall apply the goals established for such

geographic area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its Federally involved and non-Federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR 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 goal shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

c. 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; and the geographical area in which the contract is to be performed.

d. As used in this notice, and in the contract resulting from the solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any).

3. Standard CDBG Assisted Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) “Covered area" means the geographical area described in solicitation from which this Contract resulted.

(2) “Director” means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority.

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) “Minority” includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin).
(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race).
(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands.
(d) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

(5) Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.

(6) If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

(7) The Contractor shall implement the specific affirmative action standards provided in paragraphs 10a through p of these specifications. The goals set forth in the solicitation form which this Contract resulted are expressed as

percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors- performing contracts in geographical areas where they do not have a Federal or Federally-assisted construction contract shall apply the minority and female goals established for the geographic area where the contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting, its goals in each craft during the period specified.

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

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

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

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

environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization’s responses.

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

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

(e) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 10b above.

(f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy

manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

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

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

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

(j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to

minority and female youth both on the site and in other areas of a Contractor’s work force.

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

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

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

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

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

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

(11) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (10a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 10a through p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the

concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation shall not be a defense for the Contractor’s non-compliance.

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

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

(14) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

(15) The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Employment Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

(16) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 10 of these specifications, so as to achieve maximum results from its effor1s to ensure equal employment oppor1unity .If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

(17) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

(18) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

C. Certification of Nonsegregated Facilities (over $10,000)

By the submission of this bid, the bidder, offeror, applicant or subcontractor certifies that s/he does not maintain or provide for his/her employees any segregated facility at any of his/her establishments, and that s/he does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. S/he certifies further that s/he will not maintain or provide for employees any segregated facilities at any of his/'her establishments, and s/he will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The bidder, offeror, applicant or subcontractor agrees that a breach of this certification is a violation of the Equal Employment Opportunity Clause of this Contract. As used in this certification, the term “segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing 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. S/he further agrees that (except where he/she has obtained identical certifications. from proposed Subcontractors for specific time periods) he/she 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; that he/she will retain such certifications in his/her files; and that he/she will forward the following notice to such proposed Subcontractors (except where proposed Subcontractors have submitted identical certifications for specific time periods).

* Parking lots, drinking fountains, recreation or entertainment areas.

D. Title VI Clause, Civil Rights Act of 1964

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

E. Section 109 Clause, 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 of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

F. “Section 3” Compliance in the Provision of Training, Employment and Business Opportunities (Over $100,000)

1. The work to be performed under this Contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701 u. Section 3 requires that to the greatest extent feasible, opportunities for training and employment be given low and very low income residents of the project area (including public housing residents and persons with disabilities) and contracts for work in connection with the project be awarded to business concerns which are owned by or employee low and very low income residents of the project area.

2. The parties to this Contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this Contract. The parties to this Contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

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

4. The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the

applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the Subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The Contractor will not subcontract with any Subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the Subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

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

G. Rehabilitation Act of 1973, Section 503 Handicapped (if $10,000 or over)

Affirmative Action for Handicapped Workers

1. The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant 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.

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

3. 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.

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

5. The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other 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 physical and mentally handicapped individuals.

6. The Contractor will include the provisions of this clause in every subcontract or purchase order of $10,000 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.

H. Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended; 41 CFR Part 60-250 (if $100,000 or over)

1. The contractor will not discriminate against any employee or applicant for employment because he or she is a special disabled veteran or veteran of the Vietnam era 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 individuals without discrimination based on their status as a special disabled veteran or veteran of the Vietnam era

    i. recruitment, advertising, and job application procedures

    ii. hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;

    iii. rates of pay or any other form of compensation and changes in compensation;

    iv. job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

    v. leaves of absence, sick leave, or any other leave;

    vi. fringe benefits available by virtue of employment, whether or not administered by the contractor

    vii. selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

viii. activities sponsored by the contractor including social or recreational programs; and

ix. any other term, condition, or privilege of employment.

2. The contractor agrees to immediately list all employment openings which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the contractor other than the one wherein the contract is being performed, but excluding those of independently operated corporate affiliates, at an appropriate local employment service office of the state employment security agency wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

3. Listing of employment openings with the local employment service office pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and nonveterans. The listing of employment openings does not require the hiring of any particular job applicants or from any particular group of job applicants, and nothing herein is intended to relieve the contractor from any requirements in Executive orders or regulations regarding nondiscrimination in employment.

4. Whenever the contractor becomes contractually bound to the listing provisions in paragraphs 2 and 3 of this clause, it shall advise the state employment security agency in each state where it has establishments of the name and location of each hiring location in the state, provided that this requirement shall not apply to state and local governmental contractors. As long as the contractor is contractually bound to these provisions and has so advised the state agency, there is no need to advise the state agency of subsequent contracts. The contractor may advise the state agency when it is no longer bound by this contract clause.

5. The provisions of paragraphs 2 and 3 of this clause do not apply to the listing of employment openings which occur and are filled outside of the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

6. As used in this clause:

   i. All employment openings includes all positions except executive and top management, those positions that will be filled from within the contractor's organization, and positions lasting three days or less. This term includes full-time employment, temporary employment of

more than three days' duration, and part-time employment.

ii. Executive and top management means any employee:

a) Whose primary duty consists of the management of the enterprise in which he or she is employed or of a customarily recognized department or subdivision thereof; and

b) who customarily and regularly directs the work of two or more other employees therein; and

c) who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight; and

d) who customarily and regularly exercises discretionary powers; and

e) who does not devote more than 20 percent, or, in the case of an employee of a retail or service establishment who does not devote as much as 40 percent, of his or her hours of work in the work week to activities which are not directly and closely related to the performance of the work described in (a) through (d) of this paragraph 6. ii.; Provided, that (e) of this paragraph 6.ii. shall not apply in the case of an employee who is in sole charge of an independent establishment or a physically separated branch establishment, or who owns at least a 20-percent interest in the enterprise in which he or she is employed.

iii. Positions that will be filled from within the contractor's organization means employment openings for which no consideration will be given to persons outside the contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings which the contractor proposes to fill from regularly established ``recall'' lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of his or her own organization.

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

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

9. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be

prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, provided by or through the contracting officer. Such notices shall state the rights of applicants and employees as well as the contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans or veterans of the Vietnam era. The contractor must ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair).

10. The contractor will notify each labor organization or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the contractor is bound by the terms of the Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, and is committed to take affirmative action to employ and advance in employment qualified special disabled veterans and veterans of the Vietnam era.

11. The contractor will include the provisions of this clause in every subcontract or purchase order of $10,000 or more, unless exempted by the rules, regulations, or orders of the Secretary issued pursuant to the Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 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 Deputy Assistant Secretary for Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

I. Age Discrimination Act of 1975

During the performance of this Contract, the Contractor agrees as follows: the Contractor agrees not to exclude from participation, deny program benefits, or discriminate on the basis of age.

9. Certification of Compliance with Air and Water Acts (applicable to Federally-assisted construction contracts and related subcontracts exceeding ($100,000)

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

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

A. A stipulation by the Contractor or Subcontractors, that any facility to be utilized in the performance of any nonexempt contract or subcontract, is

not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.

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 paragraphs A through D of this section in every nonexempt subcontract and requiring that the Contractor will take such actions as the Government may direct as a means of enforcing such provisions.

10. Special Conditions Pertaining to Hazards, Safety Standards and Accident Prevention

A. Lead-Based Paint Hazards (applicable to contracts for construction or rehabilitation of residential structures)

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

B. Use of Explosives (modify as required)

When the use of explosives is necessary for the prosecution of the work, the Contractor shall observe all local, State and Federal laws in purchasing and handling of explosives. The Contractor shall take all necessary precaution to protect completed work, neighboring property, water lines or other underground structures. Where there is danger to structures or property from blasting, the charges shall be reduced and the material shall be covered with suitable timer, steel or rope mats. The Contractor shall notify all owners of public utility property of intention to use explosives at least eight hours before blasting is done close to such property. Any supervision or direction of use of explosives by the Engineer, does not in any way reduce the responsibility of the Contractor or his Surety for damages that may be caused by such use.

C. Danger Signals and Safety Devices (modify as required)

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

11. Energy Efficiency

The Contractor shall recognize mandatory standards and policies relating to energy efficiency, which are contained in the State Energy Conservation Plan issued in Compliance with the Energy Policy and Conservation Act.

12. Access to Records

The Contractor shall maintain accounts and project records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Contract and such other records as may be deemed necessary by the City to assure proper accounting for all project funds, both CDBG and non-CDBG shares. These records will be made available to the City, the Department of Local Government, Commonwealth of Kentucky Finance & Administration Cabinet, Commonwealth of Kentucky Auditor of Public Audits, Commonwealth of Kentucky Legislative Research Commission, U.S. Department of Housing and Urban Development, the U. S. Department of Labor, and the Comptroller General of the United States, or any of their duly authorized representatives. These parties shall have access to any books, documents, papers and records of the Contractor, which are directly pertinent to the project, for the purpose of making audit, examination, excerpts and transcriptions. All records shall be maintained for five years after project closeout.

13. Wage Rate Determination(s)

KY State and Davis Bacon

14. Contract Work Hours and Safety Standards Act

All grantees and subgrantee’s contracts must contain provisions requiring compliance with sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 USC 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5) where construction contracts are awarded by grantees or subgrantees in excess of $2,000, and in excess of $2,500 for other contracts involving the employment of mechanics and laborers.

SECTION 00800 - SPECIAL CONDITIONS

1. Description of the Work and Designation of the Owner
2. Available Funds
3. Time of Completion and Liquidated Damages
4. Insurance
5. Performance and Payment Bond
6. Additional Bonds and Insurance
7. Sequence of Work
8. Site Dimensions
9. Damage to Equipment Stored and/or In Place Prior to Initial Operations
10. Equipment Rental - Charges for Extra Work
11. Salvaged Materials and Equipment
12. Sanitary Facilities
13. Utilities
14. Cash Allowances
15. Nondiscrimination in Employment
16. Minimum Wage Rates
17. Property Protection
18. Rock Excavation
19. Extra Fill Material
20. Layout of the Work
21. Conflict With or Damage to Existing Utilities and Facilities
22. Personal Liability of Public Officials
23. Blasting
24. Control of Erosion
25. Occupational Safety and Health
26. Construction Warning Signs
27. Pipeline Right-of-way
28. Responsibility for Trench Settlement
29. Permission to Use Property Other Than That Provided by Owner
30. Resolving Conflicts in Contract Documents
31. Access to the Work
32. Lubrication
33. Labor Regulations
34. Pre construction Conference
35. Record Drawings

1. Description of the Work and Designation of the Owner

These specifications and accompanying plans describe the work to be done and the materials to be furnished for the construction of KOWA KENTUCKY Sewer and Water Extensions, for the City of Corbin, KY.

All references to the Owner in these specifications, Contract Documents and plans shall mean the City of Corbin, KY.

2. Available Funds

The attention of all bidders is directed to the fact that the funds will be made available for the award of the contract from the Community Development Block Grant Program (CDBG) in the Department of Local Government.

3. Time of Completion and Liquidated Damages

The water line extension portion of this contract is to be completed by May 15, 2015. Failure to complete the water extension by this date shall subject the contractor to the same penalties as described here for the total contract. The time allowed for completion of the sewer portion and the total contract is ninety (90) calendar days. The time allowed for completion shall begin at midnight, local time, on the date which the Owner shall instruct the Contractor, in writing, to start work.

The Contract completion time stipulated above includes an allowance for an average number of inclement weather days as follows:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Precip.	7	7	9	8	8	8	8	7	6	5	6	7
Freeze	10	6	1								1	5

When number of days (including Saturdays, Sundays and Holidays) of precipitation in excess of 0.1" per day or maximum daily temperatures of 32 degrees F exceed those shown above in any month, the Contractor shall be entitled to an equal number of additional days for Contract Completion.

It is understood that time is the essence of this contract and that the Owner will sustain damages, monetary and otherwise, in the event of delay in completion of the work hereby contracted.

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

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

Liquidated damages are fixed at $1,000 per day for each calendar day of overrun beyond the date set for completion or authorized extension thereof for the contract.

4. Insurance

Insurance is to be furnished by the Contractor for the benefit of the Owner, Contractor and subcontractors as their interests may appear. The minimum amounts of insurance coverage to be furnished under these contracts, in accordance with the applicable provisions of the General Conditions are:

(a) Workmen's Compensation ---------- Statutory

(b) Comprehensive General Liability - Including coverage for the explosion, collapse, and underground hazards where applicable; also including contractual liability and also products and/or completed operations liability coverage (no deductible clauses are acceptable for these coverages):

Bodily Injury Liability	$1,000,000 Each Person $3,000,000 Each Occurrence $500,000 Aggregate Products
Property Damage Liability	$1,000,000 Each Occurrence $2,000,000 General Aggregate $1,000,000 Aggregate Products $1,000,000 Aggregate Contractual $3,000,000 Excess/Umbrella Property Insurance

(c) Comprehensive Automobile Liability - Including hired car and employers' nonownership liability coverage:

Bodily Injury Liability	$1,000,000 Each Person $3,000,000 Each Occurrence $3,000,000 Excess/Umbrella Property Insurance
Property Damage Liability	$1,000,000 Each Occurrence

(d) Builder's Risk (Building Construction) - Including coverage for fire, extended coverages, vandalism, and malicious mischief; 100% of insurable values.

(e) Installation Floater (Non-Building Construction): 100% of insurable values.

(f) Flood Hazard Insurance - In accordance with General Conditions.

All policies shall provide for a minimum of fifteen (15) days written cancellation notice with notice to be given both to the Owner and the Engineer. The Owner and Engineer shall be included as additional insured parties.

5. Performance and Payment Bond

The Contractor shall furnish separate performance and payment bonds issued by an approved bonding company (in accordance with the General Conditions) in an amount at least equal to one hundred (100%) percent of the contract price, as security for the faithful performance of this contract and for the payment of persons performing labor and furnishing materials in connection with this contract. These bonds shall be executed by a company authorized to do business in the State of Kentucky and shall be signed or countersigned by a Kentucky resident agent. Bonds shall remain in effect for one year after date of final acceptance of the work.

6. Additional Bonds and Insurance

Prior to delivery of the executed Agreement by the Owner to the Contractor, the Owner may require the Contractor to furnish such other Bonds and such additional insurance, in such forms and with such sureties or insurers as the Owner may require. If such other Bonds or such other insurance are specified

by written instructions given prior to opening of the bids, the premium shall be paid by the Contractor; if subsequent thereto, they shall be paid by the Owner (except as otherwise provided for bonding of substitute materials or equipment).

7. Sequence of Work

Contractor shall apply forces as necessary to complete the project within the allowed time. The water line part of the contract shall be executed first so that KOWA may begin testing its plant equipment. The Owner expects the contractor to place an order for the pump station immediately upon contract award.

8. Site Dimensions

All Contractors furnishing materials and equipment for this contract shall obtain exact dimensions at the site. Scale or figure dimensions on the drawings and details show the correct size under ideal conditions and shall not, under any circumstances, be so construed as to relieve the Contractor from responsibility for taking measurements at the site and furnishing materials or equipment of the correct size.

9. Damage to Equipment Stored and/or In Place Prior to Initial Operations

Any equipment damaged or which has been subjected to possible damage by reason of inundation, improper storage and/or protection during the construction period of a project, shall be replaced with new equipment, or with the approval of the Engineer, be returned to the manufacturer of the equipment, or his authorized repair agency, for inspection and repair; provided, however, that such repair after inspection will place the equipment in new condition and restore the manufacturer's guarantee the same as for new equipment.

10. Equipment Rental - Charges for Extra Work

Equipment rental charges by the Contractor for rented equipment units used on "Extra Work" or "Changes in Work" as may be ordered and authorized by the Owner shall not exceed those charges listed in the latest edition of the "Green Book," compiled and distributed by Associated Equipment Distributors, 615 West 22nd Street, Oak Brook, Illinois 60523.

11. Salvaged Materials and Equipment

All materials and/or equipment to be removed from existing structures and not specifically specified to be reused shall remain the property of the Owner. Such materials and/or equipment shall be stored on site by the Contractor as directed by the Owner.

12. Sanitary Facilities

Each Contractor shall construct and maintain, in a sanitary condition, sanitary facilities for his employees and also employees of his subcontractors. At completion of the contract work, these sanitary facilities shall be properly disposed of.

13. Utilities

The obtaining of all utilities for construction, including power and water, shall be the responsibility of the Contractor and he shall bear the cost of all utilities used for construction. Cost of all connections and facilities for use of utilities shall be borne by the Contractor.

14. Cash Allowances

No cash allowances are included in this project. However, the Contractor is required to make labor and material allowances for unforeseen repairs, to the existing improvements as described in these specifications.

15. Nondiscrimination in Employment

During the performance of this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color or national origin.

16. Minimum Wage Rates

If available, the prevailing minimum wage rates are contained in these specifications. However, applicable wage rates may be provided at any time before bids are received. In that event the wage rates will be provided by addendum to these specifications.

The Contractor will be required to pay not less than the higher of the State or Federal minimum wage rate for each job classification as and if set forth in these specification or in an addendum to the specifications. The stipulated wage rates represent prevailing minimum rates of pay allowable as determined by the appropriate governing agency and shall not be construed to mean that the Contractor may not have to pay higher rates to secure labor. No contract adjustment is permissible should this condition become applicable.

17. Property Protection

Care is to be exercised by the Contractor in all phases of construction to prevent damage and injury to the Owner's or other property.
In connection with work performed on "private property" (property other than that belonging to the Owner), the Contractor shall confine his equipment and stored materials to lands and rights-of-way provided for the project by the Owner and shall take every precaution to avoid damage to the private property owner's buildings, grounds and facilities.

Fences, hedges, shrubs, etc., within the construction limits shall be carefully removed, preserved and replaced when the back filling has been completed. If sod is damaged or not handled properly, it shall be replaced with new sod equal to existing sod at the Contractor's expense. Grassed areas, other than lawns, shall be graded, fertilized and seeded when construction is completed. When construction is completed the private property owner's facilities and grounds shall be restored to as good or better condition than found as quickly as possible at the Contractor's expense.

When directed by the Engineer, large trees or other facilities that cannot be replaced or preserved shall be removed by the Contractor. The Owner will assume responsibility for settling with the property owner for such loss. The Contractor shall be solely and entirely responsible for any damage to all other trees or facilities.

The Contractor, in the use of easements and rights-of-way, will comply with any and all agreements between the Owner and the property owner.

Carelessness on the part of the Contractor or his employees in leaving gates open, parking cars, trucks or vehicles in such a way as to interfere with farming operations will not be tolerated. Contractor shall use existing roads to transport pipe, materials and workmen to and from the job.

Foundations, adjacent to where an excavation is to be made below the bottom of the foundation, shall be supported by shoring, bracing and underpinning as long as the excavation shall remain open and the Contractor shall be held strictly responsible for any damage to said foundation.

Highway rights-of-way, railroad rights-of-way, public parks, school yards and other such properties shall be considered "private properties" for the purpose of this section.

18. Rock Excavation

It is specifically noted that separate payment for solid rock excavation will not be made under this contract, all excavation being considered "unclassified."

19. Extra Fill Material

Extra fill material required to complete the finished grading to the line and grade shown on the plans shall be obtained by the Contractor at no extra cost to the Owner above that included in the unit price bid.

20. Layout of the Work

The layout of the work shall be the responsibility of the Contractor and shall be subject to checking by the Engineer. All instruments, stakes, batter boards, barricades, traffic signs, flags and other materials necessary and personnel needed for establishing and marking lines, grades and structure location during construction, shall be furnished and paid for by the Contractor. The Contractor's personnel engaged in the layout work described herein and any aides used shall be fully capable of performing the duties set out herein.

21. Conflict With or Damage to Existing Utilities and Facilities

Insofar as location data is available to the Engineers, existing underground utilities (such as water lines, sewer lines, gas lines, telephone conduits, etc.) are accurately located on the drawings. Due, however, to the approximate nature of much of this data, the location of any particular facility can not be certified to be correct. In general, locations and elevations shown are approximate only.

Repair to existing utilities and facilities damaged by the Contractor's construction forces shall be considered as a part of the Contract covered only by the price bid for the new construction. The only exceptions to this provision, wherein extra compensation will be authorized, are relocation of an existing facility due to direct conflict with the new pipeline, and relocation (outside of limits of maximum allowable trench widths) of an existing facility presently located within the bounds of maximum allowable trench width, where necessitated for assurance against future damage due to settlement or to permit reasonable access to the new work.

Before proceeding with the work, the Contractor shall confer with all public or private companies, agencies, or departments that own and operate utilities in the vicinity of the construction work to verify the location of and possible interference with, the existing utilities that are shown on the Plans, arrange for necessary suspension of service and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the Plans.

Where the existing utilities must be disturbed during construction under this contract, their operation and function shall be maintained by the Contractor to such a degree that service to customers will be interrupted for minimum time periods only. Such disturbances and any maintenance use of these lines shall constitute no cost to the Owner. The Owner shall be notified of interruptions in sufficient time to prepare for them and shall agree to the hour, date and duration of them before they are undertaken.

Should shutdowns in service be in excess of the time of duration agreed upon and such excessive shutdown time be due to the Contractor's negligence, faulty work and/or inability to perform, then and in that event, the Contractor shall be held liable to the Owner, by reason of such excessive shutdown periods.

When existing utilities or appurtenant structures, either underground or above ground, are encountered, they shall not be displaced or disturbed unless necessary and in such case shall be replaced in as good or better condition that found, as quickly as possible. Temporary relocation and replacement of all utilities and appurtenant structures to accommodate the construction work shall be at the Contractor's expense and permanent relocation of such facilities as described herein to accommodate the construction work

shall be at the Owner's expense, unless such temporary or permanent relocation and replacement is by statute or agreement the responsibility of the Owner. It is expected that the Contractor will be diligent in his efforts and use every possible means to locate existing utilities.

Payment for necessary disconnection and reconnection of utility services shall be included as a part of the Contractor's bid and no extra compensation will be made for same.

The Contractor shall at all times maintain on hand an adequate supply of repair materials and tools with which to make repair to damaged water, gas and sewer lines. Should the Contractor inadvertently damage existing utilities, he shall make immediate repair thereto and in no event shall he leave the site before such repair has been made and proven to be successful. Repair to damaged utilities must meet the requirements of the agency in charge of that particular utility.

The intent of this article is to assure compensation to the Contractor for changes in existing utilities reasonably necessary and at the same time, to protect the Owner against excessive damage due to carelessness of the Contractor's construction force.

22. Personal Liability of Public Officials

In carrying out any of the provisions of the Contract or in exercising any power or authority granted to them thereby, there shall be no personal liability upon the Engineer, or its authorized agents or employees, or upon any other officer or employee of the Owner, it being understood that in such matters they act as the agent and representative of that Owner.

23. Blasting

All blasting operations shall be conducted in strict accordance with Kentucky Revised Statutes 351.320 to 351.340 and the rules and regulations promulgated under KRS 351.320 to 351.340, effective October 6, l972, which shall be deemed to be included in these Specifications the same as though herein written out in full. The Contractor shall also comply with applicable municipal ordinances, Federal safety regulations and Section 9 of the Manual of Accident Prevention in Construction published by the Associated General Contractor's of America, Inc. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. No blasting shall be done within five feet of any water mains, except with light charges of explosives. Any damage done by blasting is the responsibility of the Contractor and shall be promptly and satisfactorily repaired by him.

To implement these requirements and unless otherwise required by ordinance or law, each excavation crew shall be provided with two metal boxes equipped with suitable locks. One of these boxes shall be for storing explosives and one for caps. The boxes shall always be locked except when in actual use. They shall be painted a bright color and stenciled with appropriate warning signs. At night explosives and caps shall be stored in separate magazines.

All shots shall be covered with heavy timber, steel or rope blasting mats to prevent flying material. Unless otherwise specified or directed, delay caps shall be used to reduce earth vibration and noise. In sparsely populated areas, the Engineer may permit the Contractor to use regular type caps.

The Contractor shall keep a blasting log and, for each blast, shall record the date, time of blast, number of holes, type of explosive, number of delays, amount of charge per delay, stemming and number and type of caps. An inventory of all explosives handled and stored shall also be kept. Blasting operations shall be covered by comprehensive general liability insurance or separate public liability insurance to cover blasting as set forth in the General Conditions.

24. Control of Erosion

The Contractor shall be responsible for control of siltation and erosion from the project work. Control shall include all necessary ditching, check dams, mulching, etc. to prevent deposition of materials in roadside ditches. The Owner shall incur no extra costs from such work.

25. Occupational Safety and Health

It shall be the Contractor's responsibility to be informed of and comply with all Kentucky Department of Labor, Division of Occupational Safety and Health requirements for this type of construction. He shall also comply with all reporting requirements of the Occupational Safety and Health Law. The Contractor shall provide adequate protection against accidents due to special hazards caused by blasting, deep trenches, excavations, heavy equipment or vehicle operation, electrical work, work in dangerous atmospheres, work above the ground, traffic control, work with augering and drilling equipment and any other construction work which he might undertake as a part of this project.

The Contractor shall provide safety controls for protection of the life and health of employees. He will utilize precautionary methods for the prevention of damage to property, materials, supplies and equipment and for avoidance of work interruptions in the performance of this contract. In order to provide such safety controls aforesaid, the Contractor shall comply with all pertinent provisions of the Kentucky Safety Standards of the Division of Occupational Safety, Department of Labor, that are in effect at the time this contract is entered into and during the period in which the contract is to be performed. The Contractor shall also take or cause to be taken such additional measures as the Division of Occupational Safety may determine to be reasonably necessary for the purpose.

The Contractor shall maintain an accurate record of, and shall report to the Division of Occupational Safety in the manner and on the forms prescribed by the Division; exposure date and all accidents resulting in death, traumatic injury, occupational disease and/or damage to property, materials, supplies and equipment incident to work performed under this contract.

The Division of Occupational Safety will notify the Contractor through the Owner of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately correct conditions. Such notice when delivered to the Contractor or his representative at the site of the work, shall be deemed sufficient for the purpose.

If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory or corrective action has been taken. Failure or refusal to comply with the order will be grounds for stopping all payments due under the contract to the Contractor. No part of the time lost due to any such stop order shall be made the subject of claim or extension of time or for excess cost or damages to the Contractor.

Compliance with the provisions of the foregoing sections by subcontractors will be the responsibility of the prime Contractor.

The Contractor shall provide necessary first aid facilities and employees trained to provide first aid as required by the Occupational Safety and Health Law. In addition to the reporting requirements of other agencies, the Contractor must report promptly in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which caused death, personal injury, or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, such shall be reported to both the Engineer and the Owner.

26. Construction Warning Signs

The Contractor shall provide construction warning signs for each location where he is working in the highway right-of-way. Safety rules, including size, type and placement of construction signs, shall be equal to those required by the Kentucky Department of Highways.

27. Pipeline Right-of-way

The Owner will attempt to obtain all pipeline right-of-way before construction is begun. However, the Contractor must be prepared to work in right-of-way which have been acquired and shall not be entitled to a time extension due to delay over lack of particular right-of-way unless he has been provided no other place to work.

28. Responsibility for Trench Settlement

Where the pipelines installed under this contract are located within existing or proposed street right-of-way the Contractor shall be responsible for any settlement of the street surfacing, curbs, or sidewalks caused by the pipeline construction, that occurs within one year after the final acceptance of this contract. Repair of any damage caused by settlement shall meet the approval of the Owner.

29. Permission to Use Property Other Than That Provided by Owner

Should the Contractor desire or elect to use, pass over and/or encroach on private property title or right-of-way for a specific purpose, he shall obtain such rights and permission at his own expense and risk.

30. Resolving Conflicts in Contract Documents

Anything called for in the specifications and not shown on the drawings or shown on the drawings and not called for in the specifications shall be included in the Contractor's work, the same as if included in both. Where the details and general drawings do not agree, the Contractor shall notify the Engineer at least five (5) days before the date of the receipt of bids and the Engineer will have the Owner issue an addendum to all Contractors as to which of the two methods of construction shall be followed. Failure to make this determination shall make the Contractor subject to furnishing either method as may be later called for by the Engineer. In case of discrepancies between the various parts of the plans and the specifications, the detailed drawings shall take precedence over the general layouts or elevations and the written specifications shall take precedence over all other documents.

Figure dimensions on the drawings shall govern over scale dimensions. Work, materials or equipment described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards.

In resolving conflicts, errors and discrepancies in the Contract Documents, the documents shall be given precedence in the following order: Agreement, Modifications, Addenda, Funding Agency Specifications or Contract Documents, Special Conditions, Special Provisions, Supplementary General Conditions, Information for Bidders, General Conditions, Technical Specifications and Drawings.

31. Access to the Work

The Engineer and the Owner shall have access to the work wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection.

32. Lubrication

The Contractor shall make suitable provision for the proper lubrication of all equipment furnished under this Contract. Accessible grease fittings shall be provided where required. A supply of oil, grease and other lubricants of proper quality, as recommended by the manufacturer of the equipment, shall be furnished. Lubricants shall be furnished in their original, unopened containers, in sufficient quantity for initial fillings and for at least one (1) year of operation.

33. Labor Regulations

All public works projects bid and constructed in the State of Kentucky are subject to the provisions of Chapter 337 of the Kentucky Revised Statutes entitled Wages and Hours. In addition, if the project to which these specifications apply is funded in whole or in part by a Federal grant program whereby the U.S. Department of Labor is required to prescribe predetermined prevailing minimum wages, compliance with the applicable Federal labor regulations is also required.

All Contractors and subcontractors on the work will be required to comply with all applicable provisions of State and Federal regulations as outlined in the Supplemental General Conditions.

34. Pre construction Conference

A pre construction conference shall be held prior to issuance of notice to proceed. The Contractor shall be represented by at least one (1) principal of the firm and the job superintendent. The Contractor shall at that time present the construction schedule, progress payment format and estimates, any available subcontractor approval requirements, required insurance and any other documents deemed necessary.

35. Record Drawings

The Contractor shall keep an accurate record of the location, size and material for all piping and changes in dimensions, and any other variations between the work actually provided and that shown on the Contract Drawings. The representation of such variations shall conform to standard drafting practice and shall include such supplementary notes, legends and details as may be necessary for legibility and clear portrayal of the construction. This requirement shall not be deleted regardless of the record keeping practices of the Engineer or the Owner.

End of Section

Temporary Black & White Construction Sign for projects funded by the Department for Local Government (DLG)

Steven L. Beshear
Governor

Tony Wilder
Commissioner

Office of the Governor
Department for Local Government

KOWA Kentucky Utilities Project
Centered, Black Letters

Project Sponsor: City of Corbin

Sponsor Address: 805 S. Main St., Corbin, KY 40701

Architect or Engineer: MSE of Kentucky, Inc.

