

CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

Hartland 3 Pump Station Replacement

**Wastewater System Improvements
Division of Water Quality
Lexington Fayette Urban County Government**

Remedial Measures Plan ID No. EH-18

LFUCG Bid No. 129-2021

Date: December 2021

PREPARED BY:

**Bell Engineering
2480 Fortune Drive
Suite 350
Lexington, Kentucky 40509**

Edition: Bid Set

Updated 7/27/2016

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SECTION 00100 - ADVERTISEMENT FOR BIDS

1.01 INVITATION

Sealed proposals for the following work will be received by the Lexington-Fayette Urban County Government (LFUCG) via Ion Wave (<https://lexingtonky.ionwave.net>) until 2:00 p.m., local time, Wednesday, January 19, 2022, for furnishing all labor and/or materials and performing all work as set forth in the Contract Documents prepared by and for Lexington-Fayette Urban County Government, Division of Water Quality (OWNER). All forms and Contract Documents normally filled out and attached with bid submission may be downloaded from Lynn Imaging's Planroom and may be viewed on Ion Wave. All notary requirements are waived for this solicitation. A copy of bid bond must be included with submission. Immediately following the scheduled closing time for reception of Bids, all proposals which have been submitted in accordance with the above will be opened electronically and a bid tab sheet will be posted on Ion Wave within approximately 30 mins.

Due to the current environment and recommendations for social distancing, LFUCG will only be accepting bids on-line through Ion Wave for this solicitation. Base bid and alternate totals (if required) should be provided on the appropriate line items tab on Ion Wave. Submissions without line item totals (if required) may be rejected and deemed non-responsive. THESE INSTRUCTIONS SUPERCEDE ALL OTHER BID SUBMISSION INSTRUCTIONS PROVIDED IN THIS PACKAGE. PLEASE SUBMIT ALL QUESTIONS VIA THE Q&A MODULE ON ION WAVE.

1.02 DESCRIPTION OF WORK

The project includes providing all construction supervision, labor, materials, tools, test equipment necessary for the Hartland 3 Pump Station Replacement, to include new wetwells, valve vault, pumps, electrical appurtenances, comminutor vault, and site improvements at Hartland 3 Pump Station.

1.03 OBTAINING PLANS, SPECIFICATIONS, AND BID DOCUMENTS

Plans, Specifications, and Contract Documents shall be obtained from Lynn Imaging, 328 Old Vine Street, Lexington, KY 40507, (859) 255-1021 or (www.lynnimaging.com) and click on planroom for a non-refundable price of reproduction for each full set of plans and documents. Bids must be submitted through LFUCG's Ion Wave. Due to current environment and recommendations for social distancing, no Contract Documents may be examined in person.

1.04 METHOD OF RECEIVING BIDS

Bids will be received from Prime Contracting firms on a lump sum and line item unit price basis. Bids shall be submitted in the manner and subject to the conditions as set forth and described in the Information Available to Bidders and Bid Form.

Bids should be submitted online via Ion Wave.

1.05 METHOD OF AWARD

Determination of the successful Bid will be based on the lowest responsive and responsible Bidder whose qualifications indicate the award will be in the best interest of the OWNER and whose Bid/proposal complies with all the prescribed requirements. No Notice of Award will be given until the OWNER has concluded such investigation as deemed necessary to establish the responsibility, qualifications and financial ability of Bidders to do the work in accordance with the

Contract Documents to the satisfaction of the OWNER within the time prescribed. The OWNER reserves the right to reject the Bid of any Bidder who does not pass such investigation to the OWNER's satisfaction. The OWNER reserves the right to reject the Bid of any Bidder that is deemed to be unbalanced or front loaded. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

1.06 BID WITHDRAWAL

No Bidder may withdraw his Bid for a period of ninety (90) calendar days after the closing date for receipt of Bids. Errors and omissions will not be cause for withdrawal of Bid without forfeit of Bid Bond.

1.07 BID SECURITY

All Bids shall be accompanied by a Bid Bond of not less than five percent (5%) of the amount of the Bid executed by a Surety Company authorized to do business in the Commonwealth of Kentucky and countersigned by a licensed Kentucky Resident Agent, representing the Surety Company. Certified Check or Bid Bond shall be payable to Lexington-Fayette Urban County Government. Bid Bonds are not required for bids under \$50,000. A cashier's check or irrevocable letter of credit is an acceptable form of bid security.

A scanned copy of the bid bond is acceptable and must be uploaded with the bid through Ion Wave.

1.08 SUBMISSION OF BIDS

Contractors shall submit their Bids via Ion Wave not later than 2:00 p.m., local time, Wednesday, January 19, 2022. Bids will remain sealed until 2:00 p.m., local time, Wednesday, January 19, 2022, the official Bid closure time. Bids received after the scheduled closing time for receipt of Bids will not be considered.

1.09 RIGHT TO REJECT

The OWNER reserves the right to reject any and all Bids and to waive all informalities and/or technicalities where the best interest of the OWNER may be served.

1.10 NOTIFICATION TO THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT FOR AFFIRMATIVE ACTION PLAN AND CURRENT WORKFORCE

The successful bidder must submit the following to the OWNER:

1. Affirmative Action Plan for his/her firm.
2. Current Workforce Analysis Form

Failure to submit this as required herein may result in disqualification of the Bidder from the award of the contract.

1.11 NOTICE CONCERNING MWDBE and Veteran Goals

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation. Disadvantaged Business

Enterprises (DBE) consists of Minority-Owned Business Enterprises (MBE) and Woman-Owned Business Enterprises (WBE).

The OWNER has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to Disadvantaged Business Enterprises, which is made up of MBEs and WBEs, and set a goal that not less than three percent (3%) of the total value of this Contract be subcontracted to Veteran-Owned Small Businesses. The goals for the utilization of Disadvantaged Business Enterprises and Veteran-Owned Small Businesses as subcontractors are recommended goals. Contractor(s) who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Purchasing of efforts they have made to accomplish the recommended goal, and the extent to which they are successful in accomplishing the recommended goal will be a consideration in the procurement process. Depending on the funding source, other DBE goals may apply.

For assistance in locating Disadvantaged Business Enterprise and Veteran-Owned Small Businesses as Subcontractors contact:

Sherita Miller, Division of Central Purchasing
LFUCG
200 East Main Street, 3rd Floor, Room 338
Lexington, Kentucky 40507
859-258-3323
smiller@lexingtonky.gov

1.12 PRE-BID MEETING AND SITE VISIT

A mandatory pre-Bid meeting will be held at 1:30 p.m., local time, Wednesday, January 5, 2022, via teleconference. A direct link to the Zoom meeting ID, and password will be issued in a future addendum. Following the virtual meeting, there will be a site visit at the existing Hartland 3 Pump Station at 3:00 p.m., local time, Wednesday, January 5, 2022. The gate will be opened to allow access to the station.

1.13 CONSENT DECREE REQUIREMENTS

The work to be provided through this Bid will assist the OWNER in successfully implementing the Agreement (Contract) and complying with any requirements which are related to the CONSENT DECREE entered in a case styled *United States & Commonwealth of Kentucky v. Lexington-Fayette Urban County Government*, United States District Court for the Eastern District of Kentucky, Civil Action No. 5:06-cv-386-KSF (the "CONSENT DECREE"). The services provided through this Bid are hereinafter referred to as the Agreement (Contract). The primary goal of the Agreement (Contract) is to provide the owner with the technical support and/or construction services necessary to successfully meet the obligations and deadlines of the CONSENT DECREE.

The Bidder shall familiarize itself with and shall at all times comply with the CONSENT DECREE, and all federal, state and local laws, ordinances, and regulations that in any manner affect the Agreement (Contract). Time is of the essence in the performance of Agreement (Contract). Bidder is aware that the Owner is subject to penalties for non-compliance with the CONSENT DECREE deadlines.

If delays result solely by reason of acts of the Bidder, the Bidder shall be held liable for any financial penalties incurred by the Owner as a result of the delay, including but not limited to those assessed pursuant to the CONSENT DECREE. In the event the parties cannot mutually agree upon the cause(s) associated with the delays in completing project deliverables, the Bidder must immediately notify the Owner in the event of such delay, and provide the Owner a written action plan within five (5) business days on how it will attempt to resolve the delay.

In the event that Bidder's delay or other nonperformance of its obligations hereunder results in the imposition of penalties against the Owner pursuant to the CONSENT DECREE, or the Owner otherwise suffers damage as a result of such delay or nonperformance, Bidder shall be solely liable to Owner for any and all such damages, including any costs and attorney's fees.

An electronic version of the CONSENT DECREE is available on the LFUCG web page for review or to print a copy at no charge.

END OF SECTION

SECTION 00300 – INFORMATION AVAILABLE TO BIDDERS

1.01 RECEIPT AND OPENING OF BIDS

The Lexington-Fayette Urban County Government (herein called the OWNER) invites Bids from firms on the project described in the Advertisement for Bids. The OWNER will receive Bids online through Ion Wave (<https://lexingtonky.ionwave.net>) at the time and in the manner set forth in the Advertisement for Bids, at which time the bids will be opened electronically. 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 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 ninety twenty (90) days after the actual time and date of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid Security prior to that date.

The OWNER assumes no responsibility for Bids that are not submitted electronically as indicated above. Bids that are not submitted online by the stated time and date will be rejected.