Contractor:

Kentucky UNBRIDLED SPIRIT™

This project is funded by a Community Development Block Grant administered by the Department for Local Government and financed by the U.S. Department of Housing and Urban Development.

Equal Opportunity Employer

Sign Dimensions: 1200mm x 2400mm x 19 mm (app. 4' x 8' x ¾") Plywood Panel (APA Rated A-B grade – Exterior)

State and Federal Wage Rates

ADDENDUM

A copy of the wage decision(s) should be posted at the job site at all times.

If both State and Federal wage decisions apply, the highest of the wage rates shall apply to each individual classification, as per KRS 337-010 sub section 4.

Wage rates apply to all onsite workers and mechanics, including subcontractors. If both State and Federal wage decisions apply to the project, the more stringent of the federal or state requirements is applicable. Contractors must pay overtime (time-and-a-half) for all work in excess of 40 hours per week, per Federal regulations, if State wage rates are not applicable. If State Wage Rates are also applicable, contractors must pay overtime for all work in excess of 8 hours per day, OR in excess of 10 hours per day provided the employer and employee agree to 4-10-hour days in writing, regardless of how many hours worked per week. Each contractor & subcontractor must pay the fringe benefits specified in the wage decision or cash in lieu of benefits. If fringe benefits go into a pension plan, 401 (k) plan, health insurance, life insurance, etc, copies of the plans/ policies should be submitted to CEDA to ensure it meets DOL requirements.

The successful bidder must request any additional wage classification not listed on both the State and Federal wage decision. Please note that under Department of Labor's regulations, "Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii))." Therefore, it is the successful bidders' responsibility to evaluate the actual and potential wage rates when preparing their bid. Neither the Owner nor any of its Agents shall be held accountable for any exclusion of specific wage rates in State or Federal wage decisions.

Steven L. Beshear
Governor

KENTUCKY LABOR CABINET
DEPARTMENT OF WORKPLACE STANDARDS
DIVISION OF EMPLOYMENT STANDARDS,
APPRENTICESHIP & MEDIATION
1047 US Hwy 127 S - Suite 4
Frankfort, Kentucky 40601
Phone: (502) 564-3534
Fax (502) 696-1897
www.labor.ky.gov

Larry Roberts
Secretary

Anthony Russell
Commissioner

March 24, 2015

Scott Taylor
MSE of Kentucky Inc
624 Wellington Way
Lexington KY 40503

Re: City of Corbin, KOWA Utilities

Advertising Date as Shown on Notification: March 24, 2015

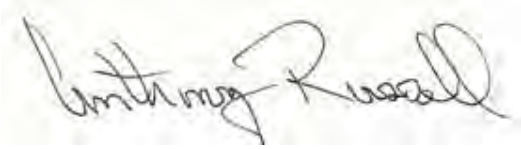
Dear Scott Taylor:

This office is in receipt of your written notification on the above project as required by KRS 337.510 (1).

I am enclosing a copy of the current prevailing wage determination number CR 8-025, dated July 30, 2014 for KNOX County. This schedule of wages shall be attached to and made a part of the specifications for the work, printed on the bidding blanks, and made a part of the contract for the construction of the public works between the public authority and the successful bidder or bidders.

The determination number assigned to this project is based upon the advertising date contained in your notification. There may be modifications to this wage determination prior to the advertising date indicated. In addition, if the contract is not awarded within 90 days of this advertising date or if the advertising date is modified, a different set of prevailing rates of wages may be applicable. It will be the responsibility of the public authority to contact this office and verify the correct schedule of the prevailing rates of wages for use on the project. Your project number is as follows: 061-H-00176-14-8, Heavy/Highway

Sincerely,



Anthony Russell
Commissioner

KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
LOCALITY NO. 025

Determination No. CR-8-025

Date of Determination: July 30, 2014

Project No. 061-H-00176-14-8

Type: __ Bldg _x__ HH

This schedule of the prevailing rate of wages for Locality No. 025, which includes Clay, Knox, Lee, Owsley, Whitley and Wolfe Counties, has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR-8-025.

Apprentices shall be permitted to work as such subject to Administrative Regulations adopted by Department of Workplace Standards. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one workday, but not more than ten (10) hours worked in any one workday, if such written agreement is prior to the over eight (8) hours in a workday actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

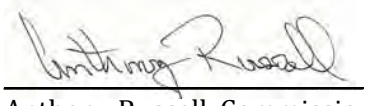
No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

NOTE: The type of construction shall be determined by applying the following definitions.

BUILDING CONSTRUCTION
Building construction is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade level, as well as incidental grading, utilities and paving.

HIGHWAY CONSTRUCTION
Highway construction includes the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction. It includes all incidental construction in conjunction with the highway construction project.

HEAVY CONSTRUCTION
Heavy projects are those projects that are not properly classified as either "building" or "highway". For example, dredging projects, water and sewer line projects, dams, flood control projects, sewage treatment plants and facilities, and water treatment plants and facilities are considered heavy.



Anthony Russell, Commissioner
Department of Workplace Standards

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	
ASBESTOS/INSULATION WORKERS:		BASE RATE	$12.00
BOILERMAKERS:		BASE RATE	$24.65
		FRINGE BENEFITS	12.94
BRICKLAYERS:			
Bricklayers:	BUILDING	BASE RATE	$23.08
		FRINGE BENEFITS	10.28
Firebrick & Refractory	BUILDING	BASE RATE	$24.29
		FRINGE BENEFITS	10.32
Sawmen, power tools, swing/scaffold:	BUILDING	BASE RATE	$23.40
		FRINGE BENEFITS	8.44
Carbon or acid brick:	BUILDING	BASE RATE	$24.69
		FRINGE BENEFITS	8.44
Hot pay, gunnite:	BUILDING	BASE RATE	$25.40
		FRINGE BENEFITS	8.44
BRICKLAYERS:			
Bricklayers:	HEAVY & HIGHWAY	BASE RATE	$20.35
		FRINGE BENEFITS	7.80
Stonemason:	HEAVY & HIGHWAY	BASE RATE	$18.95
		FRINGE BENEFITS	7.80
CARPENTERS:			
Carpenters:	BUILDING	BASE RATE	$21.23
		FRINGE BENEFITS	12.40
Piledrivermen:	BUILDING	BASE RATE	21.73
		FRINGE BENEFITS	12.40
Carpenters:	HEAVY & HIGHWAY	BASE RATE	$26.40
		FRINGE BENEFITS	13.95
Piledrivermen:	HEAVY & HIGHWAY	BASE RATE	$26.65
		FRINGE BENEFITS	13.95
Diver:	HEAVY & HIGHWAY	BASE RATE	$39.98
		FRINGE BENEFITS	13.95

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	
CEMENT MASONS:	BUILDING	BASE RATE	$20.00
CEMENT MASONS/ FINISHERS:			
	HEAVY & HIGHWAY	BASE RATE	$18.70
		FRINGE BENEFITS	7.80
ELECTRICIANS:		BASE RATE	$29.27
		FRINGE BENEFITS	13.08
LINEMAN	HEAVY HIGHWAY	BASE RATE	$32.98
		FRINGE BENEFITS	11.60
EQUIPMENT OPERATOR	HEAVY HIGHWAY	BASE RATE	$29.48
		FRINGE BENEFITS	10.90
GROUNDSMEN	HEAVY HIGHWAY	BASE RATE	$19.53
		FRINGE BENEFITS	8.91
ELEVATOR CONSTRUCTORS:		BASE RATE	$19.00
		FRINGE BENEFITS	5.48
GLAZIERS:		BASE RATE	$15.38
		FRINGE BENEFITS	.47
IRONWORKERS:	BUILDING	BASE RATE	$22.13
		FRINGE BENEFITS	7.80
	HEAVY & HIGHWAY	BASE RATE	$27.12
		FRINGE BENEFITS	17.19
LABORERS:	BUILDING	BASE RATE	$12.25
		FRINGE BENEFITS	.85
LABORERS HEAVY & HIGHWAY:			
General laborer, flagman, and steam jenny:			
	HEAVY & HIGHWAY	BASE RATE	$17.65
		FRINGE BENEFITS	8.05
Batch truck dumper, deck hand or scow man, hand blade operator:			
	HEAVY & HIGHWAY	BASE RATE	$17.90
		FRINGE BENEFITS	8.05

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	
LABORERS (CONTINUED) HEAVY & HIGHWAY:			
Power driven tool operator of following: wagon drill, chain saw, sand blaster, concrete chipper, pavement breaker, vibrator, power wheel barrow, power buggy, sewer pipe layer, bottom men, dry cement handler, concrete rubber and mason tender:			
	HEAVY & HIGHWAY	BASE RATE	$18.00
		FRINGE BENEFITS	8.05
Asphalt lute & rakerman, side rail setter:			
	HEAVY & HIGHWAY	BASE RATE	$18.05
		FRINGE BENEFITS	8.05
Gunnite nozzle man, Gunite operator:			
	HEAVY & HIGHWAY	BASE RATE	$18.15
		FRINGE BENEFITS	8.05
Tunnel laborer (Free Air):	HEAVY & HIGHWAY	BASE RATE	$18.20
		FRINGE BENEFITS	8.05
Tunnel mucker (Free Air):	HEAVY & HIGHWAY	BASE RATE	$18.25
		FRINGE BENEFITS	8.05
Tunnel miner, blaster & driller (Free Air):			
	HEAVY & HIGHWAY	BASE RATE	$18.60
		FRINGE BENEFITS	8.05
Caisson worker:	HEAVY & HIGHWAY	BASE RATE	$19.15
		FRINGE BENEFITS	8.05
Powderman:	HEAVY & HIGHWAY	BASE RATE	$19.25
		FRINGE BENEFITS	8.05
Drill operator of percussion type drills which are both powered & propelled by an independent air supply:			
	HEAVY & HIGHWAY	BASE RATE	$20.45
		FRINGE BENEFITS	8.05

MARBLE, TILE & TERRAZZO

SETTER:		BASE RATE	$22.64
		FRINGE BENEFITS	6.10
FINISHER:		BASE RATE	$15.42
		FRINGE BENEFITS	5.42

CLASSIFICATIONS		RATE AND FRINGE BENEFITS
MILLWRIGHTS:	BASE RATE	$19.39
	FRINGE BENEFITS	10.39

OPERATING ENGINEERS: BUILDING

Group A-1:
Operating Engineers possessing 3rd party certification NCCCO (National Commission for the Certification of Crane Operators) or OECP (Operating Engineers Certification Program) shall be paid the minimum wage rate per hour on the following equipment: cableway, carry deck crane, cherry picker, clamshell, crane, derrick, derrick boat, dragline, hoist engine (2 or more drums), hydraulic boom truck, hydrocrane, orangepeel bucket, overhead crane, piledriver, rough terrain crane, tower cranes (French, German and other types), truck crane:

BUILDING	*BASE RATE	$30.29
	FRINGE BENEFITS	13.52

Group A:
Articulating Dump, auto patrol, batcher plant, bituminous paver, cableway, central compressor plant, clamshell, concrete mixer (21 cf or over), concrete pump, crane, crusher plant, derrick, derrick boat, directional boring machine, ditching and trenching machine, all types of loaders, forklift (regardless of lift height), GPS systems (on equipment within the classification), hoe-type machine, hoist (1-drum when used for stack or chimney construction or repair), hoistng engineer (2 or more drums), laser or remote controlled equipment (whtin the classification), locomotive, motor scrapper, carry-all scoop, bulldozer, heavy duty welder, mechanic, orangepeel bucket, piledriver, power blade, motor grader, roller (bituminous), scarifier, shovel, tractor shovel, truck crane, winch truck, push dozer, highlift, all types of boom cats, core drill, hopto, tow or push boat, a-frame winch truck, concrete paver, gradeall, hoist, hyster, pumpcrete, ross carrier, boom, tail boom, rotary drill, hydro hammer, muchking machine, rock spreader attached to equipment, scoopmobile, KeCal loader, tower cranes (French, German and other types, h6drocrane, backfiller, gurries, subgrader, tunnel mining machines including moles, shields, or similar types of tunnel mining equipment:

BUILDING	*BASE RATE	$29.47
	FRINGE BENEFITS	13.52

*Crane operators with CCO certification shall receive fifty cents (.50) above wage rate.
Operators on cranes with boom one-hundred fifty feet (150') and over including jib, shall receive seventy-five (.75) above wage rate. All cranes with piling leads will receive fifty cents (.50) above wage rate regardless of boom length. Combination rate shall mean fifty cents (.50) per hour above the basic hourly rate of pay.

Group B:
All air compressors over 900 cfm, bituminous mixer, joint sealing machine, concrete mixer under 21 cu ft, form grader, roller (rock), tractor (50 HP and over), bull float, finish machine, outboard motor boat, flexplane, firemen, boom type tamping machine, greaser on grease facilities servicing heavy equipment, switchman or brakeman, mechanic helper, whirley oiler, self-propelled compactor, tractair and road widening trencher and farm tractor with attachments (except backhoe, highlift and endloader), elevator (regardless of ownership when used for hoisting any building material), hoisting engineer (1-drum or buck hoist), Firebrick masonry excluded), well points, grout pump, throttle-valve man, tugger, electric vibrator compactor, and caisson drill helper:

	BUILDING	BASE RATE	$25.11
		FRINGE BENEFITS	13.52

CR-8-025
July 30, 2014

CLASSIFICATIONS	RATE AND FRINGE BENEFITS

OPERATING ENGINEERS: BUILDING (CONTINUED):

Group C:
Bituminous distributor, cement gun, coveyor, mud jack, paving joint machine, roller (earth), tamping machine, tractors under 50 HP, vibrator oiler, concrete saw, burlap and curing machine, truck crane oiler, hydro-seeder, power form handling equipment, deckhand steersman, hydraulic post driver, and drill helper:

	BUILDING	BASE RATE	$23.84
		FRINGE BENEFITS	13.52

OPERATING ENGINEERS HEAVY & HIGHWAY:

Group A-1:
Operating Engineers possessing 3rd party certification NCCCO (National Commission for the Certification of Crane Operators), OECP (Operating Engineers Certification Program) or US Coast Guard approved boat pilot license shall be paid the minimum wage rate per hour on the following equipment: cableway, carry deck crane, cherry picker, clamshell, crane, derrick, derrick boat, dragline, hoist engine (2 or more drums), hydraulic boom truck, hydrocrane, Licensed Boat Pilot, orangepeel bucket, overhead crane, piledriver, rough terrain crane, tower cranes (French, German and other types), truck crane:

	HEAVY HIGHWAY	*BASE RATE	$29.95
		FRINGE BENEFITS	14.15

Group A:
Auto patrol, batcher plant, bituminous paver, cableway, central compressor plant, clamshell, concrete mixer (21 cfm or over), concrete pump, crane, crusher plant, derrick, derrick boat, ditching and trenching machine, dragline, dredge operator, dredge engineer, elevating grader and all types of loaders, hoe type machine, hoist (1 drum when used for stack or chimney construction or repair), hoisting engine (2 or more drums), locomotive, motor scraper, carry-all scoop, bulldozer, heavy duty welder, mechanic, orangepeel bucket, piledriver, power blade, motor grader, roller (bituminous), scarifier, shovel, tractor shovel, truck crane, winch truck, push dozer, highlift, forklift (regardless of lift height and except when used for masonry construction), all types of boom cats, core drill, hopto, tow or push boat, A-Frame winch truck, concrete paver, gradeall, hoist, hyster, pumpcrete, Ross carrier, boom, tail boom, rotary drill, hydro hammer, mucking machine, rock spreader attached to equipment, scoopmobile, KeCal loader, tower cranes (French, German and other types), hydrocrane, backfiller, gurries, sub-grader, tunnel mining machines including moles, shields, or similar types of tunnel mining equipment:

	HEAVY HIGHWAY	BASE RATE	$28.85
		FRINGE BENEFITS	14.15

Group B:
All air compressors (over 900 cfm), bituminous mixer, joint sealing machine, concrete mixer (under 21 cu. ft.), form grader, roller (rock), tractor (50 hp and over), bull float, finish machine, outboard motor boat, flexplane, fireman, boom type tamping machine, truck crane oiler, greaser on grease facilities servicing heavy equipment, switchman or brakeman, mechanic helper, whirley oiler, self-propelled compactor, tractair and road widening trencher and farm tractor with attachments (except backhoe, highlift and endloader), elevator (regardless of ownership when used for hoisting any building materials), hoisting engine (1 drum or buck hoist), forklift (when used for masonry construction, Firebrick masonry excluded), well points, grout pump, throttle-valve man, tugger,

electric vibrator compactor:

	HEAVY HIGHWAY	BASE RATE	$26.24
		FRINGE BENEFITS	14.15

CR-8-025
July 30, 2014

CLASSIFICATIONS RATE AND FRINGE BENEFITS

OPERATING ENGINEERS: HEAVY & HIGHWAY: (Continued)

Group B-2:
Greaser on grease facilities servicing heavy equipment:

	HEAVY HIGHWAY	BASE RATE	$26.65
		FRINGE BENEFITS	14.15

Group C:
Bituminous distributor, cement gun, conveyor, mud jack, paving joint machine, pump, tamping machine, tractors (under 50 hp), vibrator, oiler, air compressor (under 200 cu. ft. per min. capacity), concrete saw, burlap and curing machine, hydro-seeder, power form handling equipment, deckhand oiler, hydraulic post driver:

	HEAVY HIGHWAY	BASE RATE	$25.95
		FRINGE BENEFITS	14.15

PAINTERS:

Painters:	BUILDING	BASE RATE	$12.50
		FRINGE BENEFITS	.91
Excluding bridges:	HEAVY & HIGHWAY	BASE RATE	$19.92
		FRINGE BENEFITS	9.57
Bridges only:	HEAVY & HIGHWAY	BASE RATE	$23.92
		FRINGE BENEFITS	10.07

PLASTERERS:		*BASE RATE	$22.84
		FRINGE BENEFITS	6.22

* First 10 to 50 feet - $.25 per hour above rate. $.01 per foot for every additional foot above 50 feet. This shall include Swing Suspended Scaffolds or chairs and all other high and hazardous work. Working 10 feet below ground level or more shall receive $.25 above journeyman scale for hazardous work.

PLUMBERS & STEAMFITTERS:		BASE RATE	$23.75
		FRINGE BENEFITS	14.26

ROOFERS: (Excluding Metal Roof)		BASE RATE	$22.03
		FRINGE BENEFITS	9.10

CR-8-025
July 30, 2014

CLASSIFICATIONS		RATE AND FRINGE BENEFITS
SHEETMETAL WORKERS: (Including Metal Roof)	BASE RATE	$22.91
	FRINGE BENEFITS	14.46
SPRINKLER FITTERS:	BASE RATE	$29.00
	FRINGE BENEFITS	16.75

TRUCK DRIVERS:

Warehouseman, yardmen, truck helpers, pickup, station wagons, panel trucks, flatbody material truck (straight job), greasers, washers, tiremen, gas pump attendants, dump trucks (up to 5 cu. yd.):

BUILDING	BASE RATE	$13.45
	*FRINGE BENEFITS	1.62

Dump trucks (5 cu. yds. and over), semi-dump trucks, semi-trailers (whether flat, rack or pole and hauled or pushed by truck or tractors) agitator or mixer trucks (up to 5 cu. yds.), tank truck (semi):

BUILDING	BASE RATE	$13.73
	*FRINGE BENEFITS	1.62

Low boy trailers, winch trucks, fork trucks, distributor trucks (front end and back end), truck crane, monorail truck:

BUILDING	BASE RATE	$13.79
	*FRINGE BENEFITS	1.62

Material checker and receiver, mechanic's helper:

BUILDING	BASE RATE	$13.84
	*FRINGE BENEFITS	1.62

Agitator or mixer truck (5 cu. yds. and over):

BUILDING	BASE RATE	$13.90
	*FRINGE BENEFITS	1.62

Tri-axle dump trucks, hydraulic lift tailgate truck and farm type tractors, end dumpsters, tournarockers, Ross carriers, athey wagons or similar equipment, A-Frame hydrolift, dual purpose trucks and mechanic:

BUILDING	BASE RATE	$14.18
	*FRINGE BENEFITS	1.62

Master mechanic (3 or more mechanics employed):

	BUILDING	BASE RATE	$14.46
		*FRINGE BENEFITS	1.62

*Fringe benefits apply to any employee on the payroll of the employer for thirty days or more.

CR-8-025
July 30, 2014

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	

TRUCK DRIVERS HEAVY & HIGHWAY:

Driver, winch truck & A-frame truck when used in transporting material:

	HEAVY & HIGHWAY	BASE RATE	$18.00
		FRINGE BENEFITS	8.05

Driver, semi-trailer or pole trailer, dump truck, tandem axle, and driver of distributors:

	HEAVY & HIGHWAY	BASE RATE	$18.10
		FRINGE BENEFITS	8.05
Driver on mixer trucks all types:	HEAVY & HIGHWAY	BASE RATE	$18.15
		FRINGE BENEFITS	8.05
Truck mechanic:	HEAVY & HIGHWAY	BASE RATE	$18.20
		FRINGE BENEFITS	8.05

Driver, 3 tons & under & tire changer:

	HEAVY & HIGHWAY	BASE RATE	$18.23
		FRINGE BENEFITS	8.05
Driver of pavement breakers:	HEAVY & HIGHWAY	BASE RATE	$18.25
		FRINGE BENEFITS	8.05

Driver, over 3 tons & truck mounted rotary drill:

	HEAVY & HIGHWAY	BASE RATE	$18.44
		FRINGE BENEFITS	8.05

Driver, Euclid & other heavy earth moving equipment & low boy:

	HEAVY & HIGHWAY	BASE RATE	$19.01
		FRINGE BENEFITS	8.05
Greaser on greasing facilities:	HEAVY & HIGHWAY	BASE RATE	$19.10
		FRINGE BENEFITS	8.05

End of Document
CR-8-025

General Decision Number: KY150137 01/02/2015 KY137

Superseded General Decision Number: KY20140137

State: Kentucky

Construction Type: Heavy

Counties: Adair, Barren, Casey, Clinton, Cumberland, Green, Hart, Knox, Laurel, Logan, Marion, McCreary, Metcalfe, Pulaski, Russell, Simpson, Taylor, Wayne and Whitley Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

CARP0064-007 04/01/2014

	Rates	Fringes
CARPENTER (Form Work Only)	$ 27.50	14.96

ELEC0369-004 09/02/2013

	Rates	Fringes
LINE CONSTRUCTION		
Equipment Operator	$ 29.48	10.90
Groundman	$ 19.53	8.91
Lineman	$ 32.98	11.60

ENGI0181-010 07/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 28.85	14.15
GROUP 2	$ 26.24	14.15
GROUP 4	$ 25.95	14.15

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Grader/Blade; Mechanic; Scraper

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Forklift

GROUP 4 - Oiler

Operators on cranes with booms 150 feet and over (including jib) shall receive $1.00 above Group 1 rate; 250 feet and over including jib shall receive $1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive $1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

IRON0782-010 05/01/2014

	Rates	Fringes
IRONWORKER (Reinforcing & Structural)		
Projects over $20,000,000.00	$ 27.09	20.66
Projects under $20,000,000.00	$ 25.50	19.02

LABO0189-014 07/01/2014

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind)	$ 22.05	11.96
Concrete Worker	$ 21.80	11.96

SUKY2011-014 06/25/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 21.60	10.35
ELECTRICIAN	$ 32.35	2.18
LABORER: Common or General	$ 20.60	9.39
LABORER: Flagger	$ 18.31	8.89
LABORER: Pipelayer	$ 20.13	8.63
OPERATOR: Backhoe/Excavator/Trackhoe	$ 23.60	12.65

OPERATOR: Bulldozer.....$ 21.72 7.45

OPERATOR: Loader.....$ 30.35 0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and

non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations

Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

SECTION 01005 - ADMINISTRATIVE PROVISIONS

PART 1. GENERAL

1.1 Requirements Included

A. Title of Work, and Type of Contract.

B. Work Sequence.

C. Applications for Payment

D. Coordination.

E. Field Engineering.

F. Reference Standards.

1.2 Work Covered by Contract Documents

A. Work of this Contract comprises construction of wastewater collection facilities for the City of Glencoe, Owner.

1.3 Contract Method

Construct the Work under a single unit price contract.

1.4 Work Sequence

A. Coordinate construction schedule and operations with Engineer.

1.5 Applications for Payment

A. Submit five copies of each application under procedures of Section 01300 on Application for Payment form supplied by the Engineer.

B. Content and Format: That specified for Schedule of Values in Section 01300.

1.6 Coordination

A. Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

1.7 Field Engineering

A. Provide field engineering services; establish grades, lines, and levels, by use of recognized engineering survey practices.

B. Control datum for survey is shown on Drawings. Locate and protect control and reference points.

1.8 Reference Standards

A. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. The date of the standard is that in effect as of the Bid date except when a specific date is specified.

C. Obtain copies of standards when required by Contract Documents. Maintain copy at jobsite during progress of the specific work.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01200 - PROJECT MEETINGS

PART 1. GENERAL

1.1 Requirements Included

A. Contractor participation in pre-construction conferences, progress meetings, pre-final inspection and final inspection.

B. Contractor administration of pre-installation conferences and pre-final inspection.

1.2 Related Requirements

A. Section 01300 - Submittals: Progress Schedules.

B. Section 01300 - Submittals: Shop drawings, product data, and samples.

C. Section 01400 - Quality Control.

D. Section 01700 - Contract Close-out: Project record documents.

E. Section 01700 - Contract Close-out: Operation and maintenance data.

1.3 Pre-construction Conferences

A. Engineer will administer pre-construction conference for execution of Owner-Contractor Agreement and exchange of preliminary submittals.

1.4 Progress Meetings

A. Attend progress meetings.

B. Review of Work progress, status of progress schedule and adjustments thereto, delivery schedules, submittals, maintenance of quality standards, pending changes and substitutions, and other items affecting progress of Work.

1.5 Pre-installation Conferences

A. When required in individual specification Section, convene a pre-installation conference prior to commencing work of the Section.

B. Require attendance of entities directly affecting, or affected by, work of the Section.

C. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.6 Pre-final Inspection

A. When work is substantially complete, convene a pre-final inspection.

B. Require attendance of Owner, Engineer and funding agency officials.

C. Review installation, cleanup and operation of work.

D. Review record drawings, operation and maintenance materials, and other close-out documents.

1.7 Final Inspection

A. When punch list work is complete, attend a final inspection.

B. Review completion of punch list items.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01300 - SUBMITTALS

PART 1. GENERAL

1.1 Requirements Included

A. Procedures.

B. Construction Progress Schedules.

C. Shop Drawings.

D. Product Data.

E. Manufacturer's Instructions.

F. Manufacturer's Certificates.

G. Record Drawings.

1.2 Related Requirements

A. Section 01005 - Administrative Provisions: Applications for Payment.

B. Section 01400 - Quality Control: Testing laboratory reports.

C. Section 01400 - Quality Control: Manufacturers' field service reports.

D. Section 01700 - Contract Close-out: Close-out submittals.

1.3 Procedures

A. Deliver submittals to Engineer at address listed on cover of Project Manual.

B. Identify Project, Contractor, major supplier; identify pertinent Drawing sheet and detail number, and Specification Section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Engineer review stamps.

C. Submit initial progress schedule in duplicate within 15 days after date established in Notice to Proceed. After review by Engineer revise and resubmit as required. Submit revised schedule with each second Application for Payment, reflecting changes since previous submittal.

D. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.

E. After Engineer review of submittal, revise and resubmit as required, identifying changes made since previous submittal.

F. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

1.4 Construction Progress Schedules

A. Submit horizontal bar chart or network analysis system using the critical path method, showing complete sequence of construction by activity, identifying work of separate stages and other logically

grouped activities. Show projected percentage of completion for each item of Work as of time of each Application for Progress Payment.

B. Show submittal dates required for shop drawings, product data, and samples, and product delivery dates.

1.5 Shop Drawings

A. Submit the number of copies which Contractor requires, plus two copies which will be retained by Engineer.

1.6 Product Data

A. Mark each copy to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work.

B. Submit the number of copies which Contractor requires, plus two copies which will be retained by Engineer.

1.7 Manufacturer's Instruction

A. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, startup, operation, maintenance, adjusting, and finishing, in quantities specified for product data.

1.8 Record Drawings

A. Maintain accurate records of any variations between the work actually provided and that shown on the Contract Drawings. The representation of such variations shall conform to standard drafting practice and shall include such supplementary notes, legends and details as may be necessary for legibility and clear portrayal of the construction.

B. Submit one copy of all such records to the Engineer.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01400 - QUALITY CONTROL

PART 1. GENERAL

1.1 Requirements Included

A. General Quality Control.

B. Workmanship.

C. Manufacturer's Instructions.

D. Manufacturer's Certificates.

E. Manufacturers' Field Services.

1.2 Related Requirements

A. Document 00700 - General Conditions: Inspection and testing required by governing authorities.

B. Section 01005 - Administrative Provisions: Applicability of specified reference standards.

C. Section 01300 - Submittals: Submittal of Manufacturer's Instructions.

1.3 Quality Control, General

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.4 Workmanship

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.5 Manufacturer's Instructions

A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

1.6 Manufacturer's Certificates

A. When required by individual Specifications Section, submit manufacturer's certificate, in duplicate, that products meet or exceed specified requirements.

1.7 Manufacturer's Field Services

A. When specified in respective Specification Sections, require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, test, adjust and balance of equipment as applicable, and to make appropriate recommendations.

B. Representative shall submit written report to Engineer listing observations and recommendations.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01420 - INSPECTION OF THE WORK

PART 1. GENERAL

1.1 The Engineer's Duties

It is not the Engineer's function to supervise or direct the manner in which the work under this Contract is carried on or conducted.

The Engineer is not responsible for construction means, methods, techniques, sequences, or procedures, nor for safety precautions and programs in connection with the work.

The Engineer will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.

1.2 The Contractor's Duties

The Contractor shall perform no work in the absence of the Engineer or his assistants, without prior approval.

The Contractor shall use no material of any kind until it has been inspected and accepted by the Engineer.

The Contractor agrees that any method or procedure, which in the opinion of the Engineer does not achieve the required results or quality of the work specified, shall be discontinued immediately upon the order of the Engineer.

The Contractor shall remedy all materials or workmanship found at any time to be defective or not of the quality required by the Plans and Specifications, regardless of previous inspection of the materials and workmanship.

The Engineer's inspection does not relieve the Contractor from any obligation to perform the work specified, strictly in accordance with the Drawings and Specifications. Any work not so constructed shall be removed and made good by the Contractor free of all expense to the Owner.

Upon completion, the Contractor shall have Record Drawings and certified as to their completeness and correctness by the Resident Inspector and delivered to the Engineer for incorporation in the Drawings.

At Contract close-out, deliver Record Documents to the Engineer for the Owner.

Accompany submittal with transmittal letter in duplicate, containing:

Date. Project title and number. Contractor's name and address. Title and number of each Record Document. Signature of the Contractor or his authorized representative.

PART 2. PRODUCTS

Not Used.

PART 3. EXECUTION

Not Used.

End of Section

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1. GENERAL

1.1 Requirements Included

A. Barriers

B. Protection of Installed Work.

C. Security.

D. Water Control.

E. Cleaning During Construction.

F. Project Identification.

1.2 Related Requirements

A. Section 01005 - Administrative Provisions: Work sequence. Contractor use of premises.

B. Section 01700 - Contract Close-out: Final cleaning.

1.3 Barriers

A. Provide as required to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades and covered walkways as required by governing authorities for public rights-of-way and for public access to existing building.

1.4 Protection of Installed Work

A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

1.5 Cleaning During Construction

A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.

1.6 Project Identification

A. Provide Project identification sign of wood frame and exterior grade plywood construction, painted with required design and colors. List title of Project, names of Owner, Engineer, Contractor.

B. Erect on site at location established by Engineer.

1.7 Removal

A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01700 - CONTRACT CLOSE-OUT

PART 1. GENERAL

1.1 Requirements Included

A. Close-out Procedures.

B. Project Record Documents.

C. Operation and Maintenance Data.

D. Warranties and Bonds.

E. Spare Parts and Maintenance Materials.

1.2 Related Requirements

A. Document 00700 - General Conditions: Fiscal provisions, legal submittals, and other administrative requirements.

B. Section 01500 - Construction Facilities and Temporary Controls: Cleaning during construction.

1.3 Close-out Procedures

A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.

B. When Contractor considers Work has reached final completion, submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

D. Engineer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

1.4 Project Record Documents

A. Store documents separate from those used for construction.

B. Keep documents current; do not permanently conceal any work until required information has been recorded.

C. At Contract close-out, submit documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

1.5 Operation and Maintenance Data

A. Provide data for pump stations.

B. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch (216 x 279 mm) three-ring side binders with durable plastic covers.

1.6 Warranties and Bonds

A. Provide duplicate, notarized copies. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.

B. Submit material prior to final application for payment. For equipment put into use with Owner's permission during construction, submit within 10 days after first operation. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.7 Spare Parts and Maintenance Materials

A. Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of Work. Coordinate with Owner, deliver to project site and obtain receipt prior to final payment.

PART 2. PRODUCTS

Not Used

PART 3. EXECUTION

Not Used

End of Section

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1. GENERAL

1.1 Work Included

The Contractor shall maintain at the site for the Owner one record copy of:

A. Drawings.

B. Specifications.

C. Addenda.

D. Change orders and other modifications to the Contract.

E. Engineer field orders or written instructions.

F. Approved shop drawings, product data and samples.

G. Field test records.

1.2 Related Requirements

A. Section 01200 - Project Meetings

B. Section 01340 - Shop Drawings, Product Data and Samples

C. Section 01500 - Construction Facilities and Temporary Controls

1.3 Recording

A. Each document shall be labeled "PROJECT RECORD" in large printed letters.

B. Record information shall be kept current with construction progress.

1.4 Submittals

A. Sketches showing the "Record" information shall be provided monthly to the Engineer and submitted with the partial pay request.

B. Upon completion, the Contractor shall have Record Drawings and certified as to their completeness and correctness by the Resident Inspector and delivered to the Engineer for incorporation in the Drawings.

C. At Contract close-out, the Contractor shall deliver Record Documents to the Engineer for the Owner.

D. The Contractor shall accompany the submittal with a transmittal letter containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of the Contractor or his authorized representative.

PART 2. PRODUCTS

Not Used.

PART 3. EXECUTION

Not Used.

End of Section

SECTION 02100 - EROSION CONTROL

PART 1. GENERAL

1.1 Work Included

Submit KPDES Notice of Intent (NOI) and all follow-up information. Take responsibility for locating, furnishing, installing, and maintaining temporary sediment and erosion control best management practices for earth disturbing activity areas and developing a Best Management Practices (BMP) Plan using good engineering practices as required by the Kentucky Pollutant Discharge Eliminating System (KPDES) Permit. Make and record inspections of BMPs and areas as required by the KPDES Permit. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State or Local agencies, adhere to the more restrictive laws, rules, or regulations.

1.2 Related Work

A. Section 02110 - Site Clearing
B. Section 02200 - Earth and Rock Work
C. Section 02936 - Seeding

PART 2. PRODUCTS

Not used

PART 3. EXECUTION

As the permittee, submit the KPDES Notice of Intent (NOI) form to the Division of Water. Additionally, delegate in writing to Manager, KPDES Branch, who will have signature authority for reports. Provide the Engineer a copy of the NOI and a BMP Plan to represent and warrant compliance with the Kentucky Division of Water (KDOW) KPDES Permit, related rules, and specifications prior to starting work.

Locate, furnish, install, and maintain temporary sediment and erosion control best management practices (BMP) to represent and warrant compliance with the Clean Water Act, (33 USC Section 1251 et seq.), the 404 permit, the 401 Water Quality Certification, local government agency requirements, and other related rules and permits until the project has a formal release issued.

Provide the Engineer a copy of all weekly and rainfall event inspections as they are completed. Ensure all reports are signed by the delegated authority. keep a current BMP Plan and all inspection records available for public inspection as required by the KPDES Permit.

These provisions survive the completion and/or termination of the contract. The following provisions must be followed:

1. Take full responsibility and make all corrections when a governmental agency or a local governmental authority finds a violation of the above noted requirements; that the BMPs are incomplete; that the BMP Plan is incomplete; or that the implementation of the BMP Plan is not being performed correctly or completely.

2. Make payment to the Owner for the full amount, within 10 Calendar Days of notification, when a governmental agency or a local governmental authority furnishes an assessment, damage judgment or finding, fine, penalty, or expense for a violation of the above noted requirements; the BMPs being incomplete; or the BMP Plan being incomplete or its implementation not being performed correctly or completely. The Owner may withhold the amount of money requested for the above from the next pay estimate and deliver that sum to the governmental agency or local governmental authority issuing the assessment, damage judgment or finding, fine, penalty or expense.

3. Indemnify and hold harmless the Department, and reimburse the Department for any assessments, damage judgment or finding, fine, penalty, or expense as a result of the failure of performing this portion of the Contract. The Owner may withhold the amount of any assessments, damage judgments or finding, fine, penalty or expense from the next pay estimate.

4. The Owner will find the Contract in default if a governmental agency or a local governmental authority furnishes a stop work order for any of the following: a violation of the above noted requirements, that the BMPs are incomplete, that the BMP Plan is incomplete, that the implementation of the BMP Plan is not being performed correctly or completely.

5. When the Owner or any government regulatory agency finds a violation of the above noted requirements, or that the BMPs are incomplete, or that the BMP Plan is incomplete or that the implementation of the BMP Plan is not being performed correctly or completely, correct and mitigate the conditions within 48 hours of notification by the Owner or regulatory agency. Failure to correct non-compliant site conditions will result in the Owner applying a penalty of $500 per day until corrective actions are completed.

Upon completion of the project, provide the Engineer with a copy of the submitted KPDES Notice of Termination (NOT) form. Retain all records for 3 years or provide them to the Engineer for retention.

End of Section

SECTION 02610
TECHNICAL SPECIFICATIONS
TRENCHING AND WATER LINE INSTALLATION

PART 1 - GENERAL

The CONTRACTOR shall furnish all labor, materials and equipment to install the water lines as shown on the plans and as specified herein.

The water lines may be pressure-rated plastic pipe (PVC), municipal plastic pipe (MPVC), cast iron (CI), ductile iron (DI), or river crossing pipe, all as specified hereinafter. The bid documents shall show the amounts of each type and class of pipe to be provided by the CONTRACTOR.

The OWNER will obtain all rights-of-way for operations through private property. It will also secure building permits and the permits for all pipe laid in highway rights-of-way. Any charges for inspection or other fees required will be the responsibility of the CONTRACTOR since the amounts of these are dependent upon the operation of the CONTRACTOR.

PART 2 - HAULING AND STORAGE

The CONTRACTOR shall notify the ENGINEER when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading and stringing, as well as inspecting and examining the pipe materials.

The CONTRACTOR will be required to deliver all equipment and other materials and place same as and where required for installation. Care must be exercised in the handling of all materials and equipment and the CONTRACTOR will be held responsible for all breakage or damage to same caused by his workmen, agents, or appliances for handling or moving. Pipes and other castings shall in no case be thrown or dropped from cars, trucks, or wagons to the ground, but shall be lowered gently and not allowed to roll against or strike other castings and unyielding objects violently. Pipe and other castings may be distributed at places that will not interfere with other building operations and unloaded, or yarded and distributed as required, as the CONTRACTOR may elect.

Valves, castings, fabricated metal, reinforcing steel, etc., shall be yarded or housed in some convenient location by the CONTRACTOR and delivered on the ground as required. All equipment and materials subject to damage from the weather, dampness, changes in temperature, or exposure shall be protected by a dry, weatherproof enclosure until ready for installation or use. The cost of all hauling, handling, and storage shall be included in the prices bid for equipment and materials in place. The OWNER takes no risk or responsibility for fire, flood, theft, or damage until after the final acceptance of the work.

PART 3 - LINES AND GRADES

The location of all new pipelines are shown on the plans. The ENGINEER will assist the CONTRACTOR in marking such locations in the field. The CONTRACTOR will be required to accomplish any detailed layout, including that required for establishing the grade of the pipeline.

PART 4 - TRENCH EXCAVATION

4.01 General

The CONTRACTOR shall include in his unit price bid, all trenching necessary for installation of all pipelines as planned and specified. Trenching shall include all clearing and grubbing, including all weeds, briars, small trees, stumps, etc., encountered in the trenching. The CONTRACTOR shall dispose of any such material by burning, burial, or hauling away (or as noted on the drawings), at no extra cost to the OWNER. It shall be the CONTRACTOR's responsibility to notify the appropriate state and local air pollution control agencies when he conducts open burning of refuse. Ornamental shrubs shall be removed, protected and replanted. Trenching also includes such items as minor street, road, sidewalk, pipe and small creek crossings; cutting, moving or repairing damage to fences, poles, or gates and other surface structures regardless of whether shown on the plans.

The CONTRACTOR shall protect existing facilities against danger or damage while pipeline is being constructed and backfilled, or from damage due to settlement of this backfill. In case of damage to any existing

structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structures will be in as good condition and serve its purpose as completely as before and such restoration and repair shall be done without extra cost to the OWNER. The use of trench-digging machinery will be permitted except where its operation will cause damage to trees, buildings or existing structures above or below the ground. At such locations hand methods shall be employed to avoid damage. All excavated material shall be piled in a manner that will not endanger the work and will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions shall be made for street drainage.

All excavation shall be open trenches, except where the drawings call for tunneling, boring, or jacking under structures, railroads, sidewalks and roads. The construction procedure for these types of excavation is described elsewhere in these specifications.

4.02 Clearing

The CONTRACTOR shall accomplish all clearing and/or grubbing as required for the construction under this contract. Clearing and grubbing shall include the cutting and removal of trees, stumps, brush, roots, logs, fences and other loose or projecting material and natural obstructions which, in the opinion of the ENGINEER, must be removed to properly prosecute the construction and operate the facilities upon completion of construction. Trees, unless designated otherwise on the plans, shall remain and be properly protected. Ornamental shrubs, plantings, fences, walls, etc. shall be removed and replanted or replaced or protected from the construction activity. Clearing and/or grubbing shall be incidental to the various bid items and no additional compensation will be paid for same.

4.03 Trench Depth

Trenches shall be excavated to the line and grade required for the installation of pipe at the elevations indicated on the plans. The minimum depth of cover shall be 30 inches above the top of the pipe, unless shown otherwise on the plans or on the Standard Details. When the pipe is laying in or on solid rock, the minimum depth of cover shall also be 30 inches above the top of the pipe. No additional compensation will be made for extra depth where required by the plans or due to CONTRACTOR error. Excavation, except as required for exploration, shall not begin until the proposed work has been staked out. Materials which are not required for backfill and site grading shall be removed and disposed of as directed by the ENGINEER. Hauling, bedding and backfilling shall be considered incidental to the various bid items and will not be paid for directly. Excavation shall be of sufficient depth to allow the piping to be laid on the standard pipe bedding in accordance with the Article 4.7 of this section. The trenches shall be excavated to a minimum of six (6) inches below the bottom of the pipe barrel in rock. In all cases where lines are under traffic, a minimum cover of thirty-six (36) inches shall be provided. Should it be necessary to avoid existing utilities, culverts, outlets, or other structures, the water line shall be carried deeper at no additional expense to the OWNER.

Where the plans call for extra trench depth, this extra depth shall be provided at no extra cost.

4.04 Trench Width

Trench widths shall exceed the minimum width that will provide free working space, on each side of the pipe and to permit proper backfilling around the pipe as shown in the accompanying table and unless specifically authorized by the ENGINEER, shall not be excavated to wider than two (2) feet plus the nominal diameter of the pipe at the top of the trench. Before laying the pipe, the trench shall be opened far enough ahead to reveal any obstruction that may necessitate changing the line and grade of the pipe. Should the CONTRACTOR fail to accomplish this, and changes are required, they shall be at his sole expense. In rock, all ledge rocks, boulders and large stones shall be removed to provide six (6) inches of clearance on each side and below all pipe and fittings.

MINIMUM TRENCH WIDTH IN EARTH
AND PAY WIDTH FOR ROCK EXCAVATION

Size	Width	Size	Width
Up to 4" Pipe	1' - 6"	15" Pipe	2' - 8"
6" Pipe	2' - 0"	16" Pipe	3' - 0"
8" Pipe	2' - 0"	18" Pipe	3' - 0"
10" Pipe	2' - 4"	20" Pipe	3' - 2"
12" Pipe	2' - 6"	21" Pipe	3' - 4"
14" Pipe	2' - 6"	24" Pipe	3' - 8"

4.05 Shoring, Sheeting and Bracing of Excavation

Where unstable material is encountered, or where the depth of the excavation in earth exceeds five (5) feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing, or shoring. The design and installation of all sheeting, sheet piling, bracing or shoring shall be based on computations of pressure exerted by the materials to be retained. Adequate and proper shoring of all excavations will be the entire responsibility of the CONTRACTOR. The Standards of the Federal Occupational Safety and Health Act and the Kentucky Department of Labor shall be followed.

4.06 Removal of Water

The CONTRACTOR shall provide adequate removal of all water and the prevention of surface water from entering the excavation. The CONTRACTOR shall maintain dry conditions within the excavations until the backfill is placed. No additional compensation will be paid for replacement and/or stabilization of prepared excavations due to flooding and/or deterioration from extended exposure. All water pumped or drained from the excavation shall be disposed of in a suitable manner without damage to adjacent property or to other work under construction.

4.07 Bedding of Pipeline

In all cases the foundation for pipe shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. The bells of the pipe shall not carry any of the load of the backfill. The CONTRACTOR should refer to the Standard Details for pipe bedding shown in the plans. The bedding specifications shall govern the backfill from the bottom of the trench up to the centerline or spring line of the pipe.

4.7.1. Stable Earth Foundation

On all galvanized or copper lines, the CONTRACTOR may use either the "solid trench bottom method" or the "undercutting method" as shown in the Standard Details. The solid trench bottom method allows support of the pipe barrel by the trench bottom with holes dug out for the bells. The bottom must be leveled with soil and free of irregularities. The undercutting method calls for 4 inches of excavation below the barrel and then refill with evenly spread earth cushion or other standard bedding.

On all PVC pipelines, the trench bottoms shall be smooth and free of frozen material, dirt clods and stones over ½" diameter. Bottom dirt left by trenching equipment will usually provide adequate material to level the trench bottom and provide bedding support for the pipe barrel. If the trench bottom is free of dirt, soft material may be shoveled off the side walls or shoveled under the pipe to ensure proper pipe barrel bedding. In areas where the trench bottom is hard, a layer of soft backfill must be provided to ensure the pipe barrel is properly cushioned. See the plans for proper bedding material depth.

If the foundation is good firm earth the pipe may be laid directly on the undisturbed earth provided the pipe barrel is supported for its full length.

Bedding No. 9 stone, fine gravel, sand or compacted finely graded select earth shall be used to correct irregularities in the subgrade. Where bell and spigot is involved, bell holes shall be excavated to prevent the bells from being supported or undisturbed earth.

As an alternative to the above method, excavation in earth may be undercut to a depth below the required invert elevation that will permit laying the pipe on a bed of granular material or finely graded select earth to provide continuous support for the pipe barrel. Bedding depth shall be as shown on the plans.

All cast iron or ductile iron lines 4 inches above in size will be installed using the undercutting method and a crushed stone bedding in accordance with the Standard Details. The crushed stone bedding is not a separate pay item and shall be included as incidental expense in the unit price for the pipe bid per foot of pipe. Cast iron or ductile iron lines less than 4 inches may be installed using the undercutting method and earth refill.

4.7.2. Trenches in Rock

All installation in rock will utilize the undercutting method. Bedding will be with 6 inches crushed stone as shown in the Standard Details. The only exception to this will be with PVC, copper, or galvanized iron pipe 4

inches in diameter or smaller. These may be bedded on 6 inches of evenly spread earth backfill.

4.7.3. Unstable Trenches

If unstable material is encountered which may not provide a suitable foundation for the pipe, the unstable material will be removed and an adequate layer of encasement concrete or other special bedding shall be placed for the pipe foundation in accordance with the Standard Details in the plans. Such "special pipe foundation" shall only be installed if directed by the ENGINEER in writing or on the plans. This special pipe foundation shall be considered a pay item and shall be paid for by lineal foot at the contract price for the type of bedding required.

4.7.4. Smooth Trench Beds

In installations where a smooth trench bed on grade with no irregularities is required, the CONTRACTOR shall use a notched wood plank or similar device to check the bed before each length of pipe is laid. Plank shall be at least 4 feet longer than the laying length of pipe being installed.

4.08 Pavement Removal

Pavement removal shall be as indicated on the plans or directed by the ENGINEER. When so required, or when directed by the ENGINEER, only one-half (½) of the street crossings or road
crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the ENGINEER. Pavement replacement shall be in accordance with Section AC of these specifications. Excavated materials shall be disposed of so as to cause the least interference and in every case the disposition of excavated materials shall be satisfactory to the ENGINEER.

4.09 Traffic Maintenance

The CONTRACTOR must "red light" and guard all open trenches or obstructions placed on the streets or sidewalks. The lights must be burning from sunset to sunrise in order to effectively warn and safeguard the public against dangers connected with open trenches, excavations and other obstructions. The CONTRACTOR shall be held responsible for any damage that may occur to persons or property by reason of the failure of the CONTRACTOR to properly "red light" and guard all open trenches or obstructions along the routes of the water lines. The CONTRACTOR at his own expense shall also maintain warning signs, barricades and a watchmen or flagmen to control traffic at such times as his work would interfere with the flow of traffic. No excavation shall begin that may present a safety hazard unless the signs, barricades, lights, etc. are available to protect the open excavation at the conclusion of the day. The CONTRACTOR will comply with all Federal and State Occupational Safety and Health requirements for this type of construction. The CONTRACTOR shall also comply with all local and Kentucky Department of Highways requirements for signing and traffic control.

4.10 Solid Rock Excavation

The method for payment for solid rock excavation is provided in the Bid. Rock excavation and trenching in earth may be combined into a single "unclassified" bid and no extra payment for rock shall be made in this case. Where provision is made for extra compensation solid rock excavation is defined as the removal of materials of one-half (½) cubic yard or more in one location through the use of explosives. Boulders which can be moved economically without explosives; decomposed, shattered, or weathered rock; pavement; and shale rock will not be included when rock excavation is encountered. The CONTRACTOR shall notify the ENGINEER for the purpose of obtaining an accurate survey of rock excavation required before blasting is done. No payment will be made for rock excavation which is not inspected by the ENGINEER. Whenever blasting is necessary, ample precautions shall be taken to prevent accidents to life and property from flying rock or debris by either covering the trench or excavating with heavy timbers, or mats or by using other suitable means. The CONTRACTOR should refer to the blasting requirements contained in Section AC of these specifications. Any damages to pipelines of this or other contractors or to any structures caused by blasting done under this contract shall be repaired promptly by the CONTRACTOR at

his expense and to the satisfaction of the ENGINEER.

4.10.1. Where applicable, the basis for payment for rock excavation shall be computed by multiplying the average depth of rock strata by the length of strata and by the width of trench used. The maximum allowable pay width of trench is determined from Paragraph 4.4 of these specifications. Measurements of strata depth will be from top of strata to six (6) inches below the bottom of pipe barrel when the pipe is laid in accordance with these specifications. Rock excavations below the minimum grades, unless authorized by the ENGINEER, will be at the CONTRACTOR's expense. The depth measurements will be taken at each end of the strata and at 25 foot intervals. The length of the strata will be the distance between intersections of the bottom of the trench with each end of the strata.

4.10.2. Unclassified excavation by trenching includes removal of all rocks, earth, boulders, masonry, hidden concrete, etc. There will be no extra payment for rock excavation in pipeline trenches of any kind where unclassified excavation is specified. All excavation costs shall be included in the unit price for the contract.

4.11 Maintenance of Flow of Drains and Sewers

Adequate provision shall be made for the flow of sewers, drains and water courses encountered during construction. Any structures which are disturbed shall be satisfactorily restored by the CONTRACTOR.

4.12 Interruption of Utility Services

No valve, switch or other control on any existing utility system shall be operated for any purpose by the CONTRACTOR without approval of the ENGINEER and the Utility. All consumers affected by such operations shall be notified by the CONTRACTOR as directed by the ENGINEER and utility before the operation and advised of the probable time when service will be restored.

4.13 Fencing

Where water supply line is being constructed in fields where stock is being grazed, CONTRACTOR shall provide temporary fence as approved by the ENGINEER around open trenches to prevent stock from falling in trenches. Where trenching operations should isolate grazing stock from their source of water, CONTRACTOR will either provide temporary bridging over trench or else provide water for such stock.

Where trench crosses near sound existing corner posts and existing fence is in good condition, fence may be taken loose, rolled back and stored until pipeline is completed at this point, then replaced by stretching tightly and thoroughly stapling. Additional posts will be provided and additional new fence shall be provided when it is necessary to place the fence crossed by the water line in a condition equal to existing fence before water line was constructed.

Where it is necessary to cut existing fence, new end posts shall be installed on each side of the water line and the old fence thoroughly stapled to these new posts before cutting. After pipeline is completed at this point, a new fence of galvanized wire (No. 9 gauge with No. 11 filler wires) shall be stretched between these new end posts and thoroughly stapled to existing posts and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on a replacement in-kind basis, and shall be considered incidental to laying of the lines and any additional cost shall be included in the unit price bid per lineal foot of pipe.

PART 5 - PIPE AND FITTINGS

5.01 Polyvinyl Chloride Rigid Pipe and Fittings

This specification cover rigid, pressure-rated, polyvinyl chloride pipe and fittings, hereinafter called PVC pipe and PVC fittings, for sizes ½ inch through 12 inch.

5.1.1. PVC Pipe

PVC pipe shall be extruded from Type 1, Grade 1, polyvinyl chloride material with a hydrostatic design stress of 2000 PSI for water at 73.4 degrees Fahrenheit, designated as PVC 1120, meeting ASTM Specifications D-1784 for material and D-2241 for pipe, latest revisions. Pipe shall also meet all applicable provisions of the Product Standards and shall bear the National Sanitation Foundation (NSF) seal of approval in compliance with NSF Standard No. 14. PVC pipe having a maximum hydrostatic working pressure of 160 psi (SDR26), 200 psi (SDR21), 250 psi (SDR17), or 315 psi (SDR13.5) shall be used as shown in the Bid Documents and Plans.

Samples of pipe and physical and chemical data sheets shall be submitted to the ENGINEER for review

and determination of compliance with these specifications before pipe is delivered to job. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects.

The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures (ASTM D-1598), burst pressures (ASTM D-1599), flattening, extrusion quality (ASTM D-2152), marking and all other requirements of the Product Standard PS 22-70 shall be conformed with in all respects. No pipe 2 inches in diameter or larger with a wall thickness less than 0.090 inches may be used.

Pipe shall be furnished in 20 foot or 40 foot lengths. The pipe may be double plain end or with bell on one end. Male ends of pipe must be beveled on the outside. Pipe shall have a ring painted around the male end or ends in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.

Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe must not be exposed to the direct rays of the sun for an extended period of time. If pipe is not to be installed shortly after delivery to the job site, it stored in a shaded location and strung as needed.

5.1.2. PVC Pipe Jointing

Pipe shall be joined with slip-type joints with rubber gaskets. Pipes with bells shall have all part of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. The gasket groove shall be constructed such that gasket roll-out will not occur. Rubber gasket shall conform to ASTM 1869. The pipe manufacturer shall have an experienced representative on the job for a minimum of one day at the commencement of joining and laying operations. Joint lubricant shall be of a type recommended by the manufacturer for their pipe subject to the ENGINEER's approval. Lubricant shall be water soluble, non-toxic and have no objectionable properties.

5.1.3. PVC Couplings

Where PVC couplings are used, they shall be of the same material as the pipe and may be of the molded, or extruded type. PVC couplings shall have a minimum rating of 200 psi for continuous operation at 73.4 degrees F. Ductile iron fittings are required for Class 250 PVC installations.

5.1.4. Fittings

5.1.4a. Cast Iron

Cast or ductile iron mechanical joint type fittings with appropriate adapters may be used with PVC pipe. All such fittings shall be approved by the pipe manufacturer, and complete data sent to the ENGINEER, including the manufacturer's approval, for review. Fittings shall comply with AWWA C-110 or C-111 and shall be manufactured for the size and pressure class of the line on which they are used. Use of transition gaskets will not be allowed unless specifically approved by the pipe manufacturer.

5.1.4b Payment

The cost of fittings, rings and all associated connecting costs for all fittings shown on the plans shall be included in the unit cost per foot of pipe. Payment for extra PVC or cast iron fittings not shown on the plans but requested or approved by the ENGINEER shall be at fitting cost plus $4.00 per inch of largest nominal fitting diameter.

5.1.5. Service Connections

All service connections on PVC lines shall be made by means of tees, factory tapped couplings, or bronze service clamps manufactured specifically for use with PVC pipe, with Mueller threads, Mueller Catalog No. H-134 or approved equal. Whenever possible, corporation stops shall be installed in plastic lines before conducting hydrostatic tests. Service lines shall have the same pressure rating as its main line. The specifications for Copper and PVC service lines are contained else where in this section.

5.02 Municipal Polyvinyl Chloride (MPVC) Pressure Pipe

This specification covers the requirements for AWWA approved Polyvinyl Chloride Pressure Pipe for water supply and distribution systems.

5.2.1. MPVC Pipe

MPVC pipe shall meet the requirements of AWWA C900-75, latest revision, "Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4" through 12" for Water" and shall be furnished in cast iron pipe equivalent outside diameters with rubber-gasketed separate couplings.

MPVC pipe and couplings shall be made from Class 12454-A or Class 12454-B virgin compounds as defined in ASTM D-1784. The standard code designation shall be PVC 1120. The PVC compounds shall be tested and certified as suitable for potable water products by the NSF Testing Laboratory and shall carry the NSF approval marking.

Solvent-cement couplings or joints shall not be used. PVC joints using elastomeric gaskets shall be tested as assembled joints and shall meet the laboratory performance requirements specified in ASTM D-3139.

Pipe and couplings shall be pressure Class 100, DR 25 (Dimension Ratio), pressure Class 150, DR 18, or pressure Class 200, DR 14 as shown on the plans or the bid form.

Pipe and couplings shall be marked as follows:

a. Nominal size and OD base.
b. Material code designation (PVC 1120).
c. Dimension ratio number.
d. AWWA pressure class.
e. AWWA designation number (AWWA C900).
f. Manufacturers name or trade-mark and production record code.
g. Seal of the NSF Laboratory.

Pipe and couplings shall meet or exceed the following test requirements:

Sustained Pressure	ASTM D-1598 (1000 Hrs.)
DR	Sustained Pressure
14	650 psi
18	500 psi
25	350 psi
Burst Pressure	ASTM-1599 (60-70 seconds)
DR	Minimum Burst Pressure
14	985 psi
18	755 psi

Hydrostatic Integrity - Each standard and random length of pipe shall be proof-tested at four times its rated class pressure for a minimum of 5 seconds. Bells or couplings shall be tested with pipe.

Flattening - The pipe shall not split, crack, or break when tested by the parallel-plate method as specified by ASTM D-2241.

Extrusion quality - The pipe shall not flake or disintegrate when tested by the acetone-immersion method as specified in ASTM D-2241.

Standard length - Pipe shall be furnished in standard laying lengths of 20 ft. + 1 in. A maximum of 15 percent of each pipe size may be furnished in random lengths of not less than 10 feet each.

5.2.2. MPVC Pipe Jointing

Pipe shall be joined with slip-type joints with rubber gaskets. Procedures shall be as recommended by the manufacturer and as described for PVC pipe in this section.

5.2.3. Fittings

Fittings for municipal PVC shall be cast-iron or ductile iron only. Either mechanical joints may be used. Fittings shall be manufactured for the size and pressure class of the line on which they are used and shall comply with AWWA C-110 or C-111.

5.2.4. Service Connections

Service connections shall be made by means of bronze service clamps manufactured specifically for use with municipal PVC pipe. Clamps shall be Mueller Catalog No. 11-161 or approved equal.

5.03 Cast Iron Pipe

These specifications cover cast iron pipe 3 inch diameter and greater to be used in water transmission systems with mechanical joints, rubber ring slip type joints or flanged joints.

5.3.1. General - Gray cast iron pipe shall be designed in accordance with AWWA HI, (ASA A21.1) and for pressures and conditions as stated in these specifications.

Cast iron pipe shall be centrifugally cast and conform to AWWA C-106 for metal molds and C-108 for sand-lined molds. Mechanical joints shall conform to AWWA Specification C-111 (ASA A21.11.)

5.3.2. Metal Design Strength-

Minimum Bursting Tensile	21,000 psi
Minimum Modulus of Rupture	45,000 psi
Maximum Modulus of Elasticity	10 million psi

5.3.3. Minimum Nominal Thickness

The specific wall thickness will be determined for the given internal and external loading requirements in accordance with ASA Specification A21.1 (AWWA H1). The class of pipe required will be shown on the plans and/or bid documents. All pipe used for potable water service shall be cement-lined.