1.02 PREPARATION OF BID

Each Bid must be submitted on the prescribed digital Bid Form within Ion Wave. All blank spaces for the Bid prices must be filled in or the bid will be considered incomplete. Each Bid must be submitted online via Ion Wave.

1.03 SUBCONTRACTS

The Bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the OWNER. All proposed subcontractors must be identified on Bid Form. Prior to the award of Contract, the OWNER or the OWNER's representative will advise the Contractor of the acceptance and approval thereof or of any action necessary to be taken. Should any Subcontractor be rejected by the OWNER, the Contractor shall present a new name and/or firm to the OWNER at no change in the Contract Price.

1.04 QUALIFICATIONS OF BIDDER

The OWNER may make such investigations as the OWNER 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 Agreement (Contract) and to complete the Work contemplated therein. Conditional Bids will not be accepted.

In evaluating Bids, OWNER shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternatives and unit or lump sum prices, as requested. OWNER may consider maintenance requirements, performance data, and disruption or damage to private property. The contract, if awarded, will be awarded to the lowest, qualified, responsible Bidder based upon OWNER's evaluation which indicates that the award will be in the best interest of OWNER and the general public.

In the event there is any question as to the Bidder's qualifications and ability to complete the work, a final determination will be made in accordance with a fair evaluation by the OWNER of the following listed elements.

- A. If the OWNER requires filling out a detailed financial statement, the Bidder may provide its current certified financial statement(s) for the required time interval.

- B. Corporate firms are required to be registered and in good standing with the requirements and provisions of the Office of the Secretary of State, Commonwealth of Kentucky.
- C. Documents Required of Contractor - (1) A sworn statement signed by the President or owner of the Company regarding all current work in progress anywhere; (2) A document showing the percent of completion of each project and the total worth of each project; and (3) Documentation showing the percentage of the DBE employment levels on each project of the Bidder's current work force, and DBE participation levels for Subcontractors.
- D. Optional OWNER Requirements - The OWNER, at its discretion, may require the Bidder/Contractor to provide: (1) A current detailed financial statement for a period including up to 3 prior years. (2) Financial security or insurance in amounts and kinds acceptable to the OWNER to meet the financial responsibility requirements for the Contractor to indemnify the OWNER. (3) Additional information and/or DBE work force data, as well as DBE participation data.
- E. Each Bidder agrees to waive any claim it has or may have against the OWNER, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any Bid.

1.05 BID SECURITY

- A. Each Bid must be accompanied by a Bid bond prepared on a Form of Bid Bond and attached thereto, 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 Bid bond will be returned to the unsuccessful Bidder(s) only upon written request to the Director of Central Purchasing within seven (7) days of opening of Bids. Bid bond shall be made payable to the Lexington-Fayette Urban County Government. Bid security is not required for projects under \$50,000.
- B. Bonds shall be placed with an agent licensed in Kentucky with surety authorized to do business within the state. When the premium is paid for such coverage, the full commission payable shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.
- C. Electronic, scanned Bid bond(s) will be accepted and shall be uploaded to Ion Wave prior to close of bids.

1.06 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful Bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he has received notice of the acceptance of his Bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with his Bid.

1.07 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" from the OWNER and to fully complete the Project within the time as specified in the Contract Documents. Bidder must agree also to pay liquidated damages for each consecutive calendar day thereafter as specified in the Contract Documents.

1.08 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site(s) to become familiar with local conditions that may affect cost, progress, performance or furnishing of the work, (c) consider Federal, State and Local laws and regulations that may affect cost, progress, performance or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.
- B. Bidders should examine the requirements of the General Conditions for information pertaining to subsurface conditions, underground structures, underground facilities, and availability of lands, easements, and rights-of-way. The completeness of data, presented in the Contract Documents, pertaining to subsurface conditions, underground structures, and underground facilities for the purposes of bidding or construction is not assured. The Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface and subsurface) which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. On request in advance, OWNER will provide access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
- C. The submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of this Article; that without exception the Bid is premised upon furnishing and performing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents; and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

1.09 ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Contract Documents will be made to any Bidder orally. Every request for such interpretation should be submitted in writing via the Q&A module on Ion Wave. Addenda will be issued by the OWNER through Lynn Imaging's Planroom and posted to Ion Wave as needed. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications. Acknowledgement of the receipt of addenda must be included with all submitted Bids. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under his Bid as submitted. All addenda so issued shall become part of the Contract Documents.

1.10 SECURITY FOR FAITHFUL PERFORMANCE

- A. Simultaneously with the delivery of the executed Contracts, the Contractor shall furnish Performance, Payment, and Erosion and Sediment Control Bonds as security for the faithful performance of this Contract and for payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the OWNER and authorized to do business in the Commonwealth of Kentucky.
- B. The Contractor shall furnish the Warranty Bond upon completion of the Work, prior to the OWNER's release of the final payment.
- C. All bonds required by this Contract and laws of this State shall be placed with agents licensed in the State of Kentucky. When the premium is paid for such coverage's, the full commission shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.

- D. Contractor shall use standard Performance, Payment, Warranty, and Erosion and Sediment Control Bond forms such as documents provided with the Contract Documents or AIA form A312 (latest edition), for the Performance and Payment Bonds only.
- E. The Performance Bond shall be in the amount of one hundred percent (100%) of the Agreement (Contract) amount. The Payment Bond shall be in the amount of one hundred percent (100%) of the Agreement (Contract) amount. The Warranty Bond shall be in the amount of five percent (5%) of the final construction cost amount (based on contractor's final pay request). The Erosion and Sediment Control Performance Bond shall be in the amount of the Erosion and Sediment Control lump sum price in the Bid Form.

1.11 POWER OF ATTORNEY

Attorney-in-fact who signs Bid bonds or Contract bonds must file with each bond a certified and effectively dated copy of their Power of Attorney.

1.12 TAXES AND WORKMEN'S COMPENSATION

The Contractor and subcontractor will be required to accept liability for payment of all payroll taxes, sales and use tax, and all other taxes or deductions required by local, state or federal law, such as social security measured by wages. Each shall carry Workmen's Compensation Insurance to the full amounts as required by Statutes and shall include the cost of all foregoing items in the Bid. The Contractor will not otherwise be reimbursed or compensated for such tax payments. The Contractor is urged to ascertain at his own risk his actual tax liability in connection with the execution or performance of this Contract.

1.13 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 out in full.

1.14 EROSION AND SEDIMENT CONTROL AND PERMITS

The Contractor and Subcontractors performing Work on projects on behalf of the OWNER shall also comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in specifications herein.

1.15 PREVAILING WAGE LAW AND MINIMUM HOURLY RATES

There are no Federal or State prevailing wage rates for this Project.

1.16 AFFIRMATIVE ACTION PLAN

The successful Bidder must submit with their bid the following items to the Urban County Government (see section 00410 – Bid Form):

- A. Affirmative Action Plan of the firm
- B. Current Work Force Analysis Form
- C. Good Faith Effort Documentation to meet the MWDBE goals.
- D. List of Disadvantaged Business Enterprise Subcontractors and the Dollar Value of each Subcontract

A Work Force Analysis on the prescribed form shall be submitted for each Contract. Failure to submit these items as required herein may result in disqualification of the Bidder from award of the Contract.

All submissions should be attached to the Bidder's bid submission on Ion Wave.

1.17 CONTRACT TIME

The number of calendar days within which the Work is to be substantially completed and ready for final payment (the Contract Time) is set forth in the Bid Form and the Agreement (Contract).

1.18 SUBSTITUTE OR "OR-EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by the Contractor if acceptable to the Engineer and OWNER, application for such acceptance will not be considered by the Engineer and OWNER until after the effective date of the Agreement (Contract). The procedure for submission of any such application by the Contractor and consideration by the Engineer and OWNER is set forth in the General Conditions.

1.19 EQUIPMENT MANUFACTURERS LIST

The Equipment Manufacturers identified in the Equipment Manufacturers List are the only equipment manufacturers/suppliers to be considered in the Bid. There are and will be no other equals considered during the bidding phase for these equipment items. The Contractor may select any of the listed manufacturers for each item and must circle the selected manufacturer for each item at the time of Bid submission.

The design was completed based on the first listed manufacturer. The Contractor, at no cost to the OWNER, will be responsible for any changes to the structures, piping, electrical, instrumentation, or other to accommodate any required changes should a vendor other than the first listed be selected in the bid. This will include payment to the Engineer of Record for any required redesign.

1.20 ALTERNATE BIDS

Bidders shall submit alternate Bids/proposals only if and when such alternate Bids/proposals have been specifically requested in an Advertisement for Bids. If alternate Bids/proposals are requested in an Advertisement for Bids, the form of submission of such alternate Bid and the conditions under which such alternate Bids will be considered for award of a contract will be established in the Advertisement.

Any Bidder who submits a Bid incorporating an alternate proposal when alternate Bids/proposals have not been requested in the Advertisement for Bids shall have his/her Bid rejected as non-responsive.

Any Bidder who submits a Bid incorporating two (2) or more prices for an item or groups of items (unless such method of pricing is requested in the Advertisement for Bids), or which imposes conditions for acceptance other than those established in the Advertisement for Bids, shall have their Bid rejected as non-responsive.