5.3.4. Lengths

Pipe may be furnished in 12, 16, 16 ½. 18 or 20 feet nominal laying lengths.

5.3.5. Tests

Hydrostatic and acceptance tests shall be in accordance with AWWA Specification C-106 for "Cast Iron Pipe Centrifugally Cast in Metal Molds" or C-108 for sand molds. The ENGINEER shall be provided with five (5) copies of each of the following tests for each contract involved:

a. Talbot strip test.
b. Ring and full length bursting tests.
c. Chemical analysis of pipe.
d. Certification that pipe was hydrostatically tested.

Any pipe not meeting the AWWA Specifications quoted above shall be rejected in accordance with the procedure outlined in the particular specification.

5.3.6. Marking

The net weight, class or nominal thickness and sampling period shall be marked on each pipe.

5.3.7. Pipe Joints for Gray Iron Pipe

Pipe joints shall be mechanical joint, rubber ring slip joint, flanged, or locked mechanical joint as specified in Section IX.

Mechanical joints are to be furnished according to AWWA Specifications C-III. All pipe joints must be furnished complete with all accessories. Mechanical joint bolts and nuts shall be of alloy cast iron or alloy steel

(Corten type such as U.S. Alloy) or approved equal. Rubber gaskets shall be made of plain first grade rubber, free of imperfections and porosity. Hardness shall be 70 to 75 durometer.

Rubber ring slip joints shall be equal to AWWA C-111-64 or latest revision. The joints shall be of the following materials:

5.3.7a. Rubber ring gasket compressed in groove in bell of pipe.

5.3.7b Beveled spigot end of pipe for initial centering into rubber gasket in bell.

Locked mechanical joints shall be equal to Clow Corporation's "Locked Mechanical Joint".
All items used for jointing pipe shall be furnished with the pipe and tested before shipment. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Three (3) copies of such instruction shall be delivered to the ENGINEER at start of construction.

5.3.8. Lining and Coating Gray Iron Pipe

All cast iron pipe for water service shall be bituminous coated outside and cement lined with seal coat on the inside per the above specifications. Cement mortar lining and bituminous seal coat inside shall conform to ANSI 21.4.-64 (AWWA C-104-71).

5.3.9. Mechanical Joint, Rubber Ring Slip and Flanged Joints Fittings

Cast iron mechanical, rubber ring slip and flanged joints shall conform to ASA Specifications A21.10 (AWWA C-110) for centrifugally cast iron water pipe. Mechanical joints shall also conform in all respects to ASA 21.11 (AWWA C-111). Fittings shall be manufactured for the size and pressure class of the pipeline in which they are to be used. Fittings shall be bituminous coated outside and lined on the inside same as the line on which they are installed.

5.3.10. Cast Iron Flanged Pipe and Special Coupling

5.3.10a. Flanged Pipe

All cast iron flanged pipe shall have flanges faced and drilled, 125 pound in accordance with ASA A21.10 (AWWA C- 110) unless otherwise specified. Flanges may be cast integrally with the pipe or they may be screwed on specially designed long hub flanges, refaced across both face of flange and end of pipe. Flanged pipe shall be in accordance with ASA A21.6 (AWWA C-106) Specifications, latest revisions, and be the class called for on the plans or bid forms. Where plain ends of flanged and plain end pipe fit into mechanical joint bells, centrifugally cast pipe shall be used. Flanged pipe for water service shall be cement lined and bituminous coated the same as written herein for bell-joint pipe.

5.3.10b. Special Coupling

Flexible couplings for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene O-ring in place of the usual 1/16 inch rubber ring gasket. The mechanical bell and special flanged joint piece shall be of high grade gray cast iron (ASTM A48-56), AWWA C-100-54T) with bolt circle, bolt size and spacing or ASA Specifications. Mechanical joint follower flange shall be of ductile iron ASTM A399 or malleable iron ASTM A47, Grade 35018 or 32510, latest revision, with high strength/weight ratio design.

Bolts shall be fine grained high tensile malleable iron with malleable iron hexagon nut. Stainless steel nuts shall be used in vaults and wet wells. Where pressures may exceed 20 pounds, anchor studs shall be included with spigots of pipes connected drilled to receive ends of studs.

5.4 Ductile Iron Pipe

These specifications cover ductile iron pipe (3 inch diameter and greater) to be used in water transmission systems with mechanical joints, rubber ring slip type joints or flanged joints.

5.4.1. General

Ductile iron pipe shall be designed in accordance with AWWA 113 (ASA A21.50) and for pressures and conditions as stated in these specifications or called for on the plans. Ductile cast iron pipe shall conform to AWWA C-151 (ASA A21.51).

5.4.2. Minimum Nominal Thickness

The specified thickness will be determined for the given internal and external loading requirements in accordance with ASA A21.50. The class of pipe, wall thickness, and coatings required will be shown on the plans or the bid form for all ductile iron pipe installation. Ductile iron pipe will normally be class 2 for fill depths up to 16 feet and pipe diameters up to 12 inches.

5.4.3. The requirements for cast iron pipe shall also apply to ductile iron pipe with regard to lengths, tests, marking, joints, fittings, and lining or coatings. All ductile iron pipe used for potable water service shall be cement-lined and bituminous coated as specified for cast-iron pipe.

5.05 Copper Pipe and Fittings

These specifications govern the use of copper pipe where it is required for interior or exterior use.

5.5.1. Inside, Rigid with Solder Joint Connections

Small piping inside structures shall consist of standard copper tubing for water; Type "L" for general plumbing purposes. All fittings shall be "solder joint connection" cast or wrought bronze for water service for inside diameter of pipe size given. All stops, valves, hose bibs, and unions shall be made with same joints or threaded inside pipe standard, and be of brass or copper. Use 95-5 tin-antimony solder for "solder joints".

5.5.2. Outside, Underground Tubing with Compression Joints

Small piping in the ground shall be of standard soft copper tubing for water service pipe, ASTM Specifications B-88, Type "K", with bronze fittings, stops, and valves having compression connections for flared copper tubing.

5.06 Galvanized Threaded Steel Pipe and Galvanized Threaded Malleable Fittings

Galvanized threaded steel pipe shall be equal to "National" standard galvanized pipe in strength, coating, chemical and physical properties, threads and thickness, as manufactured by the National tube Company, Pittsburgh, Pennsylvania. Fittings shall be equal to Crane's standard malleable galvanized iron fittings in case of pressure lines and Crane's cast iron threaded drainage fittings in case of drains. Cast iron pipe may be substituted for galvanized pipe where authorized by the ENGINEER.

5.07 Black Steel Pipe

Pipe for natural or bottle gas service shall be black steel pipe, Schedule 40, threaded connections for use inside buildings. It is to be coated with "Trucoat" or equal when used outside in ground.

5.08 Threaded or Welded Steel Air and Gas Pipe

Air piping shall be beveled for welding or, upon the ENGINEER's approval, be threaded and coupled. In either case, pipe 3 inches and over shall be seamless or electric weld type. Pipe less than 3 inches may be seamless, steel butt weld, or electric weld type. All air or gas pipe installed under this contract shall comply with the latest revision of ASTM Specification A-53, Grade "B" for air, and American Petroleum Institute Standards 5 L, for gas, latest revision, as applicable to the threaded or welded joint pipe. Threaded steel pipe shall be furnished with couplings "handling tight".

5.8.1. Manufacturer's Stamp and API Monogram

Each length of pipe installed under this contract shall be stamped or marked with manufacturer's name, type of pipe, pipe length and API monogram.

5.8.2. Weights, Dimensions and Test Pressures

All piping installed under this contract shall conform to the following minimum specification:

Nominal Size, Inches	Wall Thickness, Inches	Weight Lb./Ft.	Test Pressure psi, Minimum
1	0.133	1.68	700
¼	0.140	2.27	1100
½	0.145	2.72	1100
2	0.154	3.65	1100
3	0.216	7.58	1100
4	0.237	10.79	1300
6	0.280	18.97	1300

5.09 River Crossing Pipe

River crossing pipe shall be Clow Ball Joint Pipe, or equal. Pipe shall meet all provisions of ASA Specifications A-21.6. Pipe bells and glands shall be 70-50-05 ductile iron with suitable rubber sealing gaskets.

5.10 Polyethylene Plastic Pipe

Polyethylene plastic pipe for use as service lines in water distribution systems shall have copper tube size outside diameter, meeting ASTM D-2737. Pipe shall rated for 200 PSI working pressure unless a higher rating is called for in the plans. Pipe shall meet all applicable provisions of the Commercial Standards and shall bear the National Sanitation Foundation (NSF) seal of approval. Polyethylene connections shall be made by compression fittings only.

PART 6 - PIPE LAYING

6.01 General

Proper instruments, tools and facilities satisfactory to the ENGINEER shall be provided and used by the CONTRACTOR for the safe and convenient prosecution of the work. Each pipe manufacturer shall have an experienced representative on the job for at least one day at the commencement of jointing and laying operations.

Before any length of pipe is placed in the trench, a careful inspection shall be made of the interior of the pipe to see that no foreign material is in the pipe. In order to properly remove any foreign materials, a swab of necessary length is to be available at all times.

All pipe shall be lowered carefully into the trench, properly aligned and properly jointed by use of suitable tools and equipment, in such manner as to prevent damage to water line materials and protective coatings and linings. Excessive scratching of the exterior surface of the pipe will be cause for rejection of the pipe.

Under no circumstances shall pipeline materials be dropped or dumped into the trench. The pipe and fittings shall also be inspected for the purpose of determining if they are sound and free from cracks. Laying of pipe shall be commenced immediately after excavation is started. Pipe shall be laid with bell ends facing in the direction of laying.

When pipe laying is not in progress, the open ends of pipe shall be closed by approved means to prevent entrance of trench water into the line. Whenever water is excluded from the interior of the pipe, adequate backfill

shall be deposited on the pipe to prevent floating. Any pipe which has floated shall be removed from the trench and re-laid as directed by the ENGINEER. No pipe shall be laid in water or on frozen trench bottom or whenever the trench conditions or the weather are unsuitable for such work.

If any defective pipe and fittings shall be discovered after the pipeline is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge to the OWNER. Open ends of unfinished pipelines shall be securely plugged or closed at the end of each day's work or when the line is left temporarily at any other time.

6.02 Laying Cast Iron Pipe or Ductile Iron Pipe

Cast or ductile iron bolted joint, rubber ring slip joint, and ball and socket river crossing pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. Three (3) copies of instructions shall be furnished the ENGINEER and one (1) copy shall be available at all times at the site of the work. The lining inside cast iron or ductile pipe must not be damaged by handling.

All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to present as nearly true, straight lines and grades as is practical, and all curves and changes in grades must be laid in such a manner that the manufacturer's recommended maximum deflection is not exceeded at any joint.

Cutting of pipe may be done by wheeled pipe cutters or saws, or by hammer and chisel, as the CONTRACTOR may elect, but the CONTRACTOR will be held responsible for breakage or damage by careless cutting or handling.

Cast iron or ductile iron pipe four (4) inch diameter and larger, shall be laid on an evenly spread and compacted crushed stone cushion four (4) inches deep above bottom of trench uniformly supporting the pipe. Six (6) inches of crushed stone bedding shall be used in rock. When cast iron or ductile iron pipe less than four (4) inch diameter is used, granular compacted earth may be substituted for crushed stone. Sufficient space (limited to 2 feet longitudinally) shall be left out of 4 or 6 inch custom for tightening of bolts where bolted joints are used. No pipe shall be laid resting on rock, blocking, or other unyielding objects. Jointing before placing in trench, and subsequent lowering of more than one section jointed together may be allowed, subject to the ENGINEER's approval and direction.

When using pipe with push-on joints, care must be exercised to make certain that the correct gasket is being used for the type of joint installed and that the gasket faces the proper direction. Before inserting the gasket, the groove and bell socket should be carefully cleaned of all dirt. If sand or dirt is permitted to remain in the groove, leaks may occur. Lubricant must be applied to bell socket, gasket and plain-end of pipe as required by manufacturer. Plain-end must be beveled before joint is made. Deflection required at the joint shall be obtained after the joint is made. Bell and spigot pipe with caulked joints may be used for special cases only.

Where this type of pipe is required the joints shall be made as described in this paragraph. After placing a length of pipe on the prepared grade in the trench, the yarning material shall be held around the bottom of the spigot end of the next length so that it will enter the bell of the previously laid pipe as the pipe is shoved into position. The spigot shall be centered there with earth carefully tamped under and on each side of it, excepting at the bell holes. Care shall be taken to prevent dirt from entering the joint space. Two or more joints of pipe shall be in place ahead of each joint before it is poured. Yarning material for bell and spigot joints shall be rubber rings, or treated paper rope. Joint material for bell and spigot pipe, unless otherwise shown on the drawings, shall be of the sulfur compound type "Leadite", "Mineralead", or approved equal. Jute shall not be used for joint material. Yarning material shall be thoroughly caulked into the joint to ensure centering of the spigot and within the ball and prevent loss of molten joint material into the interior of the pipe, but in no event shall a depth of less than 2-1/2 inches be left for the joint compound. Each length of material shall be such as to pass completely around the pipe and provide a lap of two inches. Joint compound shall be heated in accordance with the directions of the manufacturer, care being taken to prevent under and over heating and burning. Joints shall be run with the aid of a runner and metal pouring gate thoroughly clayed to the pipe to prevent the molten compound from breaking out of the joint. Each joint shall be run full to the top of the pouring gate in one continuous pour. Material contained in the pouring gate when it is cut free from the joint may be reused. No joint shall be run in a wet trench and no water shall be allowed to come in contact with the joint until it is thoroughly hardened. If, upon inspection by the ENGINEER, imperfect joints are disclosed, the compound shall be cut out or otherwise removed and the joint re-run.

6.03 Laying Plastic Pipe

The trench bottom must be smooth and uniform and the alignment must conform with the plans. Bedding and cover as specified herein and shown in the Standard Details is required.

To make a clean and unobstructed joint, it is necessary to wipe the ring, groove and pipe spigot free from all foreign materials at the time of assembly (welded joints will be allowed only in special cases and will be required as shown on the plans). the ring must be positioned properly in the fitting to receive the pipe by a worker who is not in contact with the lubricant. In general, the lubricant is applied to the spigot (not the ring or groove.) However, the manufacturer's instructions are to be followed in all cases. Only an approved lubricant may be used in accordance with the manufacturer's recommendations. All plastic pipe shall be joined by hand.

Where good bedding conditions are attained, PVC pipe smaller than four inches may be assembled outside the trench in longer sections (as conditions allow) and then lowered into the trench. At any time when improper bedding is discovered or the pipe is severely deflected the pipe will be removed from the trench and the condition corrected. Pipe in sizes 4 inch and above may be assembled outside the trench but must be lowered into the trench as each joint is assembled. Regardless of installation methods of couplings must be inspected after laying in trench for proper insertion and alignment. Field cuts and bevels will be allowed in accordance with the manufacturer's recommendations for these operations.

A new reference mark shall be installed before joining any field cut pipe. The same requirements for clearance from rock or other objects, thrust blocking and deflections shall apply to PVC pipe as for other pipe materials. Municipal PVC pipe of all sizes must be assembled in the trench in strict accordance with the manufacturer's requirements.

6.04 Installing Flanged or Threaded Pipe and Fittings

The CONTRACTOR shall clean off all rust and dirt and paint all threads with red lead, before assembling. This pipe shall be installed by skilled pipe men, with flanges and pipes plumb and level, showing no leakage. Unions shall be included to allow for the taking down of all runs of pipes. All valve operating devices shall be in locations and of types shown on the plans. They shall be accurately plumbed, leveled, supported and braced for smooth operation.

6.05 Installing Copper Pipe and Fittings

Exterior copper pipe shall be laid of Type K pipe, with compression fittings. Joints shall be neatly reamed and flared and joints drawn up firmly. Pipe shall have at least 30-inch cover under regrade. Joints shall be tested before backfilling and all leakage stopped.

Interior pipe shall be installed of Type L copper, with sweat joint fittings. Pipe shall be tested and all leaks stopped. Pipe shall show no dents or bends. Sweat joints shall present a neat appearance. Pipe shall be parallel to walls, floors and ceilings with unions near beginning of all runs and branches. Pipe shall be secured to walls and ceiling by clamps and hangers manufactured for the purpose. Strap hangers are not acceptable. Unions and valves shall be placed on each outlet to facilitate dismantling and shutting off.

Wherever copper pipes pass through walls or floors, they shall have wrought or cast iron sleeves, so that they may be removed. See "Standard Details" in the plans for detailed specifications on joints to walls and floors. Pipes passing through structural beams shall be placed as near as possible to bottoms of floor slabs in the center of the span. Copper pipe must be installed by an experienced plumber.

Yard hydrants must be installed by the CONTRACTOR, in locations shown on the drawings. Care shall be exercised to obtain true vertical setting with exposed portions as near uniform as practicable. In excavating for yard hydrants, a hole at least 1 foot square must be dug to a depth of at least 12 inches below grade of pipe trench. This hole must be immediately below hydrant and filled with broken stone to a depth of 18 inches from bottom of hole. The excavation below bottom of yard hydrant shall be omitted where rock is encountered and 1-1/2 cubic feet of crushed rock backfill about the base of the hydrant will be used.

There shall be installed ahead of water outlet on all plumbing and water lines 1-1/2 inches and smaller in size, an all brass gate valve and a union between the valve and outlet connection or fixture.

6.06 Thrust Blocking and Anchorage

All angles or bends in the pipeline, either vertical or horizontal, shall be braced or anchored against the tendency of movement with concrete thrust blocking per the Standard Details, or approved equivalent joint harness or anchors to the satisfaction of the ENGINEER. Where joint harness is used, all component parts shall be stainless steel. Concrete thrust blocking or joint harness materials shall be considered incidental to the expense of installing the line and shall be included in the unit price bid for the pipeline. No separate payment will be made for these items.

Thrust blocks for plastic pipe will not be attached to couplings. Where thrust blocks are used for extra fittings ordered by the ENGINEER, payment shall be made using the bid price for Class "E" concrete and the thrust block dimensions shown in the Standard Details. This payment shall cover all work required for extra thrust blocks.

6.07 Testing Pressure Lines

The CONTRACTOR will be required to test all pipelines and appurtenances with water at pressure class of pipe installed. The pipe shall be slowly filled with water, care being taken to expel all air from the pipes. If necessary, the pipe shall be tapped at high points to vent the air. Pressure at least equal to 150 PSI (or the operating pressure if higher) as measured at the point of lowest elevation shall be applied for not less than one hour and all pipes, fittings, valves, hydrants and joints shall be carefully examined for defects or leakage. Any observed leakage shall be corrected.

The pipe pressure must be held at 150 PSI for one hour before beginning the test for leakage. No pipe shall be accepted unless or until the leakage, determined by this test, is less than 10 U.S. gallons over 24 hours, per mile, per inch nominal diameter of pipe. The leakage test shall be applied to the pipe for a period of not less than 4 hours.

The test shall be made between valves as far as practical in sections of pipe approximately 1,000 to 3,000 feet in length as may be directed by the ENGINEER and shall, in general, be made within twelve working days of the completion of each section of line.

To determine the rate of leakage, the CONTRACTOR shall, as required, furnish a suitable pump, pressure gauge and water meter or other appliance for measuring the amount of water pumped. The instrument used to measure leakage shall be tested for accuracy as frequently as directed by the ENGINEER. The CONTRACTOR shall furnish all necessary labor and materials to make the test and to perform any work incidental thereto.

Where it is impractical to test between the valves, the CONTRACTOR shall as directed, at his own expense and cost, temporarily place caps and plugs on the lines and test sections of the new line.

Wherever practicable, corporations stops and service lines shall be installed before testing. If these items are installed after the main is tested, then a visual inspection of the tap and service line must be permitted while under pressure before backfilling service line.

Where any section of the main is provided with concrete reaction blocking, the hydrostatic pressure test shall not be made until at least five days have elapsed after the concrete reaction blocking was installed. If high early strength cement is used in the reaction blocking, the hydrostatic pressure test shall not be made until at least two days have elapsed.

Should there be leakage over the allowable amount, the CONTRACTOR will be required to locate and repair the leaks and retest the section. It is suggested, but not required, that the CONTRACTOR have a geophone (underground listening device) on the job at the time of testing.

If the leakage of the section of pipeline being tested is below the allowable amount, but leakage is obvious in the opinion of the ENGINEER, due to water at the surface of the ground, or by listening the leak can be heard

underground with a geophone, or any other means of determining a leak, the CONTRACTOR will be required to repair these leaks.

The CONTRACTOR shall furnish a meter or suction tank, pipe test plugs and by-pass piping and make all connections for conducting the above tests. The pumping equipment used shall be centrifugal pump, or other pumping equipment which will not place shock pressures on the pipeline. Power plunger or positive displacement pumps will not be permitted for use on closed systems for any purpose.

Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for stopping leakage or correcting poor workmanship.

6.08 Backfilling

Backfilling must be started as soon as practicable after pipe has been laid and joints hardened sufficiently, and jointing and alignment approved. Spading of crushed rock, sand, or mechanical tamping of earth, around pipe (as specifically required) between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger or misalignment from slides, flooding or other causes. The ENGINEER shall be given a minimum of 24 hours for inspection before backfilling. The backfill shall be crushed rock, sand, or finely divided earth free from debris, organic material and stones, placed simultaneously on both sides of pipe to the same level by hand.

The backfilling of the lower part of the trench beginning at the top of the bedding, the backfill material shall be carefully and solidly tamped by hand or approved mechanical methods in 6 inch layers around the pipe and up to a point 8 inches higher than the top of the pipe. For PVC only the backfill shall be select material and may be walked-in. Walking or working on the completed pipeline, except as necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a point one diameter higher than the top of the pipe. The filling of the trench and the tamping of the backfill shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipeline will not be disturbed and injurious side pressures do not occur.

After the above specified backfill is hand placed, rock may be used in the backfill in pieces no larger than 18 inches in any dimension and to an extent not greater than one-half (1/2) the backfill materials used. If additional earth is required, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, in order that all voids between rocks may be filled with earth. Above the hand placed backfill, machine backfilling may be employed without tamping, (if not contrary to specified conditions for the location) provided caution is used in quantity per dump and uniformity of level of backfilling. Backfill material must be uniformly ridged over trench and excess hauled away, with no excavated rock over 1-1/2 inch in diameter or pockets of crushed rock or gravel in top 6 inches of backfill. Ridged backfill shall be confined to the width of the trench and not allowed to overlap onto firm original earth and its height shall not be in excess of needs for replacement of settlement of backfill. All rock, including crushed rock or gravel from construction, must be removed from yards and fields. Streets, roadways and walks shall be swept to remove all earth and loose rock immediately following backfilling.

In the case of street, highway, railroad, sidewalk and driveway crossings or within any roadway paving or about manholes, valve and meter boxes, the backfill must be machine tamped in not over 4-inch layers, measured loose in accordance with the Standard Details. Where backfill is under paved driveways, streets, highways, railroads, sidewalks, paved parking areas and other areas where settlement is not allowed, crushed stone or coarse sand backfill only shall be used up to the paving surface. Crushed stone shall be Kentucky Department of Highways Standards Specification No. 78 or finer. Tunnels shall be backfilled in not over 3-inch layers, measured loose, with selected material suitable for mechanically tamping. If material suitable for tamping cannot be obtained, sand, gravel or crushed rock (No. 78) shall be blown, packed or sluiced to completely fill all void spaces.

Coarse sand backfill shall be spread in layers not over 4 inches thick and thoroughly compacted. Sand may be moistened to aid compaction.

Where local conditions permit, pavement shall not be placed until 30 days have passed since placing backfill. Crushed stone as specified for roads and parking areas and sidewalks or their bases shall be placed and compacted to the top of trench. Backfill shall be maintained easily passable to traffic at original ground level, until acceptance of project or replacement of paving or sidewalks. CONTRACTOR should refer to Section AC of these specifications for procedures to be followed in replacing pavement.

Where the final surfacing is to be crushed stone, compacted earth backfill may be used in the trench to

within 6 inches of the top as shown in the Standard Details.

Railroad Company and Highway Department requirements in regard to backfilling will take precedence over the above general specification where they are involved.

Excavated materials from trenches and tunnels in excess of quantity required for trench backfill shall be disposed as shown on the plans or as directly by the ENGINEER.

The CONTRACTOR shall protect all sewer, gas, electric, telephone, water and drain pipes or conduits, power and telephone poles and guy wires from danger of damage while pipelines are being constructed and backfilled, or from danger due to settlement of the backfill.

In case of damage to any such existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structure will be in as good condition and serve its purpose as completely as before uncovering and such restoration and repair shall be done without extra charge.

Before completion of contract, all backfill shall be reshaped, holes filled and surplus material hauled away, and all permanent walks, street, driveway and highway paving, and sod, replaced (if such surface replacement items are included in the contract) and reseeding performed.

The CONTRACTOR shall be responsible for clean-up, grading, seeding, sodding or otherwise restoring all areas that he disturbs within the work limits of other contractors on this project.

Any deficiency in the quantity of material for backfilling the trenches or for filling depressions caused by settlement, shall be supplied by the CONTRACTOR.

6.09 Tie-Ins to Existing Pipelines

This work shall consist of connecting new water pipes to the existing system where shown on the plans and shall include the necessary fittings, tapping sleeves, valves and necessary equipment and material required to complete the connection.

Knowledge of pipe sizes in the existing system may not be accurate, therefore, it is recommended that the CONTRACTOR check outside diameters of existing pipe and types of pipe prior to ordering the required accessories. No additional payment will be allowed for machining pipe and/or accessories when the proper size is not ordered.

Neither the OWNER nor the ENGINEER can guarantee the location of the existing lines. The CONTRACTOR shall verify the location of all existing water mains and valves pertaining to the proposed improvements before excavation is started.

The necessary regulation or operation of the valves on existing mains, to allow for the connections being made, shall be supervised by the ENGINEER. Before shutting down an existing water main or branch main for a proposed connection, prior approval for a specific time and time interval shall be obtained from the OWNER. At no time shall an existing main be shut without the OWNER's knowledge and permission.

Excavation to existing water mains shall be carefully made, care being exercised not to damage the pipe. The excavation shall not be of excessive size or depth beneath the pipe. The sides of the excavation shall be as nearly vertical as possible.

The CONTRACTOR shall be responsible for any damage to the existing system and any such damage shall be repaired to the satisfaction of the ENGINEER at the CONTRACTOR's expense.

The CONTRACTOR shall verify, by field inspection, the necessary sizes, lengths and types of fittings needed for each inter-connection. Typical connections are shown on the plans and any modifications or changes shall be subject to the approval of the ENGINEER. The exact length of the proposed water main needed for this work shall also be determined by field measurement as required. The probing required to locate existing mains is not a separate pay item.

6.10 Pipe Entering Structures

Cast iron, steel, or PVC pressure pipe, 4-inch diameter or larger, entering structure below original earth level, unsupported by original earth for a distance of more than six (6) feet, shall be supported by Class E concrete, where depth of such support does not exceed three (3) inches in accordance with the Standard Details. All other pressure pipe entering buildings or basins below original earth level, which have more than 3 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, shall be supported as shown on Standard Detail drawings, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for such supports are to be included in the unit price of work to which it is subsidiary, and not as extra concrete. Pipe entering structures shall have flexible joint within 16 inches of exterior of structure.

6.11 Ownership of Old Materials

6.11.1 Pipe

Unless otherwise indicated, all existing pipe that is to be abandoned that interferes with construction or is easily removed shall become the property of the CONTRACTOR. All pipe that is not easily removed or not required to be removed as a result of the new construction, shall be abandoned in place by the CONTRACTOR.

6.11.2 Pipe Line Fittings and Appurtenances

All pipeline fittings, valves, hydrants and other like appurtenances that are removed as a result of a new construction shall be removed by the CONTRACTOR but shall become the property of the OWNER. All such fittings and appurtenances shall be delivered to a point by the CONTRACTOR. Said point shall be on the OWNER's property and shall be designated by the ENGINEER.

6.11.3 Other Material

All other material or items that are to be removed, demolished, or abandoned as a part of this contract shall become the property of the CONTRACTOR and shall be disposed of by him.

PART 7 - MEASUREMENT AND PAYMENT

Payment for supplying, transporting and storing pipe, trenching, standard bedding, pipe installation, thrust-blocking, testing, backfilling, disinfection, seeding, crop damage, regular stream crossings, clean-up, tie-ins to other structures and other incidental items in this section shall be made on the basis of the unit price per lineal foot for the type and size of pipe installed. Payment will include all those items not specifically covered by another proposal. Pipe will be measured along the centerline of the pipe as installed with no deduction for valves and fittings.

Extra cast iron pipe fittings used with any type of pipe material where not shown on the plans and required by the ENGINEER will be paid for on the basis of the unit price per pound. The basis of weights will be those shown by the Clow Corporation. Otherwise, fittings shall be include unit price for pipe.

Where thrust blocks are installed for extra fittings, they shall be paid for on the basis of the Class "E" concrete unit price bid and the thrust block dimensions shown in the Standard Details. All other thrust blocks shall be included in the unit price bid for pipe installed.

Rock excavation if extra payment allowed, will be paid for on a cubic yard basis in accordance with these specifications for rock which must be blasted for removal. The estimating procedure is described elsewhere in these specifications. If trenching is bid "Unclassified", payment for any and all rock excavation must be included in the CONTRACTOR's unit price bid for pipe installed.

Service lines where required between the center of main line and 4 feet from the near side of the meter setter will be paid for under the appropriate unit price for the type and size of service line required regardless of open cut road crossings or other crossings involved. Where service lines are bored or jacked with no casing or with casing a unit price bid is established.

End of Section

SECTION 2611
TECHNICAL SPECIFICATIONS
INSTALLATION OF WATER LINE ACCESSORIES

PART 1 - GENERAL

The CONTRACTOR is to supply and install all valves, hydrants, blowoffs and other equipment at the locations shown on the plans in complete accordance with these specifications.

PART 2 - GATE VALVES (THREE INCHES AND LARGER)

2.01 Underground

All underground gate valves shall be iron body, bronze-mounted non-rising stem, tar-coated outside and suitable for working water pressures of 200 PSI. Valves shall be of standard manufacture and of the highest quality both of materials and workmanship and shall conform to the latest revision of AWWA Specification C-500. Valves shall be furnished with bell, flanged or mechanical joint end connections suitable for connection to the pipe with which they are to be used.