1.21 SIGNING OF AGREEMENT (CONTRACT)

When OWNER gives a Notice of Award to the successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement (Contract) with all other written Contract Documents attached. Within ten days thereafter, Contractor shall sign and deliver the required number of counterparts of the Agreement (Contract) and attached documents to OWNER with the required Bonds, Certificate of

Insurance, and Power of Attorney. The OWNER will deliver one fully signed counterpart to Contractor at such time as it has been signed by the Mayor.

1.22 ASSISTANCE TO BE OFFERED TO DISADVANTAGED BUSINESS ENTERPRISE (MWDBE) CONTRACTORS

A. Outreach for MWDBE(s)

The Lexington-Fayette Urban County Government (LFUCG) maintains a database of MWDBE contractors and organizations. When a LFUCG construction project is advertised for bidding, notices are sent to companies registered at <https://lexingtonky.ionwave.net>. The notices describe the project and indicate the deadline for submitting bids.

If you wish to be added to the LFUCG MWDBE contractor database, please contact:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
859-258-3323
smiller@lexingtonky.gov

B. Bid Bond Assistance for MWDBE(s)

For those MWDBE contractors who wish to bid on LFUCG project, bid bond assistance is available. This bid bond assistance is in the form of a "Letter of Certification" which is accepted by the LFUCG's Division of Purchasing, in lieu of a bid bond. The "Letter of Certification" must be included in the bid package when it is submitted to the Division of Purchasing electronically. The "Letter of Certification" will reference the specific project for which the bid is being submitted, and the time and date on which the bid is due. Bid bond assistance must be requested from the Lexington-Fayette Urban County Government's Division of Central Purchasing.

C. Eligibility for Bid Bond Assistance for MWDBE(s)

In order to be eligible for any Bid bonding assistance, a MWDBE construction company must be owned or controlled at the level of 51% or more by a member or members of a minority group or females. Prior to receiving assistance, a statement providing evidence of ownership and control of the company by a member or members of a minority group or females must be signed by the Owner or corporate officer and by an attorney or accountant submitted to:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
859-258-3323
smiller@lexingtonky.gov

D. MWDBE and Veteran Subcontractors

The LFUCG will, upon request, assist prime contractors in the procurement of eligible DBE and Veteran subcontractors in an effort to achieve 10% minimum MWDBE goal and to achieve 3% minimum Veteran goal.

For a list of eligible subcontractors, please contact:

Sherita Miller, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
859-258-3323
smiller@lexingtonky.gov

1.23 MWDBE PARTICIPATION GOALS

GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses (VOSB) as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**
- 4) The LFUCG has also established a 3% of total procurement costs as a Goal for participation for of Veteran-Owned Businesses.
- 5) **It is therefore a request of each Bidder to include in its bid, the same goal (3%) for Veteran-Owned participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Woman-Owned or Veteran-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned, Woman-Owned or Veteran-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE and Veteran-Owned subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.
- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by one or more women.
- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by a person(s) that are economically and socially disadvantaged.
- 4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned, managed and controlled by a veteran and/or a service disabled veteran.

1.24 MINORITY BUSINESS ENTERPRISE PROGRAM



MINORITY BUSINESS ENTERPRISE PROGRAM

Sherita Miller, MPA
Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507
smiller@lexingtonky.gov
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented Resolution 484-2017 – A Certified Minority, Women and Disadvantaged Business Enterprise ten percent (10%) minimum goal and a three (3%) minimum goal for Certified Veteran-Owned Small Businesses and Certified Service Disabled Veteran – Owned Businesses for government contracts.

The resolution states the following definitions shall be used for the purposes of reaching these goals (a full copy is available in Central Purchasing):

Certified Disadvantaged Business Enterprise (DBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a person(s) who is socially and economically disadvantaged as define by 49 CFR subpart 26.

Certified Minority Business Enterprise (MBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by an ethnic minority (i.e. African American, Asian American/ Pacific Islander, Hispanic Islander, Native American/Native Alaskan Indian) as defined in federal law or regulation as it may be amended from time-to-time.

Certified Women Business Enterprise (WBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a woman.

Certified Veteran-Owned Small Business (VOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

Certified Service Disabled Veteran Owned Small Business (SDVOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a disabled veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

The term “Certified” shall mean the business is appropriately certified, licensed, verified, or validated by an organization or entity recognized by the Division of Purchasing as having the appropriate credentials to make a determination as to the status of the business.

We have compiled the list below to help you locate certified MBE, WBE and DBE certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs and Veteran-Owned Small Businesses in (<https://lexingtonky.ionwave.net>)

Business	Contact	Email Address	Phone
LFUCG	Sherita Miller	smiller@lexingtonky.gov	859-258-3323
Commerce Lexington – Minority Business Development	Tyrone Tyra	ttyra@commercelexington.com	859-226-1625
Tri-State Minority Supplier Diversity Council	Susan Marston	smarston@tsmsdc.com	502-365-9762
Small Business Development Council	Scarlett Consalvi UK SBDC	sconsalvi@uky.edu	859-257-7666
Community Ventures Corporation	Phyllis Alcorn	palcorn@cvky.org	859-231-0054
KY Transportation Cabinet (KYTC)	Melvin Bynes	Melvin.bynes2@ky.gov	502-564-3601
KYTC Pre-Qualification	Shella Eagle	Shella.Eagle@ky.gov	502-782-4815
Ohio River Valley Women’s Business Council (WBENC)	Sheila Mixon	smixon@orvwbc.org	513-487-6537
Kentucky MWBE Certification Program	Yvette Smith, Kentucky Finance Cabinet	Yvette.Smith@ky.gov	502-564-8099
National Women Business Owner’s Council (NWBOC)	Janet Harris-Lange	janet@nwbooc.org	800-675-5066
Small Business Administration	Robert Coffey	robertcoffey@sba.gov	502-582-5971
La Voz de Kentucky	Andres Cruz	lavozydeky@yahoo.com	859-621-2106
The Key News Journal	Patrice Muhammad	production@keynewsjournal.com	859-685-8488



LFUCG MWDBE PARTICIPATION FORM

Bid/RFP/Quote Reference # _____

The MWDBE and/or veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

MWDBE Company, Name, Address, Phone, Email	MBE WBE or DBE	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1.				
2.				
3.				
4.				

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



LFUCG MWDBE SUBSTITUTION FORM

Bid/RFP/Quote Reference # _____

The substituted MWDBE and/or veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MWDBE Company Name, Address, Phone, Email	MWDBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1.					
2.					
3.					
4.					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



MWDBE QUOTE SUMMARY FORM
 Bid/RFP/Quote Reference # _____

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit this form may cause rejection of the bid.

Company Name	Contact Person
Address/Phone/Email	Bid Package / Bid Date

MWDBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event etc.)	Total dollars \$\$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female	Veteran

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

 Company

 Company Representative

 Date

 Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDDBE and Veteran contractors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # _____

Total Contract Amount Awarded to Prime Contractor for this Project _____

Project Name/ Contract #	Work Period/ From: _____ To: _____
Company Name:	Address:
Federal Tax ID:	Contact Person:

Subcontractor Vendor ID (name, address, phone, email)	Description of Work	Total Subcontract Amount	% of Total Contract Awarded to Prime for this Project	Total Amount Paid for this Period	Purchase Order number for subcontractor work (please attach PO)	Scheduled Project Start Date	Scheduled Project End Date

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # _____

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

_____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

_____ Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

_____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

_____ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

_____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

_____ Provided the interested MWBDE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

_____ Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation,

even when the prime contractor may otherwise perform these work items with its own workforce

_____ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

_____ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

_____ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE **and Veteran participation.**

NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Company

Company Representative

Date

Title

1.25 OWNER PERMITS

Bidder shall refer to Section 00890 regarding permits that have been obtained by the OWNER.

1.26 GEOTECHNICAL DATA

Bidder shall refer to Section 00320 regarding available geotechnical data for this Contract.

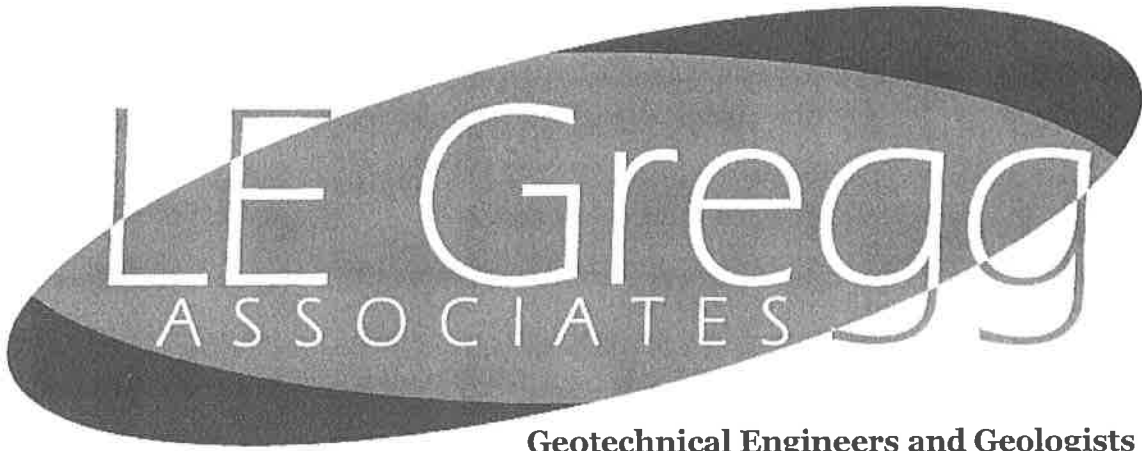
END OF SECTION

SECTION 00320 – GEOTECHNICAL DATA

1.01 GENERAL

See attached *Geotechnical Engineering Exploration* report, titled *Hartland Pump Station*, dated December 3, 2021, by L.E. Gregg Associates.

END OF SECTION



**Geotechnical Engineering
Exploration**

Project:

**Hartland Pump Station
Lexington, Kentucky**

Prepared for:

Bell Engineering

December 3, 2021



December 3, 2021

Jonathan Rehner
Bell Engineering
2480 Fortune Drive, Suite 350
Lexington, KY 40509

**RE: Report of Geotechnical Exploration
Hartland Pump Station
Lexington, Kentucky
L.E. Gregg Project Number: 2021055**

Mr. Rehner,

L.E. Gregg Associates is pleased to present our report for the geotechnical exploration performed at the above referenced site. The attached report presents a review of the project information provided to us, a description of the site and subsurface conditions encountered, as well as any foundation and earthwork recommendations for the proposed project. This field exploration for this study was performed on October 20th, 2021.

Unless prior arrangements are made, any remaining soil samples will be discarded shortly after the issue date of this report. Rock cores will be retained for a period of 12 months and then discarded.

We appreciate the opportunity to assist you on this project. If we can be of further service on this or other projects, please contact us.

Respectfully,

L.E. GREGG ASSOCIATES

Steven Mortimer, P.E.
Senior Engineer

Jason Ainslie, P.E.
President

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Key to Symbols and Descriptions

- Appendix A – Logs of Borings
- Appendix B – Site Location Map and Drawings
- Appendix C – Seismic Site Class/Design Information

1.0 INTRODUCTION

1.1 PURPOSE OF EXPLORATION

The purpose of this exploration was to determine the general subsurface conditions existing at the project site through a program of controlled drilling, sampling, and testing; and to evaluate these findings with respect to the foundation concept, design, and currently accepted engineering practices. The purpose and scope of services were discussed with Bell Engineering and outlined in L.E. Gregg proposal P21-078, dated September 14, 2021. More specifically, the objectives are:

1. Determine the textures, thicknesses, consistencies and general physical properties of the soil strata encountered at the boring locations, along with the depths to and elevations of the underlying bedrock surface beneath the proposed structure.
2. Determine the general geologic conditions existing at the site.
3. Determine the detailed characteristics of the underlying bedrock if rock is encountered at a depth where it may be considered an economical choice as the bearing medium.
4. Determine the existing surface and subsurface water conditions at the site and their relation to design, construction, and service of the proposed project.

2.0 PROJECT INFORMATION

2.1 BACKGROUND INFORMATION

Project information was provided in a request for proposal to L.E. Gregg Associates from Bell Engineering. The proposed project is for the addition of several new structures including a valve vault, comminutor vault, and two 8 ft. diameter wet wells at the existing Hartland Pump Station 3 located at 4904 Hartland Parkway in Lexington, Kentucky.

2.2 SITE SURFACE CONDITIONS

The project site is located at the existing Hartland 3 Pump Station at 4904 Hartland Parkway. At the time of drilling, the existing ground surface was grass covered and sloped down to the east/southeast. The existing pump station consisted of several structures within a concrete pad that was surrounded by a chain link fence.

2.3 SITE GEOLOGY

Geologic information was referenced from the Geologic map of the Coletown quadrangle, east-central Kentucky, 1967. Rocks underlying the area are of Lower to Middle Ordovician age and classified as the Brannon Member of the Upper Part of the Lexington Limestone. The Brannon Member consists of limestone and shale. The limestone is generally medium gray to light brownish gray, micrograined, silty, partly fossiliferous, and occurs in very thin to thin tabular beds. Dense chert and punky porous residual chert commonly occur as float. Clay shale is generally greenish to brownish gray and occurs as interbeds. The shale generally constitutes less than one third of the unit.

The karst potential in the vicinity of the site is characterized as karst intense. There are no mapped sinkholes located within the subject property; however, there are several located within the surrounding area. It should be noted that sinkholes are common in this region and that caverns can extend laterally and may be unobserved from the ground surface.

There are no known faults on the site; however, there are several named and unnamed faults surrounding the site. Faults are common geologic structures across the Commonwealth of Kentucky and have been mapped in many counties. These faults represent seismic activity that has occurred several million years ago at the latest and there has been no activity along these faults in recorded history. Seismic risk associated with these faults is considered to be very low.

2.4 LABORATORY TESTING

The recovered soil samples were transported to L.E. Gregg's laboratory. Natural moisture content determinations (ASTM D2216), Atterberg limits (ASTM D4318), sieve analysis (ASTM D422), and USCS classifications (ASTM D2487) were conducted in general accordance with the American Society of Testing and Materials (ASTM) practices and standards.

3.0 EXPLORATION FINDINGS

3.1 SUBSURFACE CONDITIONS

General

Field testing procedures were performed in general accordance with ASTM practices, procedures, and standards. The borings were advanced using 4 in. solid flight augers. Samples were recovered in the undisturbed material below the tip of the auger using the standard drive sample technique in accordance with ASTM D 1586. A 2 in. O.D. (outside diameter) by 1 3/8 in. I.D. split-spoon sampler was driven a total of 18 in. with the number of blows of a 140 lb. hammer falling 30 in. recorded for each 6 in. of penetration. The sum of the blows for the final 12 in. of penetration is referred to as the Standard Penetration Test (SPT) result, also known as the N-value, or blow count, which is recorded in blows per foot (bpf). Split spoon samples were

generally recovered at 0.0, 1.5, 4.0, 6.5, 9.0 ft., and at 5.0 ft. intervals thereafter. These intervals may be adjusted in the field if gravel, boulders, shot rock, asphalt, or concrete surfaces are encountered. The boreholes were backfilled immediately with auger cuttings and/or granular material for safety considerations.

Soil Conditions

The geotechnical exploration consisted of four (4) soil test borings, labeled B-1 thru B-4. The boring locations were located in the field based off of the layout provided by Bell Engineering. The approximate boring locations are shown on the boring layout in Appendix B.

The following subsurface descriptions are of a generalized nature in order to highlight the subsurface stratification features and material characteristics at the boring locations. The boring logs included in Appendix B of this report should be reviewed for specific information at each boring location. Information on actual subsurface conditions exists only at the specific boring locations and is relevant only to the time period that this exploration was performed. Variations may occur and should be expected at the site. All measurements listed below are approximate.

The subsurface conditions are described as follows:

Asphalt and Gravel were encountered at boring B-1 from the surface to 1.3 ft.

Topsoil was encountered in borings B-2 through B-4 from the surface to depths ranging from 4 to 5 in.

Fill Materials consisting of lean clay and gravel were encountered in boring B-2 from below the topsoil to 4.5 ft. The clay fill materials were silty, sandy, brown, and moist. Standard Penetration Test (SPT) “N”-values ranged from 12 to 16 bpf.

Natural Soil materials consisting of lean clay materials were encountered from below the topsoil or asphalt layers to refusal depths. The natural clay materials are generally silty and/or sandy, brown, firm to very stiff, and moist to wet. Standard Penetration Test (SPT) “N”-values ranged from 6 to 17 bpf.

Table 1 – Summary of Drilling Depths

Boring	Refusal Depth (ft.)
B-1	14.1
B-2	14.0
B-3	12.6
B-4	13.3

Rock Conditions

Refusal was encountered at all boring at depths ranging from less 12.6 to 14.1 ft. Refusal generally indicates materials that cannot be penetrated with typical soil drilling methods. Therefore, refusal can indicate one or more of the following: coarse gravel, boulders, shot rock fill, buried concrete, weathered rock, thin rock seams, or the upper surface of sound, continuous bedrock. Core drilling is then required to determine the characteristics and soundness of the refusal materials. The refusal materials at B-2 and B-3 were cored according to ASTM D 2113, which utilizes a diamond studded bit fastened to the end of a hollow double tube core barrel. The assembly is lowered to refusal depth and the boring is flooded with water to control overheating and to bring the cuttings to the surface. As the drill is rotated at high speeds, the core bit advances into the refusal material and core samples are retained within the inner core barrel. These samples are removed after core runs of up to ten feet and placed in boxes for storage. The core samples were taken back to the laboratory where they were classified as to type of rock, percent recovery, and rock quality designation by an L.E. Gregg geologist or engineer. The percent core recovery (REC) is a ratio of the recovered sample length versus the total length attempted and is expressed as a percentage. The REC is used to assess the continuity of the refusal material. The rock quality designation (RQD) is obtained by summing up the length of core recovered, including only the portions that are greater than or equal to 4 inches, and dividing by the total length attempted. This is also expressed as a percentage and is used to assess the quality of the refusal material.

A core sample of ten (10) ft. was obtained from B-2. The core indicated light to dark gray limestone interbedded with shale. The core had a recovery (REC) of 95% and a rock quality designation (RQD) of 74%, indicating continuous bedrock of fair quality.