Underground valves shall be nut operated, unless otherwise shown on the plans. CONTRACTOR shall furnish three standard stem iron wrenches for turning nut operated valves. All underground valves which have nuts deeper than 30 inches below the top of valve box shall have extended stems with nuts located within 2 feet of valve box cap.

The valve maker is to supply the ENGINEER, through the bidder, within one week after award is made, complete catalogs or other material giving complete details and dimensions of valves and accessories. The ENGINEER's approval shall be received by manufacturer prior to shipment of materials.

2.02 Housed

Gate valves, 3" and larger, for fabricated pipe systems shall be double-disc, parallel seat-type, iron body, flanged, fully bronze mounted with O-ring seals, tar-coated outside and suitable for working water pressures of 150 PSI. Valves shall be of standard manufacture and of the highest quality both of materials and workmanship and shall conform to the latest revision of AWWA Specification C-500. Unless otherwise shown on the plans, all housed gate valves shall be O. S & Y. Unless otherwise shown on the plans, all housed valves and valves in basins shall be handwheel operated. Handwheels shall have not less than the following diameters:

Size Valves	Diameter
3"	8"
4"	10"
6"	12"
8"	14"
10"	16"
12"	18"
14"	20"
16"	22"
18"	24"

Valve stand handwheels and handwheels on extended stems, shall have the same minimum diameters as those shown for handwheels directly on valves. Extension stems for O. S & Y valves shall be non-rising, with clamp to valve handwheel and hollow shaft for rising stem of valve, with adjustable cast iron guides per each ten (10) feet of extensions stem length. All extension stems shall be connected with suitable coupling castings for connection to and removal from valves and stands. Nuts and bolts on all extensions stem connections shall be stainless steel.

PART 3 - GATE VALVES (2-1/2" AND SMALLER)

Gate valves 2-1/2" and smaller to be installed in fabricated pipe systems shall be bronze body with handwheel. They shall have inside I.P. threads and be suitable for a minimum water working pressure of 150 PSI. Valves shall have a solid wedge gate.

Underground 2-1/2" and smaller gate valves shall be iron body, bronze mounted, double-disc, parallel seat, having bronze faces and disc rings, with wedge mechanism simple and direct. They shall be similar in all other ways to the larger valves.

PART 4 - CHECK VALVES

4.01 Mechanical

Check valves shall be swing gate type. All check valves shall be standard iron body with straightway passage of full pipe area when swing gate is open. The valve shall be of the outside lever weight-operating type with an adjustable closure rate. The valve must be tight seating and must operate without hammer or shock. The seat ring or lining must be renewable. The valve should be bronze-mounted and may contain a rubber or neoprene lining in accordance with the manufacturer recommendations.

4.02 Electric

Electric solenoid operated check valves shall be installed where shown on the plans. The check valve shall be of cast iron body and cover with all bronze or non-corrosive trim construction. The valve shall be flanged, faced and drilled to conform to 125 lb. ASA Standards. The required valve sizes are shown on the plans. The valve shall be constructed with a non-corrosive lining and a bronze piston. The pilot shall be three-way type, all bronze. The design of the valve shall be such as to prevent hammer and shock. Speed of valve closing and opening shall be adjustable. The valve shall provide full pipe line flow when open. The valve shall provide for emergency closing on electrical outage. It shall also provide manual control for opening main valve. The valve shall be as manufactured by the Golden-Anderson Valve Co., Figure No. 173-D for globe body or Figure No. 174-D for angle body.

The sequence of operation for the electric check valve shall be as follows:

A. Valve openings:
   - ? Pump motor starter, three-way solenoid pilot, emergency solenoid pilot simultaneously energized by control circuit.
   - ? Valve opens as pump reaches full speed.
   - ? Limit switch contacts close interlocking with motor starter circuit.

B. Valve closing:
   - ? Three-way solenoid pilot de-energized by control circuit.
   - ? Pump motor circuit and emergency solenoid pilot remain energized.
   - ? Valve starts to close, pump running.
   - ? As piston nears its seat, limit switch contacts open, de-energizing pump circuit and emergency solenoid pilot.

In the event of a power failure, the motor starter circuit solenoid operated three-way pilot and the solenoid operated two-way pilot will become de-energized simultaneously. De-energizing both pilots simultaneously will cause the main valve piston to move rapidly to its seat. The speed of emergency closing is adjustable by regulating valve. The emergency closing speed is always at a faster rate than that of the normal closing speed.

The emergency sequence of operation would also pertain in the event of a motor under voltage, motor overload, or by depressing the emergency stop button if same is used.

PART 5 - AIR RELEASE VALVES

A valve designed to allow exhaust of small pockets of air from the water main while in use shall be installed where shown on the plans or where directed by the ENGINEER. The air release valve shall have a 3/4" iron pipe thread inlet, cast iron body construction, bronze trim, with all internal parts of stainless steel or bronze. The valve shall have an orifice size of 5/64" or greater. Valves shall be suitable for a working water pressure of 150 PSI. The air release valve shall be mounted on 3/4", Schedule 80, galvanized steel riser pipe. The riser pipe shall be connected to the water main by use of a service clamp and a corporation stop as shown in the standard details. The riser pipe shall be connected to the water main by use of a service clamp and a corporation stop as shown in the standard details. The riser shall also have a 3/4", bronze gate valve with a tee-handle, solid wedge type, inside I.P. threads, suitable for a 150 PSI working water pressure. Equipment shall be as manufactured by Mueller, Ford, Crane, Valve and Primer or approved equal.

PART 6 - VALVE BOXES

All valves (gate, air release, check, etc.) installed underground shall be installed in an approved valve box. Each gate valve shall be installed in a vertical position with a valve box. Valve boxes shall be of a cast iron, two or three-piece, slip-type consisting of a base, a center section and a top section with a covered marked "water". Where valve box is constructed in a paved area, the box shall be a screw type box. The entire assembly shall be adjustable for elevation and shall be set vertically and be properly adjusted so that the cover will be in the same plane as the finished street surface (no more than ½" above ground in yards or pastures or 2" in unsodded areas.) The assembly must provide for the required cover over the pipe at the installation site and shall rest on concrete pads as shown in the Standard Details.

Air release valves will be installed in the same type of box as is used for meters. As described in these specifications the box may be cast iron, concrete, or concrete pipe. The box must allow for adequate cover over the pipe at the installation.

Check valves installed underground will be installed in the meter box type installation using concrete pipe and a meter box cover. The installation will utilize a suitable pipe diameter to accommodate the valve and accessories in accordance with the standard details. The box must allow for adequate cover over the pipe at the installation.

PART 7 - FLUSH HYDRANTS

Flush hydrants shall be installed in accordance with the details and the specifications at locations shown on the plans or as directed by the ENGINEER. In general, flush hydrants are located at the end of mains for the purpose of clearing the main of sediment, obstacles or impure water. The CONTRACTOR should refer to the Standard Details for flush hydrant installation.

PART 8 - HYDRANTS

All fire hydrants shall be of the compression type, with cast iron body, fully bronze-mounted, suitable for working pressure of 150 pounds per square inch and shall be in accordance with the latest specifications of the AWWA and the State Inspection Bureau. Hydrants shall have two 2-1/2" hose connections and a 4-1/2" steamer connection with National Standard threads.

Hydrants shall be constructed in a manner permitting withdrawal of internal working parts without disturbing barrel or casing. Hydrants shall have dry-top design and non-rising stem and be frost-proof. Valve, when shut, shall be reasonably tight if upper portion of barrel should be broken off. Waterway of hydrants shall be not less than 6" throughout and valve opening shall be at least 5 1/4" in diameter. There shall be no chattering under any conditions of operation. Each hydrant shall be tested to a hydrostatic pressure of 300 PSI with valve in both opened and closed

position. The direction of opening shall be cast in the head of the hydrant. Hydrants shall be painted with one coat of red lead and two finishing coats of Koppers Ponkote Enamel for hydrants or approved equal, color to be selected by ENGINEER.

Hydrants shall have mechanical connection directly to lines. Valves supplied with hydrants shall have mechanical joints and may be connected directly to hydrant or may be on hydrant service as shown in the Standard Details. One operating and spanner wrench shall be furnished with each hydrant with a maximum of three provided on any one project. Extensions for extra depth shall be included in the cost of hydrants. One disassembly wrench shall be supplied for the project. Concrete thrust blocking, hydrant bedding and main line tee as shown in the Standard Details are to be included in the unit price for hydrant installation.

Hydrants shall be set so that outlets are not less than 15 inches above the ground, plumb and at a distance of 18 inches from the outside of the curb. If no curb exists, hydrant is to be set four feet from the property line or as shown on the plans.

PART 9 - SPECIAL PURPOSE VALVES

Pressure reducing valves sustaining valves, surge relief valves and other automatic, special-purpose valves which are to be installed as a part of the water line contract will conform with the details shown on the plans. The valves will be installed in water proof manholes or other structures as shown in the Standard Details and as described in the "Miscellaneous Structures" section of these specifications. These valves are to be hydraulically operated and of the self-contained differential-piston type. The valve body shall be cast iron of the globe or angle type. The valve is to be bronze fitted with renewable lining and seating components. The valve shall be pilot controlled and diaphragm operated. The valve shall be air and water cushioned to prevent hammer or shock. Bronze castings shall conform to ASTM B-62 and the cast iron body and lid shall conform to ASTM A-126, Class B.

Individual meter pressure reducing valves will be installed for individual services only where shown on the plans. These valves shall be a Mueller, Model No. H-9000l, 3/4" Regulator No. 3 or approved equal, complete with a bronze strainer. Each regulator is to have an adjustable pressure range of 60-125 PSI and is to be set at 80 PSI or as shown on the plans or directed by the ENGINEER. These regulators shall be installed on the inlet side of the meter. The CONTRACTOR should note that some prefabricated meter boxes do not allow space for these regulators and a box of sufficient size must be used where they are required.

PART 10 - METERS AND SERVICES

10.1 Service Lines Not Crossing A Road

All service lines shall be 3/4" Type K Copper Tubing, PVC pipe, or polyethylene plastic pipe as specified in Section IX, using a corporation stop in accordance with the Standard Details.

10.2 Service Lines Crossing a County Road or City Street

Same as above except that in general all pipe may be jacked beneath certain paved or blacktopped city streets or county roads, unless solid rock prevents using this method in which case, the open trench method will be used. The open trench method generally will be used on all unpaved city streets, county roads and private driveways. In general, blacktopped private driveways shall also be jacked under. In all cases where lines are under traffic, a minimum cover of thirty-six (36) inches shall be provided. All backfill shall be compacted by air tampers in layers no greater than 6-inch depth. Specific instructions as to the type of crossing to be installed will be shown on the plans.

10.3 Service Lines Crossing a State Highway

Services shall be jacked or pushed under paving. Pipe under 2" shall be Type K Copper or PVC pipe. If solid rock is encountered, trench will be open-cut, pipe placed and back-filled all in accordance with current requirements of the State Highway Department or the crossing will be relocated to permit boring or jacking. Specific details will be shown on the plans. Where required on the plans or by the ENGINEER, service pipe shall be encased under highways.

Schedule 40 steel pipe shall be used as casing pipe unless otherwise indicated by the plans. Polyethylene pipe will normally be encased. Where permitted rigid PVC pipe will not be encased but soft connections with polyethylene pipe will be required on either side of the boring length.

10.4 Meters

It is the intent of these specifications to obtain water meters which are cold water rotating disc type with hermetically-sealed and magnetically-driven registers. Meters shall be first line quality of the manufacturer. The latest specifications of the AWWA shall be complied with, except in the cases of conflict with these specifications. Any type or make of meter offered must have been manufactured and marketed in the U.S. for at least five (5) years and evidence will be required to indicate the name of places where meters have established satisfactory service records of five (5) years or more. (Check Section IX for specific owner requirements.)

The main case shall be high grade waterworks bronze, with hinged, single lid cover and raised characters cast on them to indicate the direction of flow. Each meter must have a manufacturer's serial number stamped on the lid. They must have a working pressure of 150 PSI. Standard frost bottom model meters shall be furnished. Non-ferrous strainers shall be provided which fit tightly against the main case.

The measuring chamber shall be bronze alloy composition and stainless steel or monel trimmed. The chamber shall be of the two piece design, equipped with a disc made of hard rubber and as near to the specific gravity of water as possible.

The register shall be straight reading U.S. Gallon type. The register unit shall be completely encased and hermetically sealed and driven by permanent magnets. Registers shall be guaranteed by the manufacturer for a period of at least 15 years.

All meters shall measure water within 2% of a separately measured volume. Ten percent of all the meters on the project will be tested after delivery in the presence of the ENGINEER or his designated representative. Testing shall be done by means of test bench and calibrated test tanks as approved by the ENGINEER. If any meter fails this test, the ENGINEER will require that all meters will be tested. The cost of any and all such testing will be at the CONTRACTOR's expense.

Meters shall include box and cover, meter, coppersetter (including cut-off valve), four feet of pipe and corporation stop plus two foot of pipe and plug or cap on the customer's side of meter. (This latter item is to prevent the customer or his plumber from disarranging or loosening the meter after the CONTRACTOR has already set the meter in its proper position). Where the main line is in the highway right-of-way, meters shall be set as close to the right-of-way fence as practicable but no meter on the same side of the road as the main line shall be set with more than 6 feet of service line unless directed by the ENGINEER or shown on the plans. The Standard Details show the required meter setting.

Meters for regular service shall be 5/8" x 3/4" unless otherwise shown on the plans. Large service connections shall have a disc meter similar and equal to the 5/8" x 3/4" meters and shall include the tap and connection, a gate valve or corporation stop the same size as the line pipe, sufficient unions and a meter box of sufficient size to house the meter as shown in the Standard Details. Meters 2 inches and larger in size shall be compound type meters.

Meter boxes for 5/8" x 3/4" meters shall be cast iron, concrete, concrete pipe, or plastic as specified in Section IX. All meter boxes shall be a minimum of 24 inches deep and 18 inches I.D.. Cast iron meter box cover for use with 18 inch I.D. plastic, concrete or vitrified clay pipe or cylinder boxes shall be stamped with the words "WATER METER," and shall be Ford No. C32, or equal. Where individual pressure reducing valves are required, the meter box must be of adequate size to accommodate the meter setting, shut-off valve and pressure regulator as shown in the Standard Details.

Meters shall be set in a workmanlike manner with backfill neatly compacted in place. In yards, pastures and other grassed areas, top of meter box may be placed no higher than ½ inch above original ground and no lower than flush with original ground. Boxes in sidewalks or other concrete areas shall be flush with surface. In areas which have not been sodded, top of box shall be 2 inches above grade. The service line must meet the same cover

requirements as the main line as described in these specifications except that the service line may raised within two (2) feet of each side of the meter installation to a depth which accommodates installation at the bottom of the meter box in accordance with the Standard Details. As shown in the Standard Details, after 2 feet from box service pipe must return to 30 inches (36 inches in traffic or 24 inches in rock). If meter box area is subject to traffic, a deeper box will be required to maintain 36 inches of cover over the service pipe.

10.5 Radio Read Meters

The contractor shall furnish all labor, equipment and materials required to install, test and place into satisfactory operation electromagnetic flow meters. The cold water displacement type meter shall be an accuSTREAM meter as manufactured by Sensus, Inc. or approved equal.

Meters shall be magnetic drive, Sealed Register, Positive Displacement Type Oscillating Piston only. The meter must conform to American Water Works Standard C-700 and C-710 as most recently revised with respect to accuracy and pressure loss requirements

The register must be an electronic device encapsulated in glass with 9 programmable digits utilizing a liquid crystal display (LCD). It will have indicators for flow direction, battery life and unit of measurement. The register must be hermetically sealed with a heat tempered glass cover and be tamper resistant. The register shall employ a unique locking security socket to prevent its removal from the meter body. The register shall utilize a magnetic coupling technology to connect to a touch read, radio read or fixed base meter reading system in either an inside or pit set installation. The electronic register shall have a rate of flow mode to display customer consumption or leak rates.

The contractor shall also furnish all labor, equipment and materials required to install, test and place into satisfactory operation the Meter Transceiver Unit for AMR Application. The meter transceiver unit shall be a radio unit Model 520M as manufactured by Sensus Metering System or approved equal. It shall be a high-power walk-by/drive-by radio transmitter that provides water meter and ancillary device data from equipment located in meter pit environments. The radio unit shall be submersible and designed to withstand harsh underground environments. The transceiver unit and accessories shall be stored and protected in accordance with the manufacturer's recommendations. The transceiver unit shall not be stored outside or exposed to the weather.

The bid item includes the meter box installation interfacing the utility meter to the Sensus RadioRead+ system. The unit requires 1.75” diameter hole in pit lid; fits pit lid thicknesses up to 1.75”. Untis must be the TouchCoupler and Wired Version compatible with Sensus ECRII and ICE water registers. Units must have a 20 year warranty, 10 full, 10 pro-rated.

The meter boxes for all radio read meters shall be 24" high, 18" diameter plastic boxes with 4" riser cast iron locking meter lids model RMC-18L w/LN and w/TR or approved equal.

PART 11 - TRUCK LOADING STATIONS

Truck loading stations for filling water trucks will be constructed as shown in the Standard Details at the location shown on the plans or as directed by the ENGINEER.

PART 12 - MEASUREMENT AND PAYMENT

Payment for gate valves, check valves and other special valves installed underground shall include all work necessary for a complete installation and shall include all valve stem boxes or other valve boxes and box covers. Payment will be made at the unit price bid for the type and size of valve installation. Often valves are included in the fabricated piping of a structure and separate payment will not be made unless provided in the Bid Form. Costs of those is to be included in the bid for work to which they are subsidiary.

Fire hydrants include the cost of a complete installation as shown on the plans. The cost of the main line tee will be included in the unit price bid for these items. The line between tee and hydrant gate valve shall be paid for at unit price for line work.

Meters and boxes include all items for a complete installation. These are meter, box and covers, setter,

shut-off valve, six (6) feet of service line, corporation stop and the plug and adapter at the end of customers service stub. Additional service line will be paid for under a separate item.

Flush hydrants and air release valves will be paid for under their respective bid price. Excess pipe will be paid under bid price for pipe installed.

Truck loading stations, where required by the plans, shall consist of a complete installation as shown in the Standard Details and will include gate valve, meter, fire hose section, support pipe, fire hydrant, cast iron tee, connecting pipe and any crushed stone or other material incidental to the installation or construction of an approach roadway to the station. The bid price for "truck loading station" shall cover all of this work and material.

* * *

SECTION 02612
TECHNICAL SPECIFICATIONS
SPECIAL ITEMS OF CONSTRUCTION IN WATER LINE INSTALLATION

PART 1 - General

These specifications govern special crossings, installations and construction procedures required to deal with unusual construction items or special requirements of governing agencies.

PART 2 - Road Crossings

In all cases, these crossings will be made in compliance with the requirements of the State Highway Department. Such requirements will normally be described by the appropriate District Highway Office. In general, unless otherwise shown on the plans or otherwise directed by the ENGINEER, the crossing of all State Highways shall be accomplished by boring under the roadway. In addition, the crossing of service lines 1-1/2 inches and greater under rigid and flexible surfaced paved roads shall be accomplished by boring and jacking a casing pipe under said roadway. In certain cases, as shown on the plans, service lines of all sizes will require casing pipe installed with the crossing.

In general, the crossing of city streets and certain county roads with main lines and the crossing of unpaved streets with main lines or service lines shall be accomplished by open trenching.

2.01 Open Trench Crossings

The trench shall be excavated to a minimum width that will allow the pipe installation. The trench walls shall be kept as nearly vertical as possible. The minimum specified cover above the pipe shall be maintained. The Standard Details section of the plans shows the requirements for open trench crossings.

The backfill in the trench under any roads, driveways, or parking areas where the open trench method is used shall be of the type shown in the Standard Details and shall be deposited and compacted in uniform layers not to exceed the depth shown in the Standard Details.

The surface of the road, driveway, or parking areas shall be replaced with the same type of material as specified under pavement replacement.

2.02 Boring and Jacking

The work is herein defined as the operations in which both the boring by auger and the jacking of the casing pipe are done mechanically and in which the diameter of the casing pipe is too small to permit hand working at the heading of the casing pipe. Two basic methods are; (1) pushing the casing pipe into the fill or earth simultaneously as the boring auger drills out the ground; and (2) drilling the hole through the fill or earth and pushing the casing or carrying pipe into the hole after the drill auger has completed the bore.

A suitable approach trench shall be opened adjacent to the slope of the embankment, or adjacent to point of bored and jacked section as shown on the plans. The approach trench shall be long enough to accommodate the selected working room. Guide timbers or rails for keeping the casing pipe on line and grade shall be accurately set and maintained in the bottom of the approach trench and with heavy timber back-stop supports installed at the rear of the approach trench to adequately take thrust of the jacks without any movement or distortion. It is paramount to the securing of acceptable tolerance limits of workmanship in the boring and jacking operation that extreme care be taken in the setting of all guides, rails and jacks to the end that the casing pipe in final position be within the limits of acceptability for the placing and laying of the carrier pipe. The minimum cover of 36 inches under the roadway must be maintained. Additional depth may be required as shown on the plans.

In general, the diameter, thickness, style, joints and materials selected for casing pipe shall be as shown on the plans and shall be considered as "minimum" requirements, all subject to prior approval of the ENGINEER. In all cases, the approval for construction by agreement with the private company and/or construction permit issued by the State, County, or Municipal agency will be required before construction starts.

Steel casing pipe for road and railroad crossings using the boring and jacking method shall be steel, plain end, uncoated and unwrapped, and shall be furnished in at least 18-foot lengths. Steel pipe shall meet the requirements of ASTM Specification A-120. Pipes up to and including 4 inches in diameter shall be Schedule 40. Pipe larger than 4 inches shall have a wall thickness equal or greater than 0.250 inches. The diameter of all casing pipes shall be as noted in Standard Details section of the plans.

The steel casing pipe shall be bored and/or jacked in place at the locations as shown on the plans or as directed by the ENGINEER. All joints between lengths shall be solidly welded with a smooth nonobstructive joint inside. The casing pipe may be extended beyond the boring limits by open trenching as shown in the Standard Details. This would apply when the casing is required from right-of-way or ditch line to ditch line. Open trenching at jacked or bored locations will be allowed no closer than 3 feet from edge of pavement. Sand backfilling of the annular space between the carrier pipe and the casing pipe shall be mechanically placed by suitable method when required and where shown on the plans. After the water main has been installed inside the casing pipe, inspected and tested, both ends of the casing pipe shall be sealed completely with concrete or other material as shown in the plans in a manner acceptable to the ENGINEER.

Where road crossings are made using plastic pipe or copper the location of joints under the roadway should be avoided by using lengths of adequate dimension for the crossing. This principle also applies to other types of pipe where sufficiently long lengths are available.

PART 3 - RAILROAD CROSSINGS

At all railroad crossings, cover pipe (casing) for water lines (carrier pipe) shall be jacked or pushed beneath tracks and the carrier pipe jointed and pushed through the cover pipe. Detailed drawings of railroad crossings including the length of casing and depth below track are shown in the plans. CONTRACTOR shall obtain and pay for services of a representative of the railroad to direct the CONTRACTOR's operations while on the railroad property when required by the railroad.

PART 4 - CREEK CROSSINGS

4.01 Special Creek Crossing

Where required on the plans or instructed by the ENGINEER, the CONTRACTOR shall construct a special creek crossing either Type A or B as shown in the Standard Details. Where the crossing is made in a creek which has a solid rock floor, the trench shall be cut in rock of such depth as to provide a cover all around the pipe of encasement class concrete as shown in the Standard Details. Concrete shall be thoroughly puddled in place. Where the crossing is in loose rock or unstable earth where bed movement is expected, the special crossing shall be the concrete anchor type shown in the Standard Details. Two short sections of pipe shall be used within eight (8) feet of each side of the stream crossing. Crossings shall be scheduled for construction in times of low flow, if practicable, otherwise cofferdams of sand bags or clay shall be used to divert the stream flow while crossing is made. For sharp vertical curves, short lengths of pipe shall be used as much as possible to avoid use of rigid fittings. Concrete shall not be placed under water and CONTRACTOR shall provide suitable pumps to keep water out of trench excavation during stream crossing construction. Mud and water shall not be allowed to enter the carrier pipe installation. Waterproof plugs shall be provided, if necessary, to prevent water entry. A typical stream crossing section is shown in the Standard Details.

4.02 Normal Earthen Creek Crossing

Where the stream crossing is made in earth or other beds which are stable (no casing or anchorage required), then the pipe will be laid in a narrow trench at the depth specified in the Standard Details to maintain the required cover between pipe and stream bed. Initial backfill will be mechanically compacted. Trench backfill in any stream crossing area from one (1) foot above the top of the pipe shall consist of trench excavated rock, if available. No extra payment will be made above normal construction for this type of creek crossing.

4.03 Materials

The type of water line installed at the Crossing will be specified in the plans. Concrete encasement locations and limits for stream crossings are shown on the plans for information only. The actual limits in locations where concrete encasement shall be required shall be determined in the field by the ENGINEER. The CONTRACTOR shall notify the ENGINEER of any rock excavation encountered in the area of the stream, ditch, or other area where erosion could jeopardize the pipe cover. Upon such notification, the ENGINEER shall instruct the CONTRACTOR as to whether concrete encasement should be used and the limits therefore. Failure by the CONTRACTOR to notify the ENGINEER in the above areas may result in re-excavation for placement of concrete encasement.

PART 5 - RIVER OR LAKE CROSSINGS

Crossings in rivers or lakes where the pipe cannot be laid in a trench shall normally be made with cast iron pipe having ball and socket joints. Details for any required installations of this type including pipe required, number, size and location of anchors, and installation technique are shown in the plans.

PART 6 - BRIDGE CROSSINGS

Wherever possible bridges will not be utilized for stream crossings. However, where it is necessary for the water line to be attached to bridges, the pipe shall be securely fastened to bridge stringers or beams using supports as dimensioned and located in the plans. The carrier pipe shall be insulated with Vermiculite or other approved material to prevent freezing. Expansion joints to allow for movement of the bridge will be required as shown on the plans.

PART 7 - PIPE BEDDING

7.01 Standard Pipe Bedding

Whenever the "undercutting method" is used to bed pipe lines, the CONTRACTOR shall furnish the standard pipe bedding for the continuous support of pipe. The standard pipe bedding shall be evenly spread fine granular earth material or shall be bank run sand and gravel or dense graded aggregate and shall be placed as shown on the drawings and Standard Details in accordance with the following pipe materials and under normal stable earth trenching conditions:

Pipe	Bedding
PVC (4 inches and smaller), copper, galvanized	earth trench bottom (leveled)
PVC (above 4 inches)	compacted earth backfill
C.I. and D.I. (less than 4 inches)	compacted earth backfill
C.I. and D.I. (4 inches diameter and above)	compacted crushed stone backfill

No substitutions for standard pipe bedding will be allowed unless approved in writing by the ENGINEER. Standard pipe bedding is not a separate pay item and is to be included in the unit price bid per foot of pipe.

7.02 Special Pipe Foundation

When ordered by the ENGINEER, yielding and mucking material in subgrade shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe. In such locations, a special pipe foundation shall be constructed utilizing encasement class concrete in accordance with the Standard Details. This special pipe foundation is a separate pay item. The special foundation or other special laying conditions may be required because of soil conditions, depth, traffic or other reasons. These will be extra pay items.

7.30 Standard Concrete Encasement

Concrete encasement of pipe shall be placed as directed by the ENGINEER in accordance with the Standard Details. Concrete pipe shall be mixed sufficiently wet to permit it to flow under the pipe and to form a continuous bed. In tamping concrete, care should be taken not to disturb the grade or line of the pipe or injure the joints.

Concrete placed outside the specified limits or without authorization from the ENGINEER will not be subject to payment.

Concrete for encasement is described elsewhere in these specifications. Standard concrete encasement is a separate pay item.

PART 8 - WATER LINE AND SEWER LINE SEPARATION

8.01 General

Wherever sewer lines and water lines cross, or are adjacent to, each other, special precautions shall be taken.

8.02 Parallel Water and Sewer Lines

Water lines must, if possible, be located a minimum lateral distance of 10 feet from any existing or future sewer lines measured from outside diameters. Where water lines and sewer lines must be placed in the same trench, the water line must be located on a shelf, 2 feet above and 2 feet to the side of the sewer line. Whenever this condition cannot be met, and upon direction from the ENGINEER, the water line shall be uncovered and encased with concrete per the standard encasement detail.

8.03 Crossing Water and Sewer Lines

Wherever sewer lines and water lines cross, it is desirable, if practical, that the sewer line be at least 24 inches below the water line.

Where it is not practical to provide such a separation, care shall be taken to ascertain that the existing water line or existing sewer line is in good sound condition and that no evidence of joint leakage is known in that vicinity. If any such evidence does exist, the existing line shall be exposed by the CONTRACTOR at least 10 feet each side of the new pipe crossing, carefully examined and any defects positively corrected. The OWNER will arrange for examining and correcting any defects in the existing lines, but the CONTRACTOR shall cooperate in every way possible.

When the water line must be below or less than 2 feet above the sewer line, the CONTRACTOR shall encase the water line 5 feet in each direction from the crossing as directed by the ENGINEER. This encasement should only be accomplished when directed by the ENGINEER and shall be accomplished in accordance with the details shown on the drawings. The encasement is a separate pay item.

PART 9 - NOTIFICATION OF UTILITY COMPANIES

The ENGINEER assumes no responsibility for the exact location of underground utilities and the CONTRACTOR shall locate such utilities to his own satisfaction. The CONTRACTOR shall notify the appropriate utility company for location of said utility lines in the field before excavation begins. The CONTRACTOR shall be solely liable for any damages to any utilities or private property during construction and for arranging for coordination with utility representatives.

PART 10 - BLASTING

When rock excavation is encountered, the CONTRACTOR shall notify the ENGINEER before any blasting is done. Whenever blasting is necessary, ample precautions shall be taken to prevent accidents to life and property from flying rock and debris by covering the trench or excavation with heavy timbers or mats, or by using other suitable means. Any damages caused by blasting done under this contract, shall be repaired by the CONTRACTOR at his expenses and to the satisfaction of the ENGINEER.

All blasting operations shall be conducted in strict accordance with the existing laws, ordinances and/or regulations relatives to State and/or local rock blasting and storage and use of explosives and Section 9 of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, Inc. Any rock excavation within 15 feet of water or gas mains of any size shall be done with very light charges of explosives and the utmost care shall be used to avoid disturbing the main.

Where there are no local ordinances governing blasting and the storage of explosives, all blasting supplies shall be stored in a manner approved by the rules and regulations of the Federal and State Occupational Safety and Health Regulations.