A core sample of seven and a half (7.5) ft. was obtained from B-3. The core indicated light to dark gray limestone interbedded with shale. The core had a recovery (REC) of 80% and a rock quality designation (RQD) of 57%, indicating fairly continuous bedrock of fair quality.

Water Conditions

Water was encountered in three (3) borings at depths of 10 to 13 ft. Surface water or ponding was not observed at the site. Groundwater refers to any water that percolates through the soil and can refer to isolated or perched water pockets or water that occurs below the "water table", which is a zone that remains saturated and water-bearing. The groundwater levels encountered during drilling may fluctuate significantly over time due to weather influences and should not be considered a true static groundwater level.

3.2 SEISMIC SITE CLASSIFICATION

The Kentucky Building Code, Chapter 20 of ASCE 7-16, and the ASCE 7 Hazard Tool website were reviewed to determine the Seismic Site Classification for each site based on the following

coordinates, 37.950672° N, 84.47455°. Based on review of geologic data, previous experience with similar projects, and subsurface conditions encountered, a **SEISMIC SITE CLASS "B"** is recommended for rock bearing foundations. We have assumed a Seismic Risk Category of II for the site.

Furthermore, using a Site Classification of **B**, we recommend the use of spectral response acceleration coefficients as follows:

0.2 second period: $S_s = 0.172g$ and Soil Factor = 0.9

1.0 second period: $S_1 = 0.083g$ and Soil Factor = 0.8

The design spectral response acceleration factors are as follows:

$S_{DS} = 0.103$

$S_{D1} = 0.044$

4.0 GEOTECHNICAL RECOMMENDATIONS

4.1 GEOTECHNICAL CONSIDERATIONS

General

Based on the provided information, the subsurface conditions encountered and past experience with similar projects, the site is suitable for the proposed development provided the following considerations are addressed. These considerations are briefly summarized below.

Undocumented Fill

Undocumented fill materials consisting of lean clay materials and gravel were encountered in one boring during the field exploration. Undocumented fills can contain zones of less compact materials which have the potential to settle under their own weight or under new loading. Fills placed in an uncontrolled or undocumented manner can present settlement issues from erratic differential settling of the fill. This settlement is dependent upon several factors such as fill thickness, degree of compaction (if any), fill contents, and age of the fill mass. We typically recommend complete removal of all undocumented fill within the footprint of proposed structures or within areas of slopes. If undocumented fills are not removed and are used as a bearing surface, the owner must be aware of the risks involved with construction over uncontrolled fills and must accept all risks and liability involved with this practice.

Silty and/or Sandy Clays

Natural and fill materials consisting of silty and/or sandy clays were encountered at the site. These materials can be sensitive to changing moisture conditions and can degrade under repetitive loading and unloading. Heavy equipment traffic during construction can cause these materials to break down. Care will need to be taken to consider traffic across the construction site and the contractor will need to consider changing moisture conditions during construction.

The owner and contractor should consider seasonal weather patterns for construction scheduling.

Excavation Sloping and/or Benching

All excavation work must be performed in accordance with OSHA and local building code requirements. The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

Utility Trench Backfill

All trench excavations should be completed with sufficient working space to permit construction as well as proper backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 in. of lean clay fill in order to reduce the infiltration and conveyance of surface water through the trench backfill.

Karst Potential

Karst potential in the location of the site is classified as intense. It should be noted that sinkholes are common in this region and that caverns can extend laterally and may be unobserved from the ground surface. It should also be noted that the rock formations underlying the site are known for horizontal and vertical solution cavities that may go unnoticed for long periods of time. There is a potential for karst features such as solution channels, rock pinnacles, or sinkholes to be encountered during construction.

Ground Water or Free Water

Groundwater was encountered at depths of 10 to 13 ft. in three of the borings during the exploration. Groundwater levels may fluctuate significantly over time due to weather influences. The available geological information and past experience with similar projects indicates that it is possible that during construction ground water could be encountered. Ground water and/or free water encroaching upon construction excavations should be removed by placing a sump near the source of seepage and then pumping from the sump. Should heavy seepage or ponding of water occur, then L.E. Gregg should be contacted.

Site Drainage

Site drainage and adequate subgrade drainage are critical for performance of foundations. A surface drainage plan should be designed by a Civil Engineer or Landscape Architect. During construction, large quantities of water should not be allowed to accumulate on the site.

4.2 FOUNDATIONS

General

It is our understanding that the proposed structures will bear 8 to 15 ft. below the existing surface. Due to this and the refusal depths encountered, we would recommend that the structures bear on the underlying bedrock.

Design Considerations

Rock bearing foundations should be placed within unweathered competent bedrock materials and should be designed for a maximum allowable bearing capacity of 10,000 pounds per square foot (psf). The bearing materials used should be uniform.

We recommend that isolated spread footings be a minimum of 24 in. by 24 in. The minimum thickness of both continuous and spread footings should be 12 in. As an alternative to bearing on competent bedrock, the foundation excavations may be trenched down to bedrock and backfilled with lean concrete to the bearing elevation. If this option is chosen, widen footing excavations by a minimum of six (6) inches on each side and backfill the foundation excavation from bedrock to the bearing elevation with lean concrete.

Excavate foundations down to competent bedrock. L.E. Gregg should observe the bearing surface once foundation excavations have been completed. Please note that foundation excavations may need to be deepened if the weathered bedrock is observed to be unsuitable as a bearing surface.

In order to check the continuity of the bedrock, a 2 to 3 inch diameter air hole should be drilled in the footprint of each structure. The hole should then be "probed" by a qualified geotechnical technician to check for any soft compressible seams, coal or other discontinuities. If this check indicates a discontinuous or compressible seam in the rock, the drilled hole should be excavated deeper. Significant deviations from the specified or anticipated conditions should be reported to the owner's representative and to the foundation designer.

Construction Considerations

All vegetation, topsoil, unsuitable fill soil (if required), loose rock fragments greater than 6 in., construction debris, water, and other debris should be removed from the proposed construction areas before concrete placement. Any trench excavations should have adequate shoring per

OSHA requirements. The foundation support and/or foundation side walls should be protected from freezing weather, severe drying, and water ponding. Positive drainage should be provided to direct surface runoff away from excavations. The foundation elements should not be formed so that concrete completely fills the opened excavations. Any areas that require rock removal to achieve bearing elevations should be cut a minimum of 24 in. below bearing elevations and backfilled with engineered fill.

4.3 SITE PREPARATION AND GRADING

All vegetation, topsoil, unsuitable fill soil (if required), loose rock fragments greater than 6 in., construction debris, and other debris should be removed from the proposed construction areas. After completion of stripping operations, we recommend that the subgrade be proofrolled with a fully-loaded, tandem-axle dump truck or other pneumatic-tired construction equipment of similar weight. The geotechnical engineer or their representative should observe proofrolling. Areas judged to perform unsatisfactorily should be undercut and replaced with structural soil fill or remediated at the geotechnical engineer's recommendation.

4.4 FILL PLACEMENT

Material considered suitable for use as structural fill should be clean soil free of organics, trash, or other deleterious materials, and contain no rock fragments greater than 6 in. in any one dimension. Preferably, structural soil fill material should have a standard Proctor maximum dry density of 90 pounds per cubic foot (pcf) or greater and a plasticity index (PI) of 25 percent or less. All material to be used as structural fill should be tested by the geotechnical engineer to confirm that it meets the project requirements before being placed.

Structural fill should be placed in loose, horizontal lifts not exceeding 8 in. thick. Each lift should be compacted per Table 2 below and within the range of minus (-) 2 percent to plus (+) 2 percent of the optimum moisture content. Each lift should be tested by geotechnical personnel to confirm that the contractors' method is capable of achieving the project requirements before placing any subsequent lifts. Any areas which have become soft or frozen should be removed before additional structural fill is placed. One in place density test should be performed a minimum of every 5,000 ft² for each 8 in. lift. Adequate surface drainage should be provided during all site grading and fill placement operations.

Please note that compaction efforts can be difficult to achieve using conventional construction methods during wet weather.

Table 2 – Fill Placement (ASTM D 698)

Location	Maximum Dry Density (%)
Footings and Floor Slabs	98.0
Pavement Areas	95.0
Landscape Areas	85.0

4.5 DRAINAGE

To reduce the potential for undercut and construction induced sinkholes, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, subsurface water, or surface runoff. Engineered fill or concrete should not be placed in excavations containing standing water or over-softened soils. Positive site surface drainage should be provided to reduce infiltration of surface water around the perimeter of structures and beneath floor slabs. The grades should be sloped away from structures and surface drainage should be collected and discharged such that water infiltration is not permitted.

4.6 SLOPE RECOMMENDATIONS

Cut Slopes

Permanent soil cut slopes are typically recommended to be no steeper than 2H:1V. If steeper slopes are required, they will depend on existing conditions, materials, and will need to be reviewed on a case-by-case basis. The upper two (2) ft. of all cut slopes should be graded to 2:1 in order to reduce the potential for sloughing and erosion. Temporary cut slopes may be constructed for retaining walls, below grade walls, etc. and should follow OSHA excavation standards. Rock cut slopes should conform to the guidance listed in the Kentucky Transportation Cabinet (KYTC) Geotechnical Manual.

Fill Slopes

Permanent fill slopes should be no steeper than 2H:1V. Steeper slopes may be feasible if reinforcement is used in the design/construction. The fill material should be placed and compacted in horizontal lifts according to the project specifications and plans. The slope should be constructed by overbuilding the slope face and then cutting it back to the design grade. New fill material should be properly benched into the existing slopes as shown in the diagram below. Fill slopes should not be constructed or extended horizontally by placing fill on an existing slope face and/or compacted by track walking.

4.7 BELOW GRADE WALLS

The following parameters are recommended for below grade wall design and construction:

Soil Backfill

- Plasticity Index of the backfill material should be less than 25;
- Provide temporary bracing if the walls cannot accommodate construction phase stresses;
- Provide adequate drainage at the rear of the wall;

- Table 3 presents Equivalent Fluid Pressures (EFP), and Earth Pressure coefficients for active, at rest and passive conditions;

Table 3 – Soil Backfill

Condition	EFP (pcf)	Coefficients
Active	38	$K_a = 0.36$
At Rest	56	$K_o = 0.53$
Passive	291	$K_p = 2.77$

- The data presented in Table 3 are based on the following assumptions:
 - The backfill “on-site” material is classified as “CL” by the USCS;
 - Backfill material exhibits an angle of shear resistance of 28 degrees or greater;
 - Backfill material possibly exhibits a maximum dry density of 105.0 pcf or greater;
 - Retaining wall analysis assumes a level backfill slope;
 - Retaining wall analysis assumes that the wall will be designed as a vertical wall with respect to the retained soil;
 - Retaining wall analysis assumes the wall will be designed as a smooth wall with no friction.

Granular Backfill

- Provide temporary bracing if the wall cannot accommodate construction phase stresses;
- Table 4 presents conditions possibly exhibited by the backfill, earth pressure design parameters for Equivalent Fluid Pressures (EFP), and Earth Pressure coefficients;

Table 4 – Granular Backfill

Condition	EFP (pcf)	Coefficients
Active	30.0	$K_a = 0.25$
At Rest	50.0	$K_o = 0.38$

- The data presented in Table 4 is based on the following assumptions:
 - Retaining wall analysis assumes a level slope backfill;
 - Retaining wall analysis assumes that the wall will be designed as a vertical wall with respect to the retained granular backfill;
 - Retaining wall analysis assumes the wall will be designed as a smooth wall with no friction;
 - The backfill material is classified as “GW” or “GP” by the USCS (No. 57 stone is preferred);
 - Backfill material exhibits an angle of shear resistance of 38 degrees or greater.

4.8 LATERAL EARTH PRESSURES

The Kentucky Building Code (KBC), current edition, Table 1806.2, provides guidelines for allowable lateral pressure for use in foundation design. The following table summarizes the allowable lateral pressures.

Table 5 – Presumptive Load-Bearing Values (KBC/IBC Table 1806.2)

Type of Material	Vertical Foundation Pressure (psf)	Lateral Bearing Pressure (psf/ft below natural grade)	Lateral Sliding Resistance	
			Coefficient of friction ^a	Cohesion (psf) ^b
Crystalline bedrock	12,000	1,200	0.70	-
Sedimentary and foliated rock	4,000	400	0.35	-
Sandy gravel and/or gravel (GW and GP)	3,000	200	0.35	-
Sand, silty sand, clayey sand, silty gravel, and clayey gravel (SW, SP, SM, SC, GM, and GC)	2,000	150	0.25	-
Clay, sandy clay, silty clay, clayey silt, silt, and sandy silt (CL, ML, MH, and CH)	1,500	100	-	130

a. Coefficient to be multiplied by the dead load

b. Cohesion value to be multiplied by the contact area, as limited by Section 1806.3.2

The values for lateral bearing pressure located above in Table 5, may be adjusted when considering load combinations, including wind or earthquake loads as permitted by Section 1605.3.2 of the KYBC.

4.9 KARST REGION CONSTRUCTION RECOMMENDATIONS

The underlying rock units are classified as karst intense. Close attention should be given during the construction process to identify any possible karst features or surface movement. Adequate drainage to minimize water infiltration into the subsurface during and after construction should be provided to lessen the risk of damage due to karst activity during construction. Any significant solution features or dropouts encountered during construction will require remediation and will need to be evaluated on a case-by-case basis. Sinkholes could be repaired by using the inverted cone method which involves excavating the material to find the throat or opening in the bedrock; then lining the excavation with a filter fabric, and backfilling with crushed aggregate, however, L.E. Gregg should be contacted to provide specific recommendations for remediation of any encountered karst features.

5.0 BASIS FOR RECOMMENDATIONS

VARIATIONS

Since any general foundation or subsurface exploration can examine and report only that information which is obtained from the borings and samples taken there from, and since uniformity of subsurface conditions does not always exist, the following is recommended. If, during construction, any latent soil, bedrock, or water conditions are encountered that were not observed in the borings, contact L.E. Gregg so that the site may be inspected to identify any necessary modifications in the design or construction of the foundation.

OTHER INTERPRETATIONS

The conclusions and recommendations submitted in this report apply to the proposed project only. They are not applicable to on-site, subsequent construction, adjacent or nearby projects. In the event that conclusions or recommendations based on this report and relating to any other projects are made by others, such conclusions and recommendations are not the responsibility of L. E. Gregg Associates. The recommendations provided are based in part on project information provided to L.E. Gregg and only apply to the specific project and site discussed in this report. If the project information section in this report contains incorrect information or if additional information is available, the correct or additional information should be conveyed to L.E. Gregg for review.

It is recommended that this complete report be provided to the various design team members, the contractors, and the project owner. Potential contractors should be informed of this report in the "instructions to bidders" section of the bid documents. The report should not be included or referenced in the actual contract documents.

STANDARD OF CARE

The services provided by L. E. Gregg Associates for this exploration have been performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.*

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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KEY TO SYMBOLS AND DESCRIPTIONS

	GW	Well graded gravels, little or no fines
	GP	Poorly graded gravels, little or no fines
	GM	Silty gravels, sand and silt mixtures
	GC	Clayey gravels, sand and clay mixtures
	SW	Well graded sand, little or no fines
	SP	Poorly graded sand, little or no fines
	SM	Silty sands, sand and silt mixtures
	SC	Clayey sands, sand and clay mixtures
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands silts and with slight plasticity
	CL	Inorganic clays with low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clay of low plasticity
	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silt soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
	Topsoil	Usually top few inches of soil deposits and contains considerable amounts of organic matter
	Asphalt	Usually a black solid or semisolid mixture of bitumens mostly used in paving
	Fill	Soils that have been transported by man to their present location
	Limestone	Sedimentary rock consisting of predominantly of calcium carbonate
	Sandstone	Sedimentary rock consisting of sand with some cementitious material
	Siltstone	Fine grained rock of consolidated silt
	Shale	Fine grained sedimentary rock consisting of compacted clay, silt, or mud
	Coal	Natural black graphite like material formed from fossilized plants
	Limestone interbedded with Shale	Predominantly limestone interbedded with shale layers
	Weathered	Weathered rock

CONSISTANCY AND RELATIVE DENSITY CORRELATED WITH STANDARD PENETRATION TEST (SPT)			
SILT AND CLAY		SAND AND GRAVEL	
Relative Density	Blows Per Foot (BPF)	Relative Density	Blows Per Foot (BPF)
Very Soft	0 to 1	Very Loose	0 to 4
Soft	2 to 4	Loose	5 to 10
Firm	5 to 8	Firm	11 to 20
Stiff	9 to 15	Very Firm	21 to 30
Very Stiff	16 to 30	Dense	31 to 50

ROCK PROPERTIES	
RELATIVE HARDNESS OF ROCK	
Very Soft	Can be scratched by fingernail
Soft	May be broken by fingers
Medium	Corner and edges may be broken by fingers
Moderately Hard	Moderate blow of hammer required to break sample
Hard	Hard blow of hammer required to break sample
Very Hard	Several hard blows of hammer required to break sample

Rock Continuity (REC)		Rock Quality Designation (RQD)	
Core Recovery (%)	Description	RQD (%)	Classification
0 - 40	Incompetent	<25	Very Poor
40 - 70	Competent	25 - 50	Poor
70 - 90	Fairly Continuous	50 - 75	Fair
90 - 100	Continuous	75 - 90	Good
		90 - 100	Very Good

Estimated Moisture Condition Relative to Optimum	
Dry	Under 5% of Optimum
Slightly Moist	Minus 2% of Optimum
Moist	± 2% of Optimum
Very Moist	Plus 2% of Optimum
Wet	Over 5% of Optimum

Misc. and Soil Sampler Symbols			
N	Blows Per Foot (BPF)		Undisturbed Sample
% W	Percent Water		Standard Penetration Test (SPT)
RQD	Rock Quality Designation		Boring Location
REC	Rock Core Recovery		Water Table while Drilling
CLA	Classification of Combined Samples		Water Table after Drilling
	Rock Core (RC)		Bulk Sample (BK)



Geotechnical, Environmental
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APPENDIX A

Logs of Borings



PROJECT: Hartland Park Pump Station PROJECT NO.: 2021055
 CLIENT: Bell Engineering DATE: 10/20/21
 LOCATION: 4904 Hartland Parkway, Lexington, KY ELEVATION: _____
 DRILLER: Strata Group, LLC LOGGED BY: Matt Vernon
 DRILLING METHOD: 4" SFA
 DEPTH TO WATER > INITIAL: 13.0 AFTER 24 HOURS: _____ CAVING > 0

BORING No. B-1

This information pertains only to this boring and should not be interpreted as being indicative of the site.