The CONTRACTOR shall maintain and keep in full force and effect blasting insurance to protect and indemnify the OWNER and/or his agents or representatives, including the ENGINEER and his representatives, from claims and damages and shall defend all suits at law.

PART 11 - DISINFECTION OF WATER LINES

All water piping shall be thoroughly disinfected before being placed in service, by the use of chlorine or chlorine compounds in such amounts as to produce an initial concentration of at least 50 ppm and a residual of at least 25 ppm at the end of 24 hours, followed by thorough flushing. If for some reason, the initial disinfection fails to result in a 25 ppm residual, or the initial concentration does not achieve at least 50 ppm, the process shall be repeated until said 25 ppm residual is obtained after the 24 hour period. All disinfection shall be accomplished in a manner satisfactory to the ENGINEER and the State Department of Health.

All valves in the lines including check and altitude valves will be opened several times during the sterilization process.

The CONTRACTOR shall be responsible for sterilization of both water lines and water storage tanks. After sterilization, the tanks shall be drained and cleaned of all debris prior to putting the unit back in service.

PART 12 - SEEDING AND SODDING

Upon completion of the installation of the work, the CONTRACTOR shall remove all debris and surplus construction materials resulting from the work. The CONTRACTOR shall fine grade all the disturbed surfaces around the area of the work in a uniform and neat manner leaving the construction area in a condition as near as possible to the original ground line or to the lines as directed by the ENGINEER. All graded areas shall be left smooth and thickly sown with a mixture of grasses. The mixture of grasses shall consist of one-third (1/3) Rye grass, one-third (1/3) Kentucky Fescue and one-third (1/3) Kentucky Bluegrass by weight, and shall be applied to the graded areas at a rate of not less than 1 pound of seed per one thousand square feet of area. When the final grading has been completed, the entire graded area to be seeded shall be fertilized with 12-12-12 fertilizer, applied at the rate of 6 pounds per one thousand square feet of area. After the seed and fertilizer have both been applied, the CONTRACTOR shall then lightly cover the seed by use of a drag or other approved device. The seeded area shall then be covered with straw to a depth of approximately one inch.

Where existing lawns have been disturbed, the existing sod will be removed and stored and replaced to its original position once the work is in place. If the CONTRACTOR damages or destroys the original sod, it shall be

replaced with a sod having at least 60% good quality Kentucky Bluegrass, strongly rooted and free of pernicious weeds and shall be so laid that no voids occur between strips. When replacing sod, it shall be tamped or rolled immediately after it is laid and the finished surface shall be true to grade, even and equally firm at all points. Well screened top soil shall be lightly sprinkled over the sodded areas and shall be thoroughly watered. Sod damaged by the CONTRACTOR shall be replaced with new sod by the CONTRACTOR at no cost to the OWNER.

The fine grading, seeding, sodding and clean-up shall be considered as incidental expense and shall not be separate pay items.

Meadows and hay fields will require replacement in kind unless the CONTRACTOR secures a release from the property owner agreeing to no replacement or alternate replacement.

PART 13 - PAVEMENT AND OTHER STRUCTURE REPLACEMENT

The CONTRACTOR shall replace all pavement cut or disturbed, with pavement similar in all respects to existing pavement in accordance with the Standard Details and at those locations approved by the ENGINEER. Every effort shall be made to avoid cutting the pavement. In restoring pavement, new pavement is required, except that granite paving blocks, sound brick or sound asphalt paving blocks may be reused. No permanent paving shall be placed within thirty (30) days after the backfilling has been completed. All concrete and asphalt paving materials shall be in conformance with the Standard Details shown in the plans.

13.1 Classification of Pavements

1. Concrete Pavement Replacement - This pavement replacement shall be Portland cement concrete construction in accordance with the requirements shown in the Standard Details. It shall include all pavement replacement on concrete surfaced roads, concrete driveways, concrete sidewalks and concrete parking areas, both public and private.

2. Heavy-Duty Bituminous Pavement Replacement - This type of asphalt pavement replacement shall be bituminous concrete surface over concrete base in accordance with the Standard Details. This type of pavement replacement shall be used on all heavily trafficked roads having an existing pavement greater than 2", whether public or private, or in other locations as directed by the ENGINEER.
3. Light-Duty Bituminous Pavement Replacement - This type of pavement replacement shall be bituminous concrete constructed in accordance with the Standard Details. This item shall include all light-duty bituminous concrete roadways, bituminous driveways and bituminous parking lots, both public and private.

4. Gravel Surface Replacement - This type of surface replacement shall include all graveled roadways, driveways, parking areas, or other gravel surfaced areas, both private and public. This type of surfacing may also be required as a base course for other pavement replacement.

13.2 Materials

The crushed stone backfill as noted on the drawings shall be dense graded aggregate (Class A Aggregate, Grading D) per Kentucky Department of Highways Specifications. The CONTRACTOR shall be responsible for the maintenance of the aggregate and the surface of the trenches until the pavement replacement is completed.

Portland cement concrete shall be as described in Section D of these specifications for Class "A" concrete. A set of cylinders shall be made and tested for each 25 yards of concrete placed, or fraction thereof, to supply representative sampling and testing of the concrete, upon the direction of the ENGINEER. The CONTRACTOR shall produce a broomed, or burlaped, uniformly smooth and nonskid surface, consistent with the existing pavement.

Bituminous materials and mixes shall be consistent with the recommended practice of the Asphalt Institute and it shall conform to the requirements of the Kentucky Department of Highways for prime coat and Class 1 bituminous concrete. The bituminous concrete shall consist of a binder or base course and a surface course.

13.3 Installation of Pavement Replacement

The CONTRACTOR shall cut back the surfacing adjacent to the trench for 12 inches on both sides of the trench and shall cut down the dense graded aggregate he has placed to a depth required for either type of pavement replacement. The resulting surface shall be rolled to yield a smooth, dense surface and a uniform depth.

The concrete shall be placed in accordance with standard practice, with the welded wire mesh if required in proper position and thoroughly vibrated into place. The CONTRACTOR shall produce a surface consistent with the existing pavement. The CONTRACTOR shall apply a liquid curing component, sprayed on the surface of the concrete, and shall provide adequate protection to the pavement until it has set.

For bituminous concrete, the CONTRACTOR shall clean and broom the prepared surface, then apply the prime coat at the rate of 0.20 to 0.25 gallons per square yard, with a pressure distributor or approved pressure spray method. When the prime coat has become tacky but not dry and hard, the bituminous binder course, or base course, whichever applies, shall be placed and compacted. The CONTRACTOR shall then apply the surface course. It is recommended, but not required, that the base course remain in place for approximately one week before placing the surface course. The finished course shall be compacted and the completed surface shall match the grades and slopes of the adjacent exiting surfacing and shall be free of offsets, depressions, raised places and all other irregular surfaces.

l3.4 Seasonal and Weather Limitations for Pavement Replacement

In the event the progress and scheduling of the work is such that the bituminous pavement replacement would occur in the winter months, during adverse cold weather and/or during such times the asphalt plants are not in operation, then the final pavement replacement shall be postponed until favorable weather occurs in the spring and the asphalt plants resume normal operations. No bituminous concrete shall be laid when the temperature is below 40^{o} F except by written permission of the ENGINEER.

Concrete pavement shall not be placed when the temperature is such that the pavement placed will freeze before it has had adequate time to set and shall be placed in conformance with the temperature conditions specified in Section D of these specifications.

The CONTRACTOR shall be responsible for replacement of pavement which he has placed which has been damaged by cold weather or freezing without additional compensation.

In the meantime, the CONTRACTOR will be required to maintain the temporary surfacing until the permanent pavement is placed. Such labor, materials and equipment as is required for temporary maintenance of the streets, roadways and driveways shall be provided at the CONTRACTOR's expense and is <u>not</u> a pay item. The CONTRACTOR will be required to use a cold mix asphaltic concrete as a temporary surface for trenches under heavy traffic use.

13.5 Guarantee

The one year guarantee as specified in the contract documents is also applicable to trench settlement and pavement replacement.

PART 14 - SIDEWALK REPLACEMENT

Sidewalks will be replaced if damaged by the CONTRACTOR in any way. Payment will be made for those sidewalks necessarily damaged by the line installation in accordance with the Standard Details. No sidewalks are to be replaced over a backfilled trench for at least 30 days after filling. Sidewalks damaged otherwise are to be replaced immediately at the CONTRACTOR's expense.

Materials and dimensions are to be at least equal to existing walk and are to conform with the Standard Details.

PART 15 - FINAL CLEAN-UP

The work shall not be considered as complete until the right-of-way of roads and all private property has been cleared of all rubbish and loose stone, and also all equipment, excess material and temporary structures. All property, both private and public, which has been damaged in the course of the work, shall be restored in a manner fully acceptable to the property owner. Ditches shall not be obstructed from draining nor will any rubbish or other material be left to obstruct culverts, bridges or other structures.

PART 16 - MEASUREMENT AND PAYMENT

Payment for crushed stone, black top and concrete pavement replacement will not be based on the quantities purchased by the CONTRACTOR. Payment for crushed stone will be made on the basis of that necessary to fill the trench to the dimensions shown in the Standard Details. Crushed stone sub-grade under paving shall be included in paving price and not paid for separately. Payment for blacktop or concrete will be based on the qu antities in place as shown by the limiting dimensions in the Standard Details. Any additional cost estimated by the CONTRACTOR must be included in the cost of pipe in place.

Payment for special creek crossings will be at the unit price bid per lineal foot for that item and shall include encasement pipe, crushed stone, concrete, solid rock excavation and all other work necessary for a satisfactory installation. The carrier pipe installed in the casing shall be paid separately under the unit price bid for pipe installed.

Additional costs for normal earth creek crossings shall be included in the unit price bid for pipe installation and no special payment will be made for these crossings.

Casing pipe unit price bids shall include the cost of boring or jacking under railroads and highways and shall include the cost of steel casing pipe. Carrier pipe will be paid for under the unit price bid for installing lines as described in Article 2.2 of this section. PVC shall be equal to steel for casing county crossings.

Where service pipe with no casing is pushed or bored under Federal, State, or County highways or other roads as required by the plans or directed by the ENGINEER, the cost will be paid under the bid for the appropriate type of service pipe pushed and bored. This payment will be based on the required pushing or boring length and will include all related work. Where rigid PVC service pipe is installed in this manner, the payment will include connection to polyethylene service pipe at each end of the rigid section. Length of pipe considered for payment under this bid will not be included in other pipeline quantities.

Unit price bids for special pipe bedding items are to include the cost per lineal foot of installing concrete or other special pipe bedding where required by the ENGINEER. This to be an additional cost to be added to the basic furnishing and laying unit price bid for water lines.

Sidewalk crossings when included as a bid item shall include the extra cost of boring under or the removal

and disposal of existing concrete sidewalk and replacement with new construction. Unit price bid is on the square yards of sidewalk replaced basis. Width for payment for a standard trench crossing is shown in the Standard Details.

If CONTRACTOR elects to bore or jack pipe under sidewalk, extra cost shall be paid for on the basis of square yards of sidewalk which would normally have been removed by the crossing. Cost of pipe installation should not be included in sidewalk crossing bid. When sidewalk crossings or replacement are not included as a bid item their costs shall be considered subsidiary to the bid for pipe installation.

Extra pay items may be established for crushed stone bedding when it is required as an extra. The price will be on a lineal foot basis.

Where required by the Special Provisions or the Bid Proposal, the cost of pavement replacement, boring, crossings of all types and other incidental construction shall be included in the unit price bid for pipe line installation and shall comprise total compensation for all such work.

End of Section

SECTION 02725 - BORING AND CASING FOR UTILITIES

PART 1. GENERAL

1.1 Work Included

The work to be performed hereunder shall consist of the installation of casing pipe for the purpose of installing utilities under streets, roads, highways or railroads. It shall include the excavation of a boring pit, auger boring, rock coring or jacking as and where required.

PART 2. PRODUCTS

2.1 Casing Pipe

The casing pipe shall be of steel meeting the latest approved American Railway Engineering Association "Specifications for Pipelines for Carrying Flammable and Nonflammable Substances." The steel casing pipe shall have a minimum yield strength of 35,000 psi and shall have the minimum wall thickness shown in the following table:

Carrier Pipe	Casing Pipe	Nominal Thickness
4	8	0.250 inch
6	12	0.250 inch
8	16	0.312 inch
10	20	0.312 inch
12	24	0.312 inch
14	27	0.344 inch
16	30	0.375 inch
18	32	0.406 inch

When the casing pipe is installed without benefit of a protective coating, the wall thickness shown above shall be increased to the nearest standard size, which is a minimum of 0.063 inch greater than the thickness shown.

PART 3. EXECUTION

3.1 Installation of Casing Pipe

The steel casing pipe shall be bored or jacked in place at the locations as shown on the plans or as directed by the Engineer. All joints between lengths shall be solidly welded with a smooth nonobstructive joint inside. When the casing is required from right-of-way to right-of-way or ditch line to ditch line, the casing pipe may be extended beyond the boring limits by open trenching. Open trenching at jacked or bored locations will be allowed no closer than three feet from edge of pavement.

A suitable approach trench shall be opened adjacent to the slope of the embankment, or adjacent to point of bored and jacked section as shown on the plans. The approach trench shall be long enough to accommodate the selected working room. Guide timbers or rails for keeping the casing pipe on line and grade shall be accurately set and maintained in the bottom of the approach trench and with heavy timber backstop supports installed at the rear of the approach trench to adequately take thrust of the jacks without any movement or distortion. It is paramount to the securing of acceptable tolerance limits of workmanship in the boring and jacking operation that extreme care be taken in the setting of all guides, rails and jacks to the end that the casing pipe in final position be within the limits of acceptability for the placing and laying of the carrier pipe. The minimum cover of 36 inches under the roadway must be maintained. Greater depth may be required.

3.2 Installation of Carrier Pipe

Skids must be used to prevent the pipe and bells from snagging on the inside of the casing, and to keep the installed line from resting on the bells. Skids should be thick enough to allow for clearance between the bells and the casing bottom. Strap skids to the carrier pipe at 7:00 and 5:00 positions. Notch skids to prevent banding from being cut as pipe is placed in the casing.

Pass a cable through the casing and the first pipe length and fasten it to a suitable wood crosspiece at the end of the pipe. Then pull the cable steadily until about two feet of pipe is left projecting out of the casing for assembly of the next length. The cable is then passed through the next pipe and two pipes are assembled. This operation is continued until the pipe is completely through the casing.

Lubricating the casing or skids will make sliding easier. The casing can be lubricated by depositing drilling mud or flax soap at the end of the casing. Then attach rags to the cable and pull them through so that they act as swabs or spreaders.

3.3 Closure of Casing

Under no circumstance should the ends of the casing be closed or any material installed inside the casing until after the pressure test has been completed. After the pressure test has been successfully completed, sack the end of the casing between the casing and the carrier pipe, leaving an opening on the bottom between the skids for drainage.

End of Section

SECTION 02731 - GRAVITY SEWERS

PART 1. GENERAL

1.1 Work Included

The Contractor shall furnish all labor, materials and equipment required to install the gravity sewer system as shown on the plans and as specified herein.

1.2 Submittals

Submit manufacturer's specifications for materials and installation instructions. Include test reports showing compliance with project requirements where test method is indicated.

1.3 Delivery and Storage

Notify the Engineer when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading operations and examining the pipe materials.

PART 2. PRODUCTS

2.1 Polyvinyl Chloride Sanitary Sewer Pipe

Pipe and fittings shall meet or exceed all of the requirements of ASTM D-3034. All pipe shall be marked with the manufacturer's name, production lot number, ASTM designation, and nominal diameter.

All fittings and accessories shall be the product of the same company as the pipe manufacturer. All in-line fittings shall be integral wye-tee combination with rubber ring joint. No saddle type fittings will be allowed.

2.2 Ductile Iron Sanitary Sewer Pipe

Pipe and fittings shall meet or exceed all of the requirements of ASTM A-746. All pipe shall be marked with the manufacturer's name, production lot number, ASTM designation, and nominal diameter.

All fittings and accessories shall be the product of the same company as the pipe manufacturer. All in-line fittings shall be integral wye-tee combination with rubber ring joint. No saddle type fittings will be allowed.

2.3 Manholes

A. Manhole Sections. Manholes shall consist of precast reinforced concrete sections, a conical or flat slab top section and a base section conforming with the manhole details shown on the drawings.

Manhole sections shall be manufactured, tested and marked in accordance with the latest provisions of ASTM C-478.

The minimum compressive strength of the concrete for all sections shall be 4,000 psi.

Joints of manhole sections shall be of the tongue and groove type with performed plastic gasket meeting the requirements of Federal Specification SS-S-00210, "Sealing Compound, Preformed Plastic for Pipe Joints" Type 1, Rope Form. The sealing compound shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler and shall contain no solvents, irritating fumes, or obnoxious odors. The compound shall not depend on oxidizing, evaporating, or chemical action for its adhesive or cohesive strength. It shall be supplied in extruded rope-form of suitable cross-section and of such sizes as to seal the joint space when the manhole sections are set. Joint shall be double-sealed (inside and outside). Con-Seal is an acceptable sealant.

Each section of the precast manhole shall have not more than two holes for the purpose of handling and laying. These holes shall be tapered and shall be plugged with rubber stoppers or mortar after installation.

B. Manhole Castings. Manhole rims, toe pockets and covers shall be cast iron conforming to ASTM A-48, Class 30 or 35 for gray iron castings. All castings shall be made accurately to the required dimensions, sound, smooth, clean and free from blisters and other defects.

Manhole frames and covers shall be heavy duty, with machined bearing surfaces. The words "Sanitary Sewer" shall be cast on the top in letters 2 inches high. They shall be as manufactured by the Neenah Foundry Co., East Jordan Iron Works, Inc., or equal.

C. Steps. Steps shall be built into the walls of all manholes. They shall be approximately twelve inches wide and shall be uniformly spaced at intervals of twelve to sixteen inches. Steps shall be cast aluminum, polypropylene coated #4 re-bar, or other approved material.

D. Line Connectors. All new manholes shall have rubber and/or neoprene line connectors for the installation of the line such as "A-Lok" or as recommended by the manufacturer. For connection to an existing manhole, a rubber boot type connector such as "Kor-n-seal" is required.

2.4 Waterproof Manhole Inserts

Manhole inserts, designed to prevent inflow of water through and around the manhole cover, shall be provided. Inserts shall be manufactured from a corrosion-resistant material able to withstand the environment of a sanitary sewer system, road salts, oils and fuels. Inserts shall be as manufactured by Southwestern Packing & Seals Co. or equal.

PART 3. EXECUTION

3.1 Lines and Grades

A. General. The Engineer will establish the locations of all manholes by reference to landmarks on the ground and will establish a system of bench levels to be used in the construction of the sewer lines.

B. Laser Beam Method of Laying Sewer. Laser beams shall be used for laying gravity sewer lines. The equipment shall be maintained in a good operating condition. The allowable error shall be plus or minus 0.02 feet.

3.2 Water and Sewer Separation

Wherever sewer lines and water lines cross, or are adjacent to each other, special precautions shall be taken.

Sewer lines which are parallel to a water line must, if possible, be located a minimum lateral distance of 10 feet from any water lines measured from outside diameters. Where it is not practical to provide such a separation, care shall be taken to ascertain that the existing water line or existing sewer line is in good sound condition and that no evidence of joint leakage is known in that vicinity. If any such evidence does exist, the existing line shall be exposed by the Contractor at least 10 feet each side of the new pipe crossing, carefully examined, and any defects positively corrected. The Owner will arrange for examining and correcting any defects in the existing lines, but the Contractor shall cooperate in every way possible.

When sewer lines cross water lines, the sewer line shall be installed at least 24 inches below the water line. If this condition cannot be met, the Contractor shall expose the existing water line a distance of 5 feet each side of the new sewer line crossing, and shall encase the water line in concrete in accordance with the details shown on the drawings.

3.3 Installing Sanitary Sewer Pipe

A. Excavation. The Contractor shall not excavate trench beyond what is necessary for pipe installation to minimize risk of accident or trench collapse.

B. Bedding. Bedding shall be with No. 9, No. 67 or No. 78 crushed stone. Pipe shall be laid with bottom quadrant of barrel and bells of pipe underlain by at least a four inch depth of stone on earth subgrade and at least six inch depth of stone on rock subgrade. If trenches are dug too deep, they must be brought up to grade with crushed stone.

C. Pipe Installation. All pipe must be inspected for uniform diameter, straightness and defects. Rejected pipe must be removed from the project.

Pipe shall be laid to required lines and grades. The pipe lengths shall be fitted together and matched, so that they will form a sewer with a smooth and uniform invert. Laying will begin at the lowest point and proceed upstream with the bells of the pipe pointing upstream.

Tees and wyes shall be located at such points in the sewer so as to facilitate the service connection.

No backfilling (except for securing pipe in place) will be allowed until the Engineer has had an opportunity to make an inspection of the joints, alignment and grade. Such inspection shall not relieve the Contractor of further liability in case of defective joints.

D. Backfilling. Backfilling of excavated trenches shall be commenced as soon as possible after the sewer is installed and the jointing and alignment are approved.

Backfill in trenches within the limits of existing or proposed paved surfaces shall be compacted DGA up to the paved surface. Where open-cutting of a state maintained paved surface is allowed, the backfill shall be controlled density fill with a 28 day compressive strength of 50 pounds per square inch.

Backfill in trenches outside the limits of existing or proposed paved surfaces shall be either compacted DGA or No. 9 crushed stone, to twelve inches above the top of the pipe. The remaining backfill shall be compacted soil, capable of supporting growth of either seed or sod.

3.4 Manhole Installation

Manhole inverts shall of factory made concrete construction and smooth. Where manhole inverts must be constructed, they shall be of 1:2 grout mix, in accordance with details on drawings. Inverts shall have the same cross-section as the invert of the sewer which they connect. The manhole invert shall be carefully formed to the required size and grade by gradual and even changes in sections. Changes in direction of flow through the sewer shall be made to a true curve with as large a radius as the size of the manhole will permit.

The cast iron frame for the manhole cover shall be set at the required elevation and properly anchored to the masonry. Where manholes are constructed in paved areas, the top surface of the frame and cover shall be tilted to conform to the exact slope, crown and grade of the existing adjacent pavement.

After backfilling has been completed, the excavated area, if located in a street, alley or sidewalk, shall be provided with a temporary surface.

3.5 Testing

A. Pipe Pressure Testing. The Contractor shall conduct low-pressure air tests of all pipe laid under this contract before putting the new sewers into service. The Contractor shall furnish all the necessary equipment and personnel required to conduct the tests, including pneumatic plugs, which shall have a sealing length equal to or greater than the diameter of the pipe to be tested.

The sewer line to be tested shall be flushed with water prior to the test. All pneumatic plugs shall be seal-tested before being used in the actual test installation.

Tests shall be made from manhole to manhole at an average pressure of 3.0 PSI greater than the average back pressure of any ground water present and shall be conducted in accordance with the test procedure outline below.

Plug all pipe outlets with suitable test plugs. Brace each plug assembly. If the sewer line to be tested is submerged in ground water, insert a pipe probe (by boring or jetting) into the backfill material adjacent to the center of the pipe, determine the pressure in the probe when air passes slowly through it. This is the back pressure due to ground water submergence over the end of the probe. All gauge pressures in the test shall be increased by this amount.

Add air slowly to the portion of the sewer line installation under test until the internal pressure is raised to 4.0 PSI. Allow at least two minutes for the air temperature to stabilize, adding only the amount of air required to maintain pressure.

When the pressure decreases to 3.5 PSI, start timing with a stop watch. Determine the time, in seconds, that is required for the internal air pressure to reach 2.5 PSI. Minimum permissible time for the 1.0 PSI drop (from 3.5 PSI to 2.5 PSI) shall not be less than 3 min. 57 sec.

The air test may be dangerous if a line is improperly prepared. It is extremely important that the various plugs be installed and braced in such a way as to prevent blowouts. Since an internal pressure of 5 PSI exerts a force of 250 pounds on an 8-inch plug, it should be realized that the sudden expulsion of a plug can be very dangerous. No one shall be allowed in the manholes of the section being tested until the lines have been depressurized.

Pressurizing equipment shall include a regulator set at 5 PSI to avoid over pressurizing and damaging an otherwise acceptable line.

B. Pipe Deflection Testing. After all backfill is in place, any pipe with stiffness (F/Y) of less than 100 psi shall be measured for vertical deflection. Maximum deflection of the installed pipe shall be limited to four percent of the internal pipe diameter. If the pipe is measured more than six months after all backfill has been placed, a deflection of five percent of the internal pipe diameter will be allowed. All pipe exceeding the allowable deflection shall be replaced or re-rounded by the Contractor.

C. Manhole Testing. Manholes shall be tested after installation with all connections in place. The test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings. Lift holes, if any, shall be plugged with an approved, non-shrink grout prior to testing.

Temporarily plug, with the plugs being braced to prevent the plugs or pipes from being drawn into the manhole, all pipes entering the manhole at least eight inches into the sewer pipe. The plug must be inflated at a location past the manhole/pipe gasket.

The test head shall be placed inside the frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.

A vacuum of 10 inches of mercury shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and disconnect the vacuum line.

The pressure gauge shall be liquid filled, having a 3.5 inch diameter face with a reading from zero to thirty inches of mercury.

The manhole shall be considered to pass the vacuum test if it holds at least 9 inches of mercury for the following time duration:

	Time (minutes)		
Manhole Depth	4' Dia.	5' Dia.	6' Dia.
20 feet or less	1	2	3
20.1 to 30 feet	2	3	4

No joints will be accepted that show leakage and if after backfilling and inspection any joints are found that are allowing ground water to enter the sewer, such joints must be dug up and corrected.

All lines or sections of lines that are found to be laid improperly with respect to line or grade, that are found to contain broken or leaking sections of pipe, or are obstructed in such a manner that they cannot be satisfactorily corrected otherwise, shall be removed and replaced.

End of Section

SECTION 02732 - FORCE MAINS

PART 1. GENERAL

1.1 Work Included

The Contractor shall furnish all material, labor and equipment required to install the force mains as shown on the plans and as specified herein.

1.2 Submittals

Submit manufacturer's specifications for materials and installation instructions. Include test reports showing compliance with project requirements where test method is indicated.

1.3 Delivery and Storage

Notify the Engineer when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading operations and examining the pipe materials.

PART 2. PRODUCTS

2.1 Polyvinyl Chloride Pipe and Fittings

A. Pipe. PVC pipe shall meet ASTM Specifications D-1784 for material and D-2241 for pipe, latest revisions. Pipe shall also meet all applicable provisions of the Product Standards and shall bear the National Sanitation Foundation (NSF) seal of approval in compliance with NSF Standard No. 14. PVC pipe having a maximum hydrostatic working pressure of 160 psi (SDR26), 200 psi (SDR21), 250 psi (SDR17), or 315 psi (SDR13.5) shall be used as required.

The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures (ASTM D-1598), burst pressures (ASTM D-1599), flattening, extrusion quality (ASTM D-2152), marking and all other requirements of the Product Standard PS 22-70 shall be conformed with in all respects.

Pipe shall be furnished in 20 foot or 40 foot lengths. The pipe may be double plain end or with bell on one end. Male ends of pipe must be beveled on the outside. Pipe shall have a ring painted around the male end or ends in such a manner as to allow field checking of setting depth of pipe in the socket.

Pipe shall be joined with slip-type joints with rubber gaskets. Pipes with bells shall have all part of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. The gasket groove shall be constructed such that gasket rollout will not occur. Rubber gasket shall conform to ASTM 1869. Joint lubricant shall be of a type recommended by the manufacturer for their pipe. Lubricant shall be water soluble, non-toxic and shall have no objectionable properties.

B. Fittings. Cast or ductile iron mechanical joint or push-on type fittings with appropriate adapters shall be used with PVC pipe. All such fittings shall be approved by the pipe manufacturer. Fittings shall comply with AWWA C-110 or C-111 and shall be manufactured for the size and pressure class of the line on which they are used. Use of transition gaskets will not be allowed unless specifically approved by the pipe manufacturer.

2.2 Ductile Iron Sewer Pipe

Ductile iron sewer pipe installed underground shall be Class 50, tar coated outside and inside in accordance with AWWA specifications. The joints for ductile iron sewer pipes shall be of the push-on type and shall have an annular recess in the pipe to accommodate a single rubber gasket. Plain spigot ends shall be suitably beveled to permit easy entry into the bell. A gasket and annular recess of the socket shall be so designed and shaped that the gasket is located in place against displacement as the joint is assembled.

2.3 Polyethylene Plastic Pipe

Pipe and fittings shall meet or exceed all of the requirements for Type III C5-P34 as tabulated in ASTM D-1248, latest revision (Ultra High Molecular Weight High Density Polyethylene Pipe). All pipe shall be a minimum of schedule 40 if used for force main or as specifically noted on the plans. The pipe and fittings shall be pressure rated at 73.4^{o} F and have a suggested design hoop stress of 730 psi.

All pipe shall be virgin quality, have a melt flow (Condition F) of less than 5.9 gms/10 min. (ASTM D1238) and shall exceed 1,000 hours on Environmental Stress Crack Resistance (ASTM D1693 Condition C.)

The polyethylene pipe shall have a manufacturer's recommended hydrostatic design stress rating of 730 psi based on a material with a 1,460 psi design basis determined in accordance with ASTM D-2837, Standard Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

Pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, or other injurious defects. It shall be uniform in color, opacity, density and other physical properties.

Marking on the pipe shall include the nominal pipe size, the type of plastic material, the standard thermoplastic pipe pressure rating in psi at 73^{o}F for low pressure 100 and 150 psi pipe (schedule 40 pipe is marked as such) and manufacturer's name or trade mark and code, at intervals of not more than five feet.

Molded fittings shall be molded from high density polyethylene of same material as main line.

Fabricated fittings shall be prepared from polyethylene pipe of same material as main line and by means of thermal fusion.

Polyethylene pipe lengths, fittings and flanged connections to be fused shall be of the same type, grade and class of polyethylene compound.

2.4 Plug Valves

Valves shall comply with AWWA C504 and C507. Valve body shall be stainless steel. Plugs shall be resilient faced with neoprene, suitable for use with sewage. Bearings shall be stainless steel. Valves shall be furnished with bell, flanged or mechanical joint end connections suitable for connection to the pipe with which they are to be used. Valves shall be DeZurik or approved equal.

2.5 Sewage Air Release Valves

Sewage air release valves shall be of the type that automatically releases air, gas or vapor under pressure during operation. Valves shall be 2” ARI model D-025 with reinforced nylon body, or approved equal.

2.6 Valve Boxes

All valves (plug, air release, check, etc.) installed underground shall be installed in a vertical position in an approved valve box.