ELEVATION (feet)	DEPTH (feet)	Description	Soil and Sampler Symbols, Blows	Sample No.	TEST RESULTS				Shear Strength (tsf)
					Plastic Limit Water Content - Penetration -	Liquid Limit	NM	PL	
0	0	Asphalt - 0.0-0.2 Gravel - 0.2-1.3							
		Lean clay, silty, sandy, moist, stiff							
	6		6	1	10	30			13
	7		7						
	6		6						
5	5		3	2	10	30			10
	5		5						
	5		5						
	6		6	3	10	30			12
	5		5						
	5		5						
	7		7						
10	10		4	4	10	30			13
	10		6						
	10		7						
	14.1	Auger refusal at 14.1 ft.	50/1	5					50+
15	15								
	20								
	25								
	30								
	35								



PROJECT: Hartland Park Pump Station PROJECT NO.: 2021055
 CLIENT: Bell Engineering DATE: 10/20/21
 LOCATION: 4904 Hartland Parkway, Lexington, KY ELEVATION: _____
 DRILLER: Strata Group, LLC LOGGED BY: Matt Vernon
 DRILLING METHOD: 4" SFA
 DEPTH TO WATER > INITIAL: 13.0 AFTER 24 HOURS: 13.0 CAVING > C

BORING No. B-2

This information pertains only to this boring and should not be interpreted as being indicative of the site.

ELEVATION (feet)	DEPTH (feet)	Description	Soil and Sampler Symbols, Blows	Sample No.	TEST RESULTS				Shear Strength (tsf)	
					Plastic Limit	Liquid Limit	NM	PL		LL
0	0.0-0.4	Topsoil - 0.0-0.4								
	0.4-7.9	Fill - Lean clay, silty, sandy, brown, moist, stiff to very stiff		1						14
	7.9-8.8			2						16
	8.8-9.7									
5	4.2-4.5	Gravel - 4.2-4.5								
	4.5-6.6	Lean clay, silty, sandy, brown, moist to wet, stiff to very stiff		3						12
	6.6-7.6									
	7.6-8.6			4						11
	8.6-9.6									
	9.6-10.6			5						17
	10.6-11.6									
	11.6-12.6									
	12.6-13.6									
	13.6-14.0									
15	14.0-24.0	Auger refusal at 14.0 ft. Begin core recovery. Limestone, light to dark gray with interbedded shale.								
	24.0-25.0	Core recovery terminated at 24.0 ft.								
	25.0-26.0									
	26.0-27.0									
	27.0-28.0									
	28.0-29.0									
	29.0-30.0									
	30.0-31.0									
	31.0-32.0									
	32.0-33.0									
	33.0-34.0									
	34.0-35.0									
	35.0-36.0									

Figure



PROJECT: Hartland Park Pump Station PROJECT NO.: 2021055
 CLIENT: Bell Engineering DATE: 10/20/21
 LOCATION: 4904 Hartland Parkway, Lexington, KY ELEVATION:
 DRILLER: Strata Group, LLC LOGGED BY: Matt Vernon
 DRILLING METHOD: 4" SFA
 DEPTH TO WATER > INITIAL: Dry AFTER 24 HOURS: CAVING > C

BORING No. B-3

This information pertains only to this boring and should not be interpreted as being indicative of the site.

ELEVATION (feet)	DEPTH (feet)	Description	Soil and Sampler Symbols, Blows	Sample No.	TEST RESULTS				Shear Strength (tsf)	
					Plastic Limit	Liquid Limit	NM	PL		LL
0		Topsoil - 0.0-0.3								
		Lean clay, silty, sandy, brown, moist, firm to stiff								
	0		6 5 7	1						12
	1		5 7 7	2						14
	5		5 5 5	3						10
	10		5 4 4	4						8
	15		3 3 4	5						7
	12.6	Auger refusal at 12.6 ft. Begin core recovery. Limestone, light to dark gray with interbedded shale.	REC = 80% RQL = 57%							
	20.1	Core recovery terminated at 20.1 ft.								
	25									
	30									
	35									

Figure



PROJECT: Hartland Park Pump Station PROJECT NO.: 2021055
 CLIENT: Bell Engineering DATE: 10/20/21
 LOCATION: 4904 Hartland Parkway, Lexington, KY ELEVATION:
 DRILLER: Strata Group, LLC LOGGED BY: Matt Vernon
 DRILLING METHOD: 4" SFA
 DEPTH TO WATER > INITIAL: 10 AFTER 24 HOURS: CAVING > C

BORING No. B-4

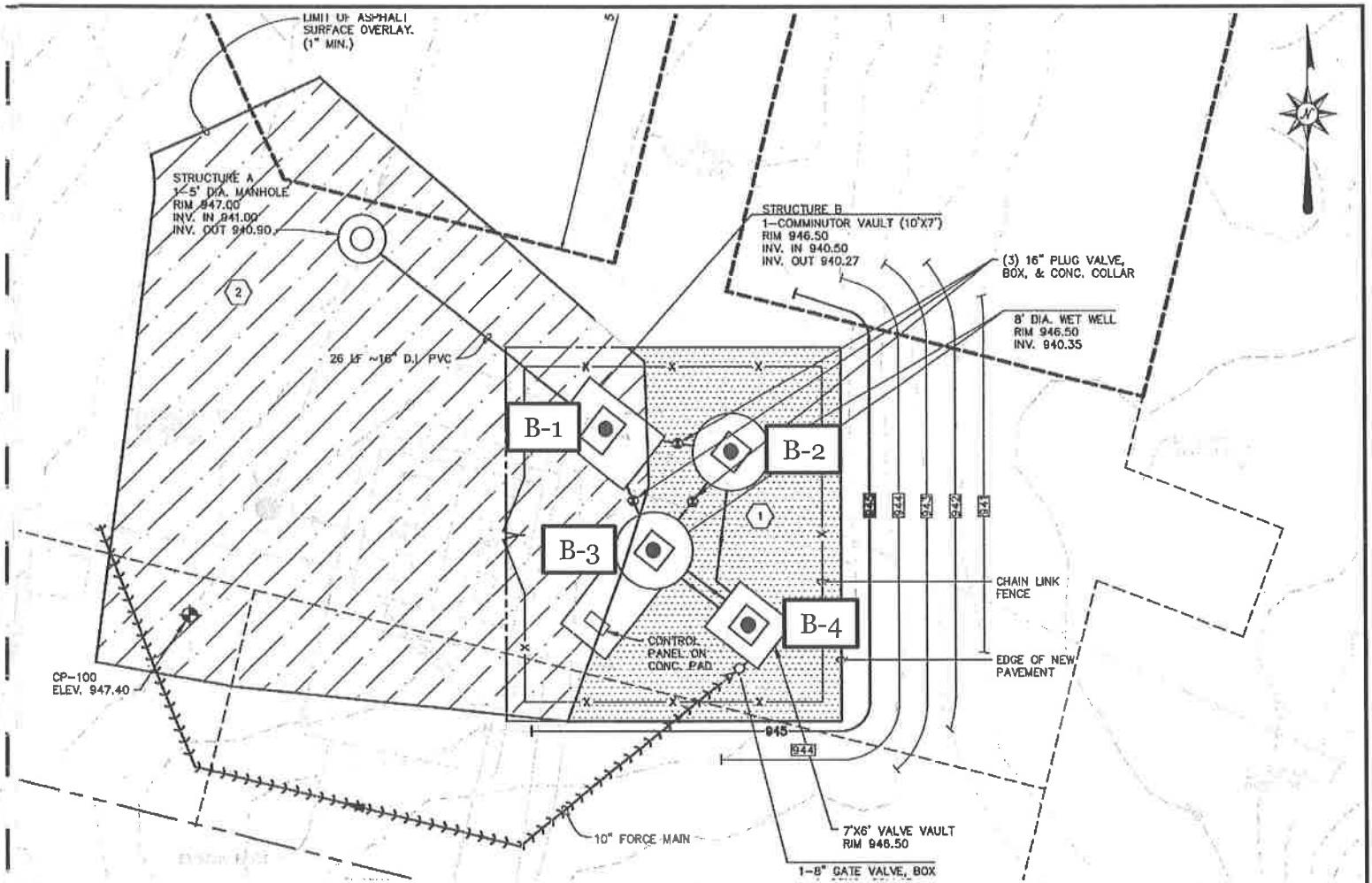
This information pertains only to this boring and should not be interpreted as being indicative of the site.