Plug valve boxes shall be of a cast iron, two or three-piece, slip-type consisting of a base, a center section and a top section with a cover marked "SEWER". Where valve box is constructed in a paved area, the box shall be a screw type box. The entire assembly shall be adjustable for elevation and shall be set vertically and be properly adjusted so that the cover will be flush with the finished grade.

Air release valves will be installed in the same type of box as is used for meters. As described in these specifications the box may be cast iron, concrete, or concrete pipe. The box must allow for adequate cover over the pipe at the installation.

Check valves installed underground will be installed in the meter box type installation using concrete pipe and a meter box cover. The installation will utilize a suitable pipe diameter to accommodate the valve and accessories in accordance with the standard details. The box must allow for adequate cover over the pipe at the installation.

PART 3. EXECUTION

3.1 Clearing

Clearing and grubbing includes the cutting and removal of trees, stumps, brush, roots, logs, fences and other loose or projecting material and natural obstructions which must be removed to properly prosecute the construction and operate the facilities upon completion of construction. Protect trees, ornamental shrubs, plantings, fences, walls, and other improvements from the construction activity.

3.2 Trenching

Open the trench far enough ahead to reveal any obstruction that may necessitate changing the line or grade of the pipe.

Trench shall provide six inches of clearance on each side and below all pipe and fittings to provide working space and to permit proper backfilling around the pipe.

3.3 Shoring, Sheeting and Bracing of Excavation

Where unstable material is encountered, or where the depth of the excavation in earth exceeds five feet, support the sides of the trench or excavation by sheeting, bracing, or shoring. The design and installation of all sheeting, sheet piling, bracing or shoring shall be based on computations of pressure exerted by the materials to be retained. Proper shoring of excavations will be the responsibility of the Contractor. The Standards of the Federal Occupational Safety and Health Act and the Kentucky Department of Labor shall be followed.

3.4 Removal of Water

Provide adequate removal of all water and the prevention of surface water from entering the excavation. Maintain dry conditions within the excavations until the backfill is placed. All water pumped or drained from the excavation shall be disposed of in a suitable manner without damage to adjacent property or to other work under construction.

3.5 Bedding of Pipe

Prepare the bedding so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe.

Trench bottoms shall be smooth and free of frozen material, dirt clods and stones over 1/2" diameter. A layer of soft backfill must be provided to ensure the pipe barrel is properly cushioned. Crushed stone, fine gravel, sand or compacted finely graded select earth shall be used to correct irregularities in the subgrade. Holes shall be excavated to prevent the bells from being supported on undisturbed earth.

If unstable material is encountered which may not provide a suitable foundation for the pipe, the unstable material will be removed and an adequate layer of encasement concrete or other special bedding shall be placed for the pipe foundation. Such "special pipe foundation" shall only be installed when directed by the Engineer in writing or on the plans.

3.6 Pavement Removal

Only one-half (1/2) of the street crossings or road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged. Pavement replacement shall be in accordance with these specifications.

3.7 Pipe Installation

All pipe must be tested for uniform diameter, straightness and defects. Pipe found defective, not meeting specifications, or improperly installed shall be rejected and replaced.

The interior of the pipe shall be cleaned of dirt, jointing materials, and other substances. When pipe installation is stopped for any reason, the exposed pipe end shall be closed to exclude earth and other material.

Joining of pipes and fittings shall be performed in accordance with the pipe manufacturer's recommendations as to equipment and technique.

No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has had an opportunity to make an inspection of the joints and alignment. Such inspection shall not relieve the Contractor of further liability in case of defective joints.

No joints will be accepted that show leakage and if after backfilling and inspection any joints are found that are allowing ground water to enter the sewer, such joints must be dug up and corrected.

3.8 Thrust Blocking and Anchorage

All fittings, either vertical or horizontal, shall be braced or anchored against the tendency of movement with concrete thrust blocking, joint harness, or approved equivalent anchors to the satisfaction of the Engineer. Where joint harness is used, all component parts shall be stainless steel.

3.9 Water and Sewer Separation

Sewer lines must, if possible, be located a minimum lateral distance of 10 feet from existing water lines measured from outside diameters. Whenever this condition cannot be met, the sewer line must be located at least two feet below and two feet to the side of the sewer line. Wherever sewer lines and water lines cross the sewer line must be at least 24 inches below the water line.

3.10 Pressure Testing

Prior to the final inspection, the Contractor shall have taken the necessary steps to remove all dirt, debris and obstructions from the interior of all lines. The finished lines shall be pressure tested and comply with

the revisions listed herein, or similar requirements insuring equal or better results. Where leaks are visible or evident, the joints or pipes shall be remade and leakage minimized, regardless of total leakage as shown by test.

The force mains shall be tested at 100 PSI for 2 hours. The pumping equipment shall be detached during the test. An acceptable test shall be one in which the pressure holds during the test period as witnessed by the Engineer. Care shall be taken to ascertain that all air has been expelled from the lines prior to the test.

3.11 Final Cleanup

Before completion of contract, all backfill shall be reshaped, holes filled and surplus material hauled away, and all permanent walks, street, driveway and highway paving, and sod, replaced and reseeding performed.

The work shall not be accepted until the right-of-way of roads and all private property has been cleared of all rubbish and loose stone, and also all equipment, excess material and temporary structures. All property which has been damaged in the course of the work shall be restored in a manner fully acceptable to the property owner.

End of Section

SECTION 02831 - CHAIN LINK FENCES AND GATES

PART 1. GENERAL

1.1 Work Included

This section will cover fences to be constructed at locations and in the manner shown on the plans.

PART 2. PRODUCTS

2.1 Chain Link Fencing

It shall be standard overall height of seven (7) feet and constructed of chain link fabric with three rows of barb wire on top of steel brackets. Chain link fabric shall be one foot less than complete overall height of fence.

Vehicular gates shall be of single swing type having opening of 20 feet, unless otherwise shown on the Plans.

All fencing materials shall conform to applicable portions of the Standards of the Chain Link Fence Manufacturers Institute (CLFMI). Material for framework shall be open hearth, copper-bearing steel conforming to the applicable requirements of the latest ASTM for Standard Specifications, Serial Designation A7 for Steel for Bridges and Buildings.

End corner, angle and pull post shall be 2-7/8 inch outside diameter, standard tubular steel weighing not less than 5.79 pounds per linear foot. Line posts shall be 2-1/4 inch structural "H" sections weighing 4.1 pounds per linear foot or 2-3/8 inch outside diameter steel pipe weighing 3.65 pounds per linear foot. Top rail shall be 1-5/8 inch outside diameter steel pipe weighing 2.27 pounds per linear foot or "H" section weighing 2.27 linear foot. Top rails shall be provided with expansion rail couplings spaced at not less than 20 foot intervals. Gate posts for pedestrian gates shall be 2-7/8 inch outside diameter pipe weighing 5.79 pounds per linear foot Gate posts for vehicular gates shall be 4 inch outside diameter pipe weighing 9.1 pounds per linear foot.

Braces shall be provided at all corners and wherever fabric is not continuous, such as at gates or at other openings. Braces shall be of the same material as top rail. Extension arms on intermediate posts shall be of pressed steel. Extension arms shall carry 3 barbed wires. Fittings used in connection with the fence and gates shall be malleable iron or pressed steel. Barbed wire shall be four-point pattern, two strand, No. 12-1/2 gauge, copper-bearing steel wire, heavily hot galvanized after weaving, with large barbs placed 3 inches apart. Chain link fabric shall be copper-bearing base metal No. 9 gauge wire heavily zinc coated by hot dip process after weaving. The fabric shall be woven in a 2 inch chain-link diamond mesh. The fabric shall have a knuckled selvage along the top rail and a twisted and barbed selvage at the bottom. The barbing shall be done by cutting the wire on a bias, creating sharp points. A 2-inch padlock and chain shall be furnished with each gate. Three keys shall be furnished with each padlock. Chain shall be welded to the gate. Gate frames shall be of 1.9 inch outside diameter pipe weighting 2.72 pounds per linear foot. Corner fittings shall be of heavy malleable iron castings or pressed steel. Fabric shall be same as fence. Each gate frame shall be equipped with 3/8 inch diameter adjustable ball-and-socket hinges, catch and stops. Double gates shall have center rests. Hinges shall provide for swinging the gate open through an arc of not less than 180 degrees. Gates shall be suitably braced and reinforced to prevent sagging. Double gates shall be provided with center plunger rod, catch and semi-automatic outer catches to assure gate in opened position. All materials entering into the construction of required fencing shall be heavily galvanized by the hot dip process.

PART 3. EXECUTION

3.1 Installation

End, corner and gate posts shall be set in a concrete base not less than 18 inches in diameter which shall extend at least three inches below the bottom of the post. The post shall extend to a depth of at least three feet below the surface of the ground. A brace shall be spaced midway in height of each end, corner and gate post and shall extend to the first line post. Braces shall be securely fastened to posts by means of malleable iron connections and trussed from line post back to end, corner or gate post with a 3/8 inch diameter rod.

Line posts shall be set in a concrete base not less than 12 inches in diameter which shall extend at least three inches below the bottom of the post. The post shall extend to a depth of at least thirty inches below the surface of the ground. Line posts shall be equally spaced along the line of fence at intervals not to exceed ten (10) feet.

Galvanized steel pipe sleeves, 4 inch O.D. for corner, pull and gate posts and 3-1/2 inch O.D. for line posts shall be embedded in concrete as shown on the plans for all fence posts to be installed on concrete structures.

Top rail shall be installed between line posts. Fabric shall not be erected until concrete has had sufficient time to cure. Chain-link fabric shall be stretched to uniform tightness on the outside of the posts with suitable tools and shall be attached with No. 6 gauge galvanized wire clips securely clinched and attached by means of adjustable clamps. Fabric shall be fastened to line posts at 14 inch intervals. Fabric shall be attached to rail at 24 inch intervals by galvanized wires.

A No. 7 coil spring galvanized wire shall be stretched along the bottom of the fence and securely fastened to the posts. The chain-link fabric shall be attached to the tension wire at intervals not to exceed two feet.

End of Section

SECTION 02936 - SEEDING

PART 1. GENERAL

1.1 Work Included

The work described herein shall consist of replacing the surface soil, furnishing and incorporating the materials, for all exposed earth areas.

1.2 Submittals

Submit certificates of analysis and weight for all fertilizers to the Engineer. All seed shall be delivered in separate bags or packages according to species. The tags from each package shall be delivered to the Engineer.

PART 2. PRODUCTS

2.1 Seed

Seed shall be certified seed to be the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures and pure live seed. Seed shall be labeled in conformance with US Department of Agriculture rules and regulations under the Federal Seed Act and applicable state seed laws. Seed that has become wet, moldy, or otherwise damaged will not be acceptable.

Seed shall be of the following mixture:

Seed Type	Percentage
Kentucky 31 Fescue (Festuca arundinacea)	65
Creeping Red Fescue (Festuca rubra)	10
Red Top (Argrostis alba)	10
White Dutch Clover (Trifolium repens)	5
Ryegrass, perennial (Colium perenne)	10

2.2 pH Adjusters

Agricultural limestone shall have a minimum calcium carbonate equivalent of 90 percent and shall be ground to such a fineness that at least 90 percent will pass a 10-mesh sieve and at least 50 percent will pass a 60-mesh sieve. Agricultural ground limestone shall be from quarries approved by the Kentucky Department of Agriculture.

2.3 Fertilizer

Fertilizer shall be a commercial grade ammonium nitrate (33.5-0-0), monocalcium phosphate (0-46-0), and potassium chloride (0-0-60). Where fertilizer is furnished from bulk storage, the Contractor shall furnish a supplier's certification of analysis and weight.

2.4 Mulch

Mulch shall consist of wheat or rye straw. The mulch material shall be air dry, reasonable light in color, and shall not be musty, moldy, caked, and shall not contain noxious weeds.

2.5 Inoculants

Inoculant for treating legume seeds shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species and shall not be used later than the date indicated on the container. A mixing medium, as recommended by the manufacturer, shall be used to bond the inoculant to the seed. Seed shall be sown within twenty four hours of treatment and shall not remain in a hydraulic seeder longer than four hours.

PART 3. EXECUTION

3.1 Delivery, Storage and Handling

Fertilizer and limestone shall be delivered to the site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to State and Federal laws. In lieu of containers, fertilizer and limestone may be furnished in bulk and a certificate indicating the above information shall accompany each delivery.

Seed, limestone and fertilizer shall be kept in dry storage away from contaminants, insects and rodents.

3.2 Preparation of Seed and Planting Beds

A. Tillage: Soil shall be tilled to a depth of at least 4 inches. Tillage shall be accomplished by plowing, disking, or harrowing during periods when beneficial results are likely to be obtained. Undulations or irregularities in the surface shall be leveled before the next specified operations.

B. Placing topsoil: Topsoil shall be spread evenly with a minimum thickness of 4 inches. Surface irregularities resulting from topsoiling or other operations shall be leveled. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry or excessively compacted.

C. Application of Soil Conditioners: Lime shall be applied by tillage at the rate of four tons per acre. Fertilizer shall be applied at the rate of 120 pounds per acre of each nutrient. Equivalent amounts are 353 pounds of ammonium nitrate (33.5-0-0), 261 pounds of monocalcium phosphate (0-46-0), and 200 pounds of potassium chloride (0-0-60). Lime and fertilizer rates may be adjusted with the approval of the Engineer based upon the results of soils testing of final cover material. All fertilizers, pH adjusters, and soil conditioners shall be incorporated into the soil to a depth of at least 2 inches.

3.3 Seeding

A. Seed shall be broadcast uniformly at the rate of 400 pounds per acre. The seed shall be covered to an average depth of 1/4 inch by means of spike-tooth harrow, cultipacker, or other approved device. Seed shall not be broadcast when winds are above 10 mph.

B. Immediately after seeding, the entire area shall be firmed with a roller not exceeding 90 pounds for each foot of roller width and the soil moistened to a depth of 6-8 inches. If seeding is performed with a cultipacker-type seeder or if seed is applied in combination with hydromulching, rolling will not be required.

3.4 Maintenance

Seeded areas shall be protected and maintained by watering and replanting as may be necessary to produce a uniform stand of grass. Maintenance shall continue until a dense, uniform turf is established composed of the grasses specified and until acceptance, and shall include repair of damage caused by erosion.

End of Section

SECTION 11220 - SUBMERSIBLE NON-CLOG PUMP STATION

PART 1. GENERAL

1.1 Work Included

The Contractor shall furnish all labor, materials, equipment and labor for installing, testing and placing in service submersible non-clog pump stations including basin, valve vault, pumps, motors, controls, valves, piping and appurtenances.

1.2 Manufacturer

Pumps shall be as manufactured by Myers, ABS, or Flygt.

1.3 Submittals

Submittals shall contain descriptive literature as to dimensions and materials of construction. Performance data shall include size of pump, GPM, TDH, BHP, pump efficiency (inlet through discharge head), RPM, performance curves, shutoff head, weight of complete motor/pump as a unit and discharge diameter.

Installation information shall include drawings and information necessary for connecting piping and valves, electrical connections, starting and auxiliary equipment. Submit drawings showing dimensions and scaled assembly outline of the complete pump and all associated equipment. Such drawings shall show plan, elevation and any other views or sections requested. For all pumping units, a scaled cross-sectional drawing of the assembled pump showing full details, parts list of all items and materials of construction shall be submitted for approval.

A scaled drawing of the pump station and valve vault top slabs shall be supplied showing the exact location of all hatches, vents, panel mounting pedestals, and internal wet well piping to be certain that all equipment will properly fit and can be installed and/or removed without undue effort. This drawing shall clearly show location of hinge side of hatch and an exact location of the hoist sockets to insure that each pump can be pulled in a perfectly vertical fashion. The Contractor shall submit all other drawings, and other information specified, requested, and/or necessary to show complete compliance with all the details of the contract documents.

The pump manufacturer shall submit an Operations and Maintenance Manual containing all information necessary for proper operation and maintenance of pumping units as well as location of the nearest permanent service headquarters. The Operations and Maintenance Manuals shall detail all aspects of the pumps, including dimensions of impeller/wear rings, clearances, model number/size of bearings, size of mechanical seals and related data. There shall be two (2) manuals submitted for each pumping station. These manuals must be submitted when pumps are delivered.

1.4 Warranty

The pumps and motors will be covered by a full one (1) year warranty from date of Owner's acceptance. The initial one.e year from startup of the equipment shall be covered 100% for parts and labor. The warranty shall also include the cost of freight for pumps sent to repair facilities. This warranty shall not be limited by hours of running time or operation from variable speed drives.

PART 2. PRODUCTS

2.1 General

See plans for pump requirements and operating conditions.

The pumps shall be non-clogging sewage pumps capable of operating in a partially or entirely submerged condition. The design shall be such that pumps will be automatically connected to the discharge piping when lowered into place on the discharge connection. The pumps shall be easily removable for inspection or service, requiring no bolts, nuts or other fastenings to be removed for this purpose and no need for personnel to enter the pump well. Each pump shall be fitted with a stainless steel chain of adequate strength and length to permit raising the pump for inspection and removal.

All major parts, such as stator casing, sliding bracket and volute shall be of high tensile cast iron. All surfaces coming into contact with sewage shall be protected by a coating resistant to sewage. All exposed nuts and bolts shall be of stainless steel. All openings in the pump impeller and volute case shall be large enough to pass a three inch spherical solid.

2.2 Wet Well and Valve Vault

A. Pumping stations and valve vault shall be constructed of precast concrete sections as shown on the drawings. Precast concrete sections for wet wells and valve pits shall conform to ASTM C 478 or ASTM C 850, as applicable. Joints shall be mortared or grouted; joined with AASHTO M-198-75 preformed flexible butyl type joint sealant, Hamilton-Kent “Kent-Seal No. 2", K.T. Synder Co. “Rub’r-Nek”, Press Seal Gasket “E-Z Stik”, or equal; or joined with bituminous mastic joint sealing compound meeting Kentucky Department of Transportation Specification 807.02.04. When making joints with mastic compound, prime and seal all joints with primer supplied with the joint compound. Joints shall be watertight.

B. Concrete Base and Top. Reinforced concrete base and top slab shall be 4000 psi concrete of the dimensions shown on the Drawings. Wet well access hatches and wet well vent shall be cast in the top slab.

C. Access Hatches. There shall be furnished and installed aluminum access hatches as shown pon the drawings. Hatches shall be sized to allow removal of all pumping equipment. The hatches shall be of nonskid design and designed to handle a weight of 300 pounds per square foot. A recessed, vandal proof locking device shall be provided. A positive hold open bar shall be provided to secure the hatch in the open position. Stainless steel bolts for mounting each rail support plate shall be furnished so that each set of guide rails can mount directly to the access hatch.

All hinges and hinge bolts shall be stainless steel. All hinge bolt nuts shall be tack welded to prevent removal of bolts. All fasteners used on the hatches shall be non corrosive.

All areas of hatch frames that will be in contact with concrete shall be coated with bitumastic paint.

All valve vault hatches shall be trough frame type with a 1 1/2" pipe drain coupling and the same features as described above. They shall be equal to U.S. Foundry type T.P.S.

All single door wet well hatches shall be equal to U.S. Foundry type A.P.S. All double door wet well hatches shall be equal to U.S. Foundry type A.P.D. All wet well hatches shall be furnished with factory installed stainless steel bolts for securing the guide rail support plates, float mounting bracket, chain hooks and cable strain reliefs. Holes for these bolts shall be drilled and tapped at the factory. Bolts as

required shall be threaded into the hatch frame from the concrete side and secured with stainless steel nuts.

All wet well hatched shall be furnished with factory installed stainless steel bolts for securing the guide rail support plates, float mounting bracket, chain hooks and cable strain reliefs. Holes for these bolts shall be drilled and tapped at the factory. Bolts as required shall be threaded into the hatch frame from the concrete side and secured with stainless steel nuts.

All bolts shall be installed to prevent interference when closing the hatch. An adequate offset of the hatch stiffeners shall be made so that field installation of the guide rail top support plates will not interfere with closing of the hatch.

D. Fall Through Prevention. All wet well access openings shall be fitted with a permanently installed fall through prevention rail and net system that is easily retractable for access to the opening below. This system shall be a Hatch Net 121 as manufactured by U.S.F. Fabrication, Inc. or equal.

The fall through prevention system shall consist of the following components:

A polyester safety net manufactured to ANSI a 10.11 specification for personnel nets.

Extruded aluminum slide rails; Aluminum Alloy 6061-T6 with an ultimate tensile strength of 18 KSI, a yield strength of 8 KSI and a shear strength of 12 KSI., 316 stainless steel corner hooks.

Each net assembly will come with a permanently attached label with the following information: Name of the net manufacturer, Identification of the net material, Date of manufacture, Date of prototype test, Name of testing agency, and Serial number.

All stainless steel hardware and instructions necessary for proper installation of the net system shall be provided by the net system manufacturer. Installation shall be in accordance with the manufacturers instructions.

2.3 Motors

Pump motor shall be housed in an oil/air filled watertight casing and shall have Class F insulated windings which shall be moisture resistant. The motor shall be NEMA Design B rated 155°C maximum. Ball bearings shall be designed for 50,000 hours B-10 life. A heat sensor thermostat shall be attached to and imbedded in the winding and be connected in series with the motor starter contactor coil to stop motor if temperature of winding is more than 120C. The thermostat shall reset automatically when motor cools to safe operating temperature. Two heat sensors shall be used on 3 phase motors. The common pump, motor shaft shall be of 416 stainless steel. Motor shall be integral to the pump for submersible operation.

2.4 Seals

The motors shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seals shall be silicon carbide or tungsten carbide.

A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal.

Water in the chamber shall cause a red light to turn on at the control panel. This signal shall not stop the motor but shall act as a warning only, indicating service is required.

2.5 Impeller

Impellers shall be cast or ductile iron, non-clogging and dynamically balanced.

2.6 Pump Case

The volute case shall be cast iron and have a flanged center line discharge. Discharge flange shall be as required on the plans and shall be standard with bolt holes straddling center line. Pumps shall be capable of handling raw, unscreened sewage and pumping 3 inch diameter spherical solids.

2.7 Pump and Motor Castings

All castings shall be of high tensile cast iron and shall be treated with phosphate and chromate rinse. All fasteners shall be 302 stainless steel.

2.8 Bearing End Cap

Upper motor bearing cap shall be a separate casting for ease of mounting and replacement. All fasteners shall be stainless steel type 303.

2.9 Power Cables

Power cord and control cord shall be double sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal bushing to seal outer jacket against leakage and to provide for strain pull. Cords shall withstand a pull of 300 pounds to meet UL requirements.

Insulation of power and control cord shall be type SOW or STOW. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame. The pumps and motors shall be made by the same manufacturer and shall be designed to operate in a sewage pumping station pumping raw sewage.

2.10 Lift Out Rail System

Each lift out rail system shall consist of a ductile iron discharge base, bronze pump attaching and sealing plate, bronze pump guide plate, and cast iron elbow. All exposed nuts, bolts, and fasteners shall be of 300 series stainless steel. No fabricated steel parts shall be used.

Two rail pipes shall be used to guide the pump from the surface to the discharge base connection. The guide rail shall be 2 inch schedule 40 stainless steel pipe. The weight of the pump shall bear solely on the discharge base and not on the guide rails. Rail systems which require the pump to be supported by legs which might interfere with the flow of solids into the pump suction will not be considered equal. The guide rails shall be firmly attached to the access hatch frame. Systems deeper than 21 feet shall use an intermediate guide for each 21 feet of wet well depth.

One aluminum top rail support plate shall be provided for each installed pump. This plate shall be fabricated of aluminum plate and shall contain expandable rubber bushings to accept the 2 guide rails. These rubber bushings when completely tightened shall provide for a tight, vibration free guide rail installation. Notched openings in the rail support plates shall provide for horizontal adjustment. All fasteners shall be stainless steel.

2.11 Sealing

A sealing plate shall be attached to the pump. A simple downward sliding motion of the pump and guide plate on the guide rails shall cause the unit to be automatically connected and sealed to the base. The open face of the sealing plate shall have dovetailed groove machined into the face to hold a sealing "o"-ring. The "o"-ring shall provide a leak-proof seal at all operating pressures. No leakage will be acceptable.

2.12 Lifting Chain

An adequate length of 5/16" stainless steel lifting chain shall be supplied for removing the pump. The chain shall be of sufficient length and shall include an adequate number of lifting rings for easy removal. Length shall be 3 feet greater than the overall wet well depth. A stainless steel fabricated hook shall be provided for each chain. These hooks shall be secured to the hatch frame with stainless steel bolts and nuts before the hatch is cast into concrete.

2.13 Discharge Piping

All inside (pumping station and valve vault) piping shall be flange d ductile iron with threaded flanges in accordance with ANSI A21.15. All piping shall be rated for 150 psi and shall have ring gaskets, 1/8 inch thick.

The interior of all ductile iron pipe shall be cement -mortar lined with bituminous seal coat in accord ance with ANSI A21.4. Thickness of the lining shall be as set forth in Section 4 -10.1 of the aforementioned specification.

Ductile iron fittings shall conform to ANSI A21.10 with flanged faces and drilled ANSI B-161 125-pound.

Plug valves shall be non -lubricated eccentric type with synthetic rubber faced plugs (suitable for raw sewage) corrosion resistant metal seats, replaceable sleeve type bearings in the upper and lower journals and flanged faced and drilled ANSI B16.1 125 -pound. Valves shall provide drip-tight shutoff up to the full rated pressure. All plug valves shall be provided with limit stops and rotate 90 degrees from fully opened to fully closed. Plug valves shall be manually operated, with worm gear operator hand wheel. Eccentric plug valves shall be as manufactured by DeZurik, Clow, or equal.

Check valves shall be spring loaded swing type, bronze fitted and shall be as manufactured by M & H, Clow, or equal. Plug valves a check valve shall be provided on the discharge as shown on the Drawings.

A transition coupling shall be used to connect the ductile iron (plain end) discharge line to the force main. Transition coupling shall be Dresser Style 162, Rockwell Model 433, or approved equal. Pipe diameters shall be verified before ordering.

Flanged coupling adapters shall have one end suitable for bolting to a pipe flange and the other end of flexible coupling. All flanged adapters shall be harnessed. The adapters shall be furnished with stainless steel (304) bolts, extending to the adjac ent pipe flanges. The harness shall be designed for axial thrust due to a working pressure of not less than 250 psi. Not less than four special bolts shall be furnished for each adapter. Flanges on flanged adapter (unless otherwise indicated or required) shall be faced and drilled ANSI B16.1 Class 125. Flanged adapters shall be as manufactured by Dresser, Rockwell, or equal. A pressure gauge with an isolation valve shall be provided on the discharge piping, as shown.

All inside valves and piping shall be painted with a polyamide Epoxy three coat system.

2.14 Gauges and Gauge Taps

A minimum of three 3/4" NPT taps shall be supplied in the valve vault as shown on the plans. Each tap shall be supplied with a type 304 stainless steel nipple and bronze ball valve. One (1) 4-1/2" diameter liquid filled gauge with stainless steel diaphragm seal shall be supplied. A tamper proof strap shall be installed between the gauge and seal to prevent the seal from being broken. Gauge shall be equal to Ashcroft or approved equal. Gauge range shall be sized to allow gauge to operate in its mid range. A gauge protector shall be installed between the seal and gauge.

2.15 Valve Vault Drain

A 4" schedule 40 PVC drain shall be installed from the valve vault floor to the wet well. This drain line shall be properly laid to grade and bedded with stone. A check valve shall be installed as shown on the plans. Valve vault floor shall slope toward drain.

2.16 Station Control and Motor Controllers

A. The Contractor shall provide from the submersible pump manufacturer as part of a complete assembly a level control and resultant motor starter/control equipment as required to provide a complete operating system as specified herein.

B. The station control panels shall be inclusive of but not limited to the following major components.

1. Circuit breakers for each pump motor - minimum 5,000 A. RMS - 480V.

2. Fuse control circuit for level control (24 volt).

3. Phase Failure - Provide anti-single phase protection for each motor starter. Overload sensing is not acceptable.

4. Power Factor Correction - Capacitors shall be provided for each pump motor 10 HP and larger. Capacitors shall be furnished with fuse protection and blown fuse indicators.

5. Motor starters shall be NEMA reduced voltage autotransformer starter with circuit breaker.

   Starters shall have surge suppression on the input and the output and SCR fusing. Starter shall have necessary circuitry to include the power factor connection capacitors within the same housing and switched with the starter.

6. Provide elapsed time meter for each motor (calibrated in hours).

7. Enclosure - Service/circuit breaker protection equipment and control equipment shall be housed in all welded code gage sheet stainless steel enclosure. Enclosure shall be NEMA 4 x stainless steel (304), single or double door, hinged gaskets with provisions for locking. Provide a swing out panel for meters, switches and control items with starters, and equipment mounted on rear of enclosure. Panel to be factory wired with terminal strips at the bottom of enclosure for all field connections. Finish shall be natural stainless steel. Interior color shall be white for panels. Following installation, complete interior of enclosure shall be sprayed with an aerosol corrosion resistant compound equal to “2-26" by CRC Chemicals, Inc. Warminster, PA. All hardware shall be stainless steel. Enclosure pedestal shall be stainless steel.

8. Liquid level controls shall include mercury switch level sensors in corrosion and shock resistant plastic casing with flexible cord and weight. The level control system shall include support brackets for suspending sensors at proper levels in the wet well as shown on the Drawings.

Cable assemblies shall be of sufficient length to extend to system controller as shown on the Drawings (without a splice). Sensors shall be internally weighted. Control components shall include automatic alternation and/or pump additive scheme based on levels as shown on the contract Drawings for the respective stations. Provide a switch for manual bypass of alternator.

9. Provide a panel mounted alarm light with impact resistant plastic globe and guard, and an audible hour alarm to indicate pump overload, malfunction or high water alarm.

10. The pump control panel shall be provided with auxiliary contacts for remote run and alarm.

2.17 Electrical Requirements

A. Provide all material, labor and equipment required to install electrical services, controllers and make all equipment connections as shown on the Drawings and contained herein in these Specifications. All work shall be done in accordance with the latest edition of the National Electric Code and its supplements. All material and equipment shall be new and shall bear Underwriter's Laboratories (UL) labeling.

B. Locations of service poles as shown on the Drawings shall be verified with the Utility Company and adjusted accordingly. Installation of metering equipment shall meet the approval of the Utility Company.

C. Raceways for service shall be rigid steel. All rigid steel couplings, fittings, etc., shall be threaded. Raceways shall be run at minimum of 30" below grade.

Branch circuit feeder raceways shall be rigid steel. Secondary branch feeder raceways shall be buried at a minimum of 30" below grade. All rigid fittings and couplings shall be threaded.

Conduit seals shall be provided in all conduit runs between control panel and pump pit.

D. Provide all wire required to make circuit extensions as shown on the Drawings and hereinafter designated. All wire and cable shall be copper and shall be rated for 600 volts.

Wire shall be code grade THHN and may be either solid or stranded except as otherwise specifically noted on the Drawings.

Connectors: Connections, splices terminations, etc., shall be accomplished with mechanical connectors suitable for conductor material used and shall be of the mechanical pressure type. Soldering and tapping will not be acceptable.

E. Poles shall be pressure-tested wood: Southern pine, douglas fir, ponderosa pine, jack pine, lodgepole pine, red pine, or western cedar at the option of the Contractor. Poles shall be of the length and class indicated. Pole marking shall be located approximately 10 feet from the butt of the pole, except where other locations standard with the pole manufacturer are approved. Poles shall be turned smooth full length, and shall be roofed, gained and bored prior to pressure treatment.

Poles held in storage for more than two weeks shall be stored in accordance with ANSI Standard 05.1. The handling of poles shall be in accordance with ANSI Standard 05.1, except that pointed tools capable of producing indentations more than 1 inch in depth shall not be used.

Pole holes shall be drilled and poles shall be set 5'-0" deep. Holes shall be dug large enough to permit the proper use of tampers to the full depth of the hole. Earth shall be thrown into the hole in 6-inch maximum layers, then thoroughly tamped before the next layer is thrown in. Surplus earth shall be placed around the pole in a conical shape and packed tightly to drain water away from the pole.

F. Provide all pole hardware required to provide for utility company service attachment. Provide screw type anchors, down guy insulators and guy guard as required to anchor pole against utility company

service drop. Utility company shall provide, install and connect secondary service drop cable to service entrance conductors at weatherheads.

G. Disconnect Switches: Service disconnect switches shall be three (3) pole, double throw, fusible with neutral and ground lugs. All disconnects shall be NEMA 3R and shall be capable of being locked in either position. Disconnect switches shall be Square D, General Electric, Westinghouse, Allen Bradley, or approved equivalent. Provide provisions for weatherproof padlock at each disconnection switch.

H. Provide fuses for all disconnects of sizes shown on the Drawings. All fuses shall be of the dual element type Bussman Fusetron or equal.

I. All raceways shall be installed with smooth bends. Splices, in junction boxes below grade shall not be acceptable. Raceways shall be cleaned of all dirt, debris and moisture before wire and/or cable is pulled. Contractor shall provide all mounting frames required for controllers, disconnects, etc.

J. Personnel Qualifications: All electrical work shall be accomplished by qualified electrical personnel, currently maintaining the class " Journeyman Electrical". The Engineer reserves the right to request the qualifications of personnel accomplishing electrical work.

2.18 Coatings

Wet well and valve vault pipe, fittings and valves other than stainless steel shall be coated with primer Tnemec Series 66 Hi Build Epoxiline 3.0 to 5.0 mils and finish coat Tnemec Series 66 Epoxiline 4 to 6 mils, or equal.

PART 3. EXECUTION

3.1 Installation

Install pump stations in accordance with manufacturer's instructions at location shown on plans. Test equipment to check for pump performance, excessive vibration, leaks in all piping, correct operation of the control system and of auxiliary equipment. The controls shall be adjusted to start and stop the pumps at the required levels.

3.2 Startup

The Contractor shall provide at no cost to the Owner, the services of an accredited representative of the pump manufacturer who shall supervise the installation and testing of each pumping unit and also give operating and maintenance instruction to the Owner's personnel. Pumping equipment shall be tested for performance according to curves and other approved data. Failure of the equipment to perform as curves indicate and with other approved data shall be sufficient cause for rejection.

Contractor shall submit a certificate from the manufacturer, stating that the installation of the pumping unit is satisfactory, that the unit is ready for operation, and that the Owner's operating personnel have been suitably instructed in the operation and maintenance of the unit.

End of Section

SECTION 16797 - TELEMETRY
(Specification Provided By Corbin Utility Commission)

PART 1 - GENERAL

Work Included: Expand the existing Supervisory Control and Data Acquisition system (SCADA), to provide Monitoring for the new Remote Telemetry Site at the new sewage pump station. Since the Telemetry System is an expansion of the existing SCADAsystem, care shall be taken such that the final product is one cohesive system combining the In-Plant information seamlessly with the remotely monitored information. The work shall include, but shall not necessarily be limited to, the following:

A. Provide all SCADA System configuration, PLC based Remote Telemetry Unit, and field instruments as indicated and specified herein and required by the SCADA/instrumentation diagrams and descriptions.

B. Provide all engineering, hardware and software installation and supervision necessary and as specified herein.

C. Perform installation, startup, testing, and operational demonstrations as necessary and as specified herein.

D. Provide training programs as specified herein.

E. Provide operation and maintenance manuals as specified herein.

F. The new remote site shall communicate with the central SCADA system located at the WWTP. The SCADA integrator shall visit andbecome familiar with the existing system components and capacity prior to bid and provide all necessary upgrades to the existing unit to meet the system requirements described below.

PART 2 - PRODUCTS

2.01 General

A. The monitoring system shall consist of a PLC Based Remote Telemetry Unit communicating via VHF radio.

B. All equipment and materials shall be new, unused and proved by previous use of similar products to be completely suitable for the service intended.

C. All of the equipment shall be the manufacturer's latest and proven design. Specifications and drawings call attention to certain features but do not purport to cover all details entering into the design of the SCADA system. The completed system shall be compatible with the functions required and other equipment furnished by the General Contractor.

D. All electrical components of the system shall be powered by 120 volt, single phase, 60 cycle alternating current, except as otherwise indicated or specified.

E. All contacts for control, remote motor operated, or electrically operated equipment shall be rated not less than 10 amperes on 120V unless otherwise specified herein.

F. All systems and individual components, whether panel or field mounted units, shall be protected from voltage and/or current surges which may originate as a result of lightning or other external causes.
   1. Protective equipment to be provided by the SCADA System supplier and installed in accordance with his recommendations.
   2. Schematics of the instruments submitted for approval to the Engineer shall indicate how this protection will be provided and identify the items of equipment, which shall be used for this purpose.

G. The instrumentation and Control System Integrator shall supply "as-built" drawings containing all necessary information for propermaintenance and operation of the system.
   1. Wire log table showing connections (wire terminations) between all furnished components to be supplied to facilitate field wiring.
   2. Interconnection information between system components and equipment found in other sections of these Specifications shall be complete with all necessary interconnection information.
   3. Notes, which refer to equipment manufacturer's drawings for proper interconnection, will not be acceptable.
   4. Provide within 30 days after startup and after any field modifications.

PART 3 - PLANT SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM MODIFICATIONS

The overall Supervisory Control and Data Acquisition (SCADA) System shall be expanded to include SCADA operator workstation Remote Telemetry Unit at the sewage lift station.

Remote Telemetry Units:

The SCADA system shall interface to the Remote Telemetry Unit via Modbus protocol over VHF Licensed Radio. Remote Telemetry Unit will be provided at the sewage lift station site.

The Instrumentation and Control System Integrator shall be responsible for building graphics and developing PLC control logic for the new SCADA system HMI applications software.

PART 4 - GENERAL OPERATION SEQUENCE

Sewage pumps shall be controlled and monitored by way of the pump controller at the pump station site. The SCADA system shall incorporate and monitor the site. The SCADA screen shall display the pump status whether running in MANUAL mode, AUTO mode, or is in the OFF position. The pump RUN, OFF, FAULT, and ALARM (high and low) status/conditions shall be displayed for each pump. An on-screen elapsed time meter will be displayed for each pump. The SCADA shall also display the preset time delay for starting and stopping of each pump.

A graphical wet-well level indicator showing the rising and falling water level within the wet-well shall be provided. A numerical water level reading in feet shall be provided. This graphical tank

display and numerical reading shall directly track the level information provided to the SCADA system. The following additional conditions such as elevations for the High Water Level Alarm, Lead Pump No. 1 Start, Lag Pump No. 2 Start, Pumps Off, and Low Water Level Alarm shall also be displayed.

The display of the portable standby generator set (furnished by Owner) shall also be included. The screen shall indicate main power feed, loss of main power, standby power, and elapse time meter for generator.

PART 5 - REMOTE TELEMETRY UNIT

The remote monitoring system shall consist of a Remote Telemetry Unit, communicating via Licensed VHF Radio to a central PC/PLC based SCADA system. The instrumentation and Control System Integrator shall include all cost associated with Radio FCC Licensing and coordination within their bid price. The Instrumentation and Control System Integrator shall assist the Owner in gaining a FCC license, if needed. The Instrumentation and Control System Integrator shall prepare Frequency Coordination paperwork and FCC Licensing paperwork, if needed. The Owner shall sign such documents and shall forward them to the proper addresses.

All equipment and materials shall be new, unused and proved by previous use of similar products to be completely suitable for the service intended.

All of the equipment shall be the manufacturer's latest and proven design. Specifications and drawings call attention to certain features but do not purport to cover all details entering into the design of the SCADA system.

All electrical components of the system shall be powered by 120 volt, single phase, 60 cycle alternating current, except as otherwise indicated or specified.

All contact for control, remote motor operated, or electrically operated equipment shall be rated not less than 10 amperes on 120V unless otherwise specified herein.

All systems and individual components, whether panel or field mounted units, shall be protected from voltage and/or current surges which may originate as a result of lightning or other external causes.

Protective equipment to be provided by the SCADA System supplier and installed in accordance with his recommendations.

Schematics of the instruments submitted for approvalto the Engineer shall indicate how this protection will be provided and identify the items of equipment which shall be used for this purpose.

The Instrumentation and Control System Integrator shall supply "as-built" drawings containing all necessary information for proper maintenance and operation of the system.

Wire log table showing connections (wire terminations) between all furnished components to be supplied to facilitate field wiring.

Interconnection information between system components and equipment found in other sections of these Specifications shall be complete with all necessary interconnection information.

Notes which refer to equipment manufacturer's drawings for proper interconnection will not be acceptable.

Provide within 30 days after startup and after any field modifications.

PART 6 - PLC-BASED REMOTE TELEMETRY UNIT (RTU)

6.01 General:

A PLC-based Remote Telemetry Unit (RTU) shall be supplied.

Remote Telemetry Unit shall be constructed using "off-the-shelf" programmable logic controllers (PLCs) with modems, surge arrestors, relays, power supplies, and enclosures as required for a fully functioning and fully operational system.

All field wiring terminations shall be made to terminal strips capable of accommodating up to #12 AWG wire. Terminal strips shall be mounted using DIN rails. Terminal strips shall be as manufactured by Phoenix Contact, Allen-Bradley, Square D, or equal. Printed labels shall be used to designate terminal numbers for each terminal.

A limit switch shall be mounted on the door of the RTU enclosure. The limit switch shall be wired to a non-relay-isolated input of the RTU to provide a "RTU Door Open" signal.

Programmable Logic Controllers:

PLC

Type	Model Number	Description
Processor	171-CCS-760-00	Momentum M1 Processor Adapter, 256K RAM, 12K User Logic, 4K Registers, One Modbus RS232 port and one I/OBus port
Option Adapter	172-JNN-210-32	Momentum Option Adapter, Modbus (RS232/485) Port, TOD Clock, Battery Backup
Communication Adapter for Base #2 & Cable	170-INT-110-00 170-MCI-007-00	Interbus (I/O bus) Adapter Interbus (I/O Bus) Cable 11cm long - Low Profile
Base #1 Base #2	170-ADM-350-10 170-AAI-030-00	16 Digital Inputs, 16 Wired 16 Digital Outputs, 2 Wired 8 Single Ended 4-20 mA, 2 Wired

Enclosure Construction:

All PLC equipment shall be suitable for operation 120V, 60 Hz, single phase power. Receptacles with isolated ground shall be supplied for computer devices in the control room andinternal to the PLC enclosures.

All field wiring terminations shall be made to terminal strips capable of accommodating up to #12 AWG wire. Terminal strips shall be mounted using DIN rails. Terminal strips shall be as manufactured by Phoenix, Square D, or approved equal.

All analog inputs, shall be protected from surges using three separate levels of surge/transient suppression. The first level of protection shall be via a 1/4 Amp 3AG size fast acting fuse.

Secondary and tertiary protection shall be fulfilled using combination gas discharge and metallic oxide varistor (MOV) surge protection with current limiting resistors. Terminals shall be installed to allow each of the four analog inputs to be configured for 2-wire or 4-wire process transmitters and to produce either 4 to 20 mA or 1 to 5 VDC outputs to the PLC and any future display or signal conversion devices. Terminals shall be installed adjacent to the analog surge protection to provide 24 VDC for connections of future 2-wire transmitters.

All digital inputs, shall be isolated from field wiring through terminal strips and mechanical relays. Minimum contact rating for relays shall be 5 Amps at 250 VAC.

All digital outputs, shall be isolated from field wiring through terminal strips and electro-mechanical relays with contact ratings of 10 Amps at 250 VAC minimum.

Separate DC power supplies shall be provided for the PLC and for field analog and digital inputs. All DC power supplies shall be protected via indicating 3AG size fast acting fuses. Indicating fuse holders shall be DIN rail mounted.

Surge protectors shall be provided internal to the PLC enclosure to provide transient and surge protection from the phone line (where applicable).

An Uninterruptible Power Supply shall be provided integral to each RTU enclosure.

Two (2) circuit breakers shall be provided integral to the PLC. One circuit breaker shall provide protection to the PLC's internal power supplies and the other circuit breaker shall provide protection to a Ground Fault Interrupt (GFI) duplex utility outlet.

A Square D AC power surge protector shall be installed integral to the PLC to provide transient and surge protection for incoming AC power. A separate GFI duplex utility outlet shall be protected by the surge protector and shall be used only for the UPS system.

Communications Protocol:

In order to insure future expandability of the system, all communications shall be via Modbus. No other protocol shall be acceptable.

PART 7 - RADIO COMMUNICATIONS SUBSYSTEM

7.01 Communications Hardware; General Requirements:

Integrated wireless modem hardware that complies with applicable FCC or NTIA requirements for refarming shall be supplied. The radio and the modem must be packaged together and internally interfaced with each other.

On-line, non-intrusive RF network diagnostic monitoring shall be provided as a standard feature in the system architecture.

Wireless modem hardware of a 'packetized' design may not be used. Units shall be data transparent to allow for a minimum amount of data transmission latency and to limit data transmission overhead, thus allowing the wireless modem to obtain the data rates specified.

Keying of wireless modem hardware may be accomplished by either RTS signaling or data activated transmit. Data can be presented to wireless modem hardware for transmission when the Data Activated Transmit or DOX mode is selected.

The wireless modem hardware must be protocol transparent and independent. It must support 7 or 8 data bits, 1 or 2 stop bits, even, odd, or no parity.

Remote Station Wireless Modem:

The remote station wireless modem shall operate within the 132 to 174 MHz frequency band.

The remote station wireless modem shall have authorization of notification or type-acceptance for legal operation in a 12.5 kHz bandwidth channel, including 9600 bps operation at 12.5 kHz. The unit shall be operated at either 4800 bps or 9600 bps in a 12.5 kHz channel, but must be capable of operation at a speed of at least 9600 bps.

The unit shall operate in the half-duplex mode with the base wireless modem transmitter.

In the RTS Mode, assertion of RTS by the remote terminal unit shall initiate the data transmitting sequence. The remote wireless modem unit will provide a CTS signal to the remote terminal unit, indicating readiness to begin sending data over the air.

In the DOX Mode, the presence of data will activate the transmitter and begin sending data over the air without the need of RTS handshaking from the remote terminal unit.

1. Transmitter Requirements:

Bandwidth:	132-150 MHz – 18 MHz bandwidth 150-174 MHz – 24 MHz bandwidth This must be accomplished without re-tuning of the radio.
RF Output Power	At least 5 watts and must be adjustable down to 1 watt and any level in between.
Duty cycle	50% at 5 watts; 30 seconds maximum transmit
Frequency Stability	2.5 ppm between -30 to +60 Celsius
Spurious/Harmonic Emissions	-63 dBc (per TIA/EIA)
Transmitter Attack Time	Less than 7 ms per TIA/EIA measurement standards
Time-out Timer	Set at 30 seconds; programmable enable or disable via PC programming interface
Modulation Type	Frequency modulation, DRCMSK (Differential Raise-Cosine Minimum Shift Keying).
RTS-CTS Delay for RTS Mode	4 ms
RF Output Impedance	50 ohms

2. Receiver Requirements:

Type	Dual conversion, superheterodyne
Overall Sensitivity (at antenna input port)	9600 bps RS-232 interface: 1.4 V (-104 dBm) for 1 x 10-6 BER @ 12.5 kHz
Selectivity	65 dB @ 12.5 kHz (per TIA/EIA)
Intermodulation	75 dB (per TIA/EIA)
Spurious And Image Rejection	75 dB (per TIA/EIA)
FM Hum and Noise	-40 dB at 12.5 kHz (Psophometrically weighted per TIA/EIA)
Conducted Spurious	<-57 dBm
Frequency Stability	2.5 ppm from -30 to +60 Celsius
RF Input Impedance	50 ohms
Rx attack time	Less than 7 ms per TIA/EIA measurement standards
Bandwidth	132-150 MHz – 18 MHz bandwidth 150-174 MHz – 24 MHz bandwidth This must be accomplished without re-tuning of the radio

3. General Requirements:

Input Power	10 to 16 VDC (12 VDC Nominal).
Data Com Port	A DE-9F high–density female connector must be provided for use as a data communications port. A second, set-up port, DE-9F high density female connector must be provided as a diagnostic access port. The port standard is to be RS232C
Status Indicators	Bi-color LED displays to indicate RUN/PWR, CS/SYN, RX/TX and RD/TD.
Connections	Low loss type "N" RF connectors are to be provided on rear apron of chassis. SMA type RF connectors are to be provided on the front of the unit
Data Type	Unit must be designed and optimized solely for RF data transmission with built-in RS-232C port. Analog or voice capacity is not to be supported
Frequency Synthesized	Unit must be frequency synthesized and operate on a 2.5 kHz systhesizer step so that all FCC re-farmed frequencies can be synthesized
Temperature Range	-30 to +60 Celsius
Humidity Range	0 to 95% relative humidity, non-condensing
Antenna Connection	SMA type, female
Size	The wireless modem unit mounting must fit within a space 4.5" wide by 4.75" in length

Diagnostic Capabilities:

The remote unit must be frequency synthesized and programmable to allfrequencies by means of a personal computer running proper radio service software. All operational parameters must be accessible via programming software. It shall not be necessary to open radio housing to accomplish programming or setup.

The following radio parameters must be accessible through the programming software:

- Enable/disable on-line diagnostics
- Carrier detect on/off levels
- Modem version
- Enable/disable dynamic carrier detect
- Date of last configuration
- Total # of programming configurations
- Independent RF power level adjust for each channel
- PTT watchdog
- Receive and transmit frequencies
- ID number; long ID number
- Extended turnoff
- Over the air data rates
- Data word length

Remote unit must support diagnostic capabilities described and outlined in above. Remote units must originate diagnostic information and send over the air whether in on-line or off-line diagnostic mode.

The remote station wireless modem shall be Integra-TR or currently manufactured equal as supplied by Dataradio COR Ltd.

Directional Antenna for Remote Station Wireless Modem:

Must meet the following requirements:

Frequency Range	Appropriate to frequency of operation
Gain	6 dB, minimum
Maximum Power Input	150 watts
SWR	Less than 1.5:1
Lightning Protection	Direct ground protection to mast
Front-to-Back Ratio	20 dB, minimum
Connector	Type N, female
Mounting Hardware	Weatherproof clamp suitable for direct mount to 2 inch, Schedule 40 steel pipe

Provide Telewave, Decibel Products, Sinclair, or equal.

Transmission Cable & Miscellaneous For Remote Station Radio:

Provide (minimum 50 Ft) cable connecting the radio antenna port to the antenna, which is low-loss foam-dielectric type, 0.5 inch in diameter. Provide a six-foot section of "super-flex" transmission cable at the radio antenna port. Make this section pass through the enclosing panel and the control building exterior wall. Provide standard Type N connectors for connection to a continuous piece of cable extending to the antenna. Provide weatherproof transmission cable, suitable for direct environmental exposure. Use "O" ring seals on connections. Provide Andrew Corp. LDF4-50A. The System shall utilize appropriate bulkhead RF transmission cable surge suppression devices at cable entrances, Polyphaser or equivalent.

PART 8 - RTU ENCLOSURE

All RTU components shall be housed in a single padlockable enclosure suitable for mounting as shown on the Drawings.

Access doors shall have continuous stainless steel hinges and approved latching. Provide internal bracing as required for rigidity. Heat load calculations shall be performed by the System Integrator to insure that the enclosure is properly sized to allow adequate cooling.

All enclosures which are to be installed outdoors shall be provided with top, front, and side solar

shields. Solar shields are to be constructed of aluminum and shall be painted white. The top solar shield shall overhang the side solar shields. Solar shields shall be mounted to enclosures using minimum 1-1/2" standoffs.

A heater and thermostat shall be supplied inside the RTUenclosure to prevent the condensation of water.

Anti-corrosion inhibitor blocks shall be mounted inside each RTU enclosure to reduce corrosion. Corrosion inhibitors shall be Hoffman Model A-HCI10E or equal as approved by the Engineer.

RTU enclosures shall be rated as follows:

RTU-Outdoors	NEMA 4X, Stainless Steel, with Solar Shields
RTU-Indoors	NEMA 12 Carbon Steel

PART 9 - POWER SUPPLY DISTRIBUTION AND POWER SURGE PROTECTION

A Square D Model SDSA1175 with panel mounting bracket or equivalent AC power surge protector shall be installed integral to the RTU to provide transient and surge protection for incoming AC power to a simplex receptacle which shall be dedicated to power the uninterruptible power supply (UPS) system and to a GFI utility (convenience) outlet. Stainless steel cover plates shall be supplied for the simplex receptacle and the GFI utility outlet. All DC power supplies, modems, and all other RTU components shall be powered by the UPS system.

A Best Fortress LI660B (660 KVA) Uninterruptible Power Supply shall be provided integral to each RTU enclosure. The UPS system shall be protected from AC power surges by the AC power surge protector described above.

Separate DC power supplies shall be provided for the PLC and for field analog and digital inputs. All DC power supplies shall be protected via properly selected 3AG size fast acting fuses mounted in indicating fuse holders. Indicating fuse holders shall be DIN rail mounted. If a radio is installed in the RTU enclosure, a separate DC power supply shall be provided to power the radio. The radio power supply shall also be protected via a properly selected 3AG size fast acting fuse mounted in an indicating fuse holder.

Two (2) circuit breakers shall be provided integral to the RTU. One circuit breaker shall receive power from the UPS system and shall provide protection to the RTU's internal power supplies and other components. The second circuit breaker shall be powered directly from the AC power surge protector and shall provide protection to a Ground Fault Interrupt (GFI) duplex convenience utility outlet.

A lightning-transit protector shall be provided. The device shall be a solid state device with a response time of less than 5 nano-seconds with a withstanding surge capacity of 6500 amperes. Units shall be instant recovery, long life and have no holdover currents.

PART 10 - INPUT/OUTPUT (I/O) REQUIREMENTS

Provide I/O as detailed in I/O listing below and as noted in the General Operation Sequence Under this Section.

Low Water Alarm Elevation	Output
High Water Alarm Elevation	Output
Instantaneous Water Level	Output
Lead Pump ON elevation	Output
Lag Pump ON Elevation	Output
Pumps OFF Elevation	Output
Pump 1 Stop Delay	Output
Pump 2 Stop Delay	Output
Pump 1 OFF	Output
Pump 2 OFF	Output
Pump 1 Failure	Output
Pump 2 Failure	Output
Pump 1 Manual Start-RUN	Output
Pump 2 Manual Start-RUN	Output
Pump 2 AUTO Start-RUN	Output
Pump 1 AUTO Start-RUN	Output
Pump 1 RUN Timer	Output
Pump 2 RUN Timer	Output
Main Power ON	Output
Standby Power ON	Output
Main Power OFF	Output
Standby Power OFF	Output
Generator Set Alarm	Output
Generator Status	Output
Pump 1 Start Delay	Output
Pump 2 Start Delay	Output
Pump No. 1 Overtemp	Output
Pump No. 2 Overtemp	Output
Pump No. 1 Seal Fail	Output
Pump No. 2 Seal Fail	Output
Pump 1 Elapse Time Meter Reading	Output
Pump 2 Elapse Time Meter Reading	Output

All analog inputs, including spare analog inputs, shall be protected from surges using three stage surge/transient suppression devices. The first level of protection shall be via a 1/4 Amp 3AG size fast acting fuse. Secondary and tertiary protection shall be fulfilled using a combination of three terminal gas discharge tube and metallic oxide varistor (MOV) surge protection with current limiting resistors. Terminals shall be installed adjacent to the analog surge protection devices to provide convenient access to 24 VDC for connections of future 2-wire transmitters. Additional terminals or jumpers shall be installed to allow each of the four analog inputs to be configured to produce one 4 to 20 mA or 1 to 5 VDC signal to the PLC plus one auxiliary output signal connected to terminals to drive an additional or future digital display or signal conversion device.

All digital inputs, including spare digital inputs, shall be isolated via electro-mechanical relays. Minimumcontact rating for relays shall be 10 Amps at 250 VAC. Digital inputs isolation relays shall be connected to field wiring via DIN rail mounted terminal strips. A 2 Amp 3AG size fuse installed in an indicating fuse holder shall protect the 24 VDC power supply for all digital inputs. A minimum of twelve (12) relays shall be provided and shall be fully wired to twelve (12) of the sixteen (16) available digital inputs. Additional digital inputs shall be wired via interposing relays if required to accommodate additional digital field input signals.

One Digital Input shall be dedicated to monitor AC power failure for the RTU.

A Digital Input shall be dedicated to monitor Low Battery power condition of the uninterruptible power supply (UPS) system.

A Digital Input shall be dedicated to monitor the limit switch mounted on the door of the RTU enclosure.

Digital outputs shall be isolated from field wiring through terminal strips and electro-mechanical relays with minimum contact ratings of 10 Amps at 250 VAC. A minimum of six (6) relays shall be provided and shall be fully wired to six (6) of the available digital outputs. Additional outputs shall be wired via interposing relays if required to accommodate additional digital field output signals.

PART 11 - SECURITY ACCESS SYSTEM FOR REMOTE SITE

A security access system shall be supplied to monitor and authorize site and/or panel accesses. A security card/key reader shall be supplied and installed on the exterior of the Remote Telemetry Unit. The security system shall be seamlessly interfaced between the existing Wonderware HMI package and the new PLC-based Remote Telemetry Units (RTUs).

Operational Description

Upon a site or panel intrusion, the security card/key reader LED shall begin flashing and emitting an audible alarm sound. The flashing security card/key reader LED indicates that the Owner's personnel has a user selectable period of time to place their identification card/key on the reader at the control panel. If the user selectable time period expires before a key is placed on the security key reader, an intrusion alarm will be set and the security key reader LED will be turned off. The alarm buzzer shall continue to sound for five minutes. When a valid card/key is read by the security key reader within

the user selectable time period, the key ID number is read and the security card/key reader LED will stop blinking and become steadily illuminated. The SCADA system will read the card/key ID fro the RTU and verify that the card/key ID is authorized to gain access. If the SCADA system matches the key ID, the event shall be logged identifying the individual, location and time of site access at the central HMI Operator Workstations. An intrusion alarm indication from the RTU or an unmatched card/key ID will generate an unauthorized access intrusion alarm. An unauthorized access alarm shall be configured to automatically generate audible alarms on the central HMI Workstation and at the remote via an alarm horn. Upon departure from the station, the Owner's personnel will re-arm the security system by either closing the control panel door or pushing an "Exit" pushbutton, At this point, the RTU will clear out the key ID, indicating to the HMI that the personnel have left the station. The HMI will log the event, again identifying the individual, location and time of departure. It shall also be possible to configure the RTU to automatically re-arm itself after a pre-determined amount of time. The SCADA system's HMI shall log all access events whether authorized and unauthorized. The System Access Monitoring and Control system shall be Magtek Intellistripe 380, M/R eye security, or engineer approved equal.

Access Identification Card/Key

The system shall be provided with twenty-five (25) access identification cards. The access identification cards shall include a unique, serial number. The serial number shall be a 64-bit registration number. The identification card/key shall be non-powered and not requirea battery to maintain its identification number.

WithinWonderware's Alarm/Event Logger it shall be possible to track, view and print site accesses. It shall be possible to view authorized and unauthorized accesses, grouped by individual site locations. It shall also be possible to track, view and print site accesses, group by an individual.

Security Card/Key Reader

An electronic security card/key reader shall be supplied at all remote Telemetry Units locations. The security card/key reader shall be suitable for mounting on the exterior of the control panel. The card/key reader shall provide the electrical contact for the access identification card/key date transfer. The card/key reader shall include a solid metal housing shaped to self-align with the card/key. The card/key reader shall include and LED for user feedback housed in the center of the contact.

Serial Converter

A serial converter shall be supplied to interface the security key reader to the local PLC.

PART 12 - ANTENNA MOUNTING TOWERS & MASTS

The system integrator shall supply and install antenna Tower or Mast. Tower or Mast shall be aluminum or stainless steel in construction. Antenna to be mounted on buildings shall be supplied with appropriate Masts and mounting hardware to affix the Antenna and cabling to the Building.

PART 13 - RADIO SURVEY AND FREQUENCY COORDINATION & LICENSING

The System Integrator shall perform a radio survey using GPS location and computer propagation analysis software. The System Integrator shall perform coordination to assist the Utility Department in preparing FCC Licensing.

PART 14 - ON-SITE RADIO SURVEY

The successful System Integrator shall perform an On-site Radio Propagation Study to verify Radio Paths before supply hardware or Final Licensing.

PART 15 - WARRANTY

The system manufacturer shall supply a one (1) year parts and labor warranty for all items supplied under this contract. Any damage however as a result of power surges and lightning strikes shall not be included as warranty repair.

The manufacturer shall provide 24 hour response to calls from the owner. The manufacturer may dispatch by next day air parts to the owner for field repair by Owner's personnel. Any damage to the system resulting from such field repair shall be deemed the sole responsibility of the manufacturer. If field repair, in the judgment of the manufacturer, cannot be made, then the manufacturer shall dispatch "factory" personnel to the job site to accomplish the repairs at no cost to the owner.

Control software updates (as they are developed) shall be provided free during the warranty period.

End of Section