ELEVATION (feet)	DEPTH (feet)	Description	Soil and Sampler Symbols, Blows	Sample No.	TEST RESULTS				Shear Strength (tsf)	
					Plastic Limit	Liquid Limit	NM	PL		LL
	0	Topsoil - 0.0-0.4 Lean clay, silty, sandy, brown, moist, firm to very stiff								
	4.7		▲	1	15	35				16
	5.6		▲	2	15	35				14
	5.5		▲	3	15	35				12
	2.3		▲	4	15	35				6
	4.2		▲	5	15	35				9
	10		▽							
	13.3	Auger refusal at 13.3 ft.	↑							
	15									
	20									
	25									
	30									
	35									

Figure

APPENDIX B

**Site Location Map
Drawings**



L.E. Gregg Associates, Inc.
 2456 Fortune Drive, Suite 155
 Lexington, Kentucky 40509

Hartland Pump Station
Lexington, Kentucky

Project #2021055

Boring Layout

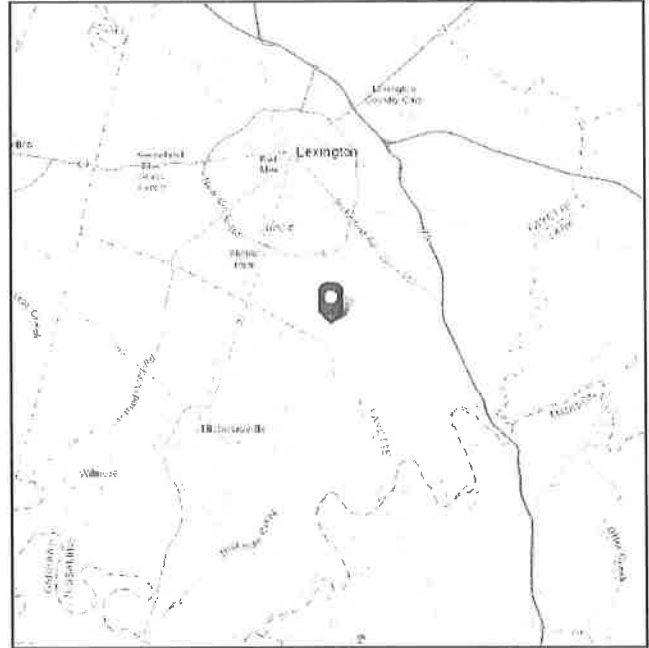
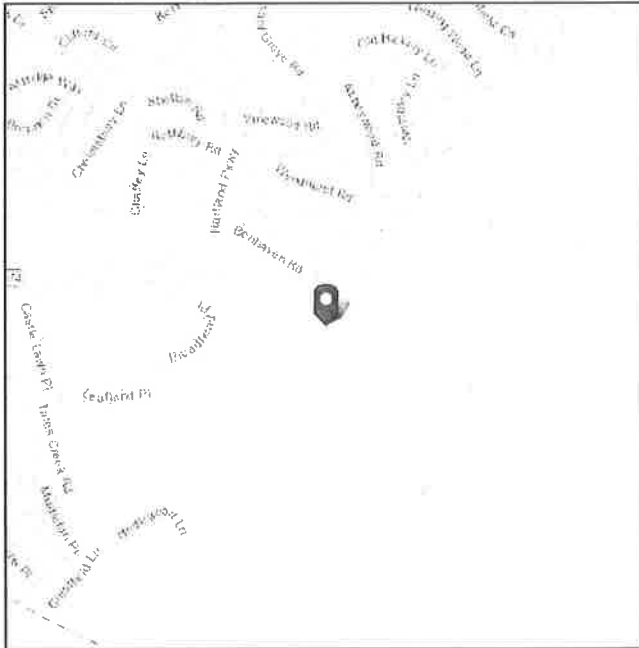


ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: B - Rock

Elevation: 948 ft (NAVD 88)
Latitude: 37.950672
Longitude: -84.47455

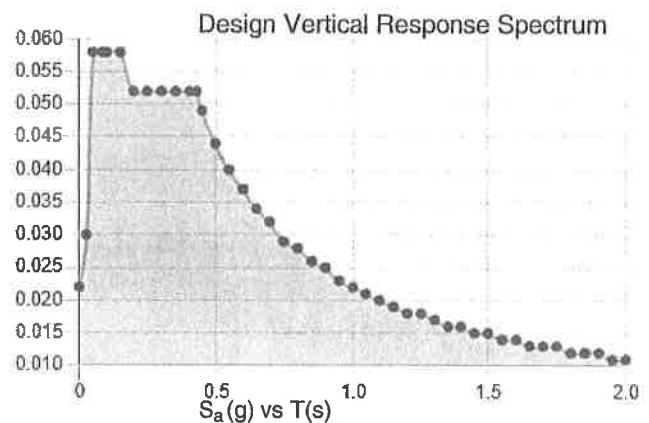
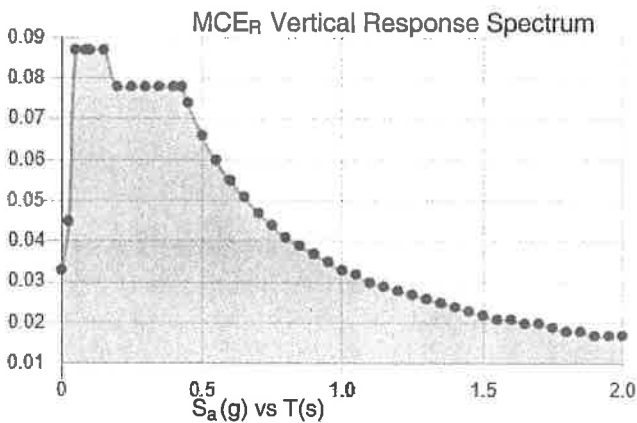
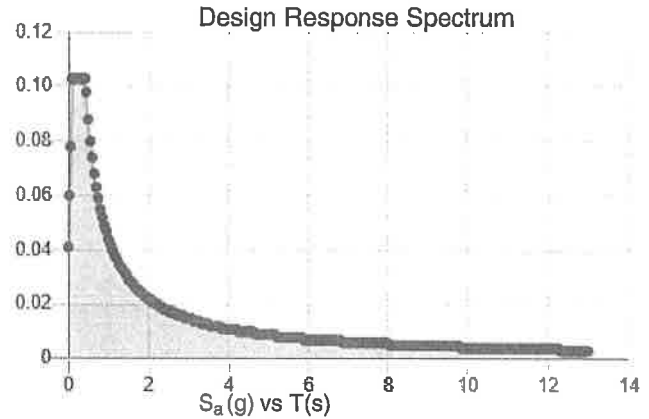
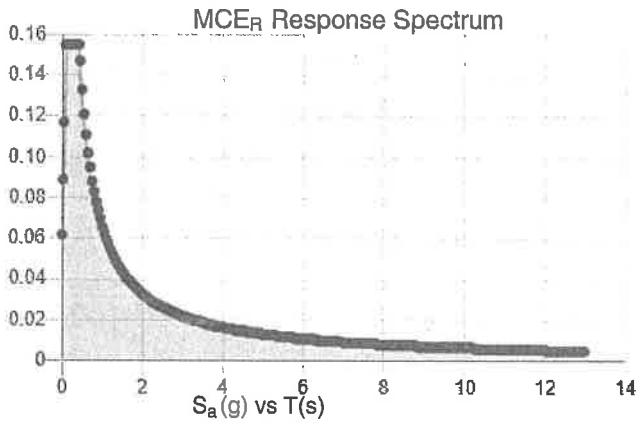


Site Soil Class: B - Rock

Results:

S_s :	0.172	S_{D1} :	0.044
S_1 :	0.083	T_L :	12
F_a :	0.9	PGA :	0.086
F_v :	0.8	PGA _M :	0.077
S_{MS} :	0.155	F_{PGA} :	0.9
S_{M1} :	0.066	I_e :	1
S_{DS} :	0.103	C_v :	0.7

Seismic Design Category A



Data Accessed: Wed Dec 01 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

1.02 LEGAL STATUS OF BIDDER

Bidder LOKITS CONTRACTING, LLC

Date January 19, 2022

*A. A corporation duly organized and doing business under the laws of the State of KENTUCKY, for whom CODY M. LOKITS, PE, bearing the official title of MANAGER / CEO, whose signature is affixed to this Bid is duly authorized to execute contracts.

~~*B. A Partnership, all of the members of which, with addresses are: (Designate general partners as such)~~

~~_____

_____~~

~~*C. An individual, whose signature is affixed to this Bid. (Print name)~~

~~_____

_____~~

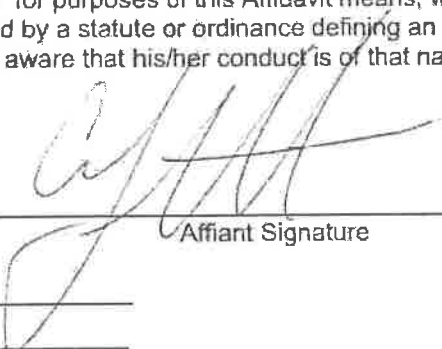
* The Bidder shall fill out the appropriate form and strike out the other two.

1.03 BIDDERS AFFIDAVIT

Comes the Affiant, Cody M. Lokits, and after being first duly sworn, states under penalty of perjury as follows:

- A. His/her name is Cody M. Lokits and he/she is the individual submitting the Bid or is the authorized representative of LOKITS CONTRACTING, LLC, the entity submitting the Bid (hereinafter referred to as "Bidder").
- B. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the Bid is submitted, prior to award of the Agreement and will maintain a "current" status in regard to those taxes and fees during the life of the Agreement.
- C. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the Agreement.
- D. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
- E. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of an Agreement to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
- F. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as the "Ethics Act."
- G. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his/her conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.



 Affiant Signature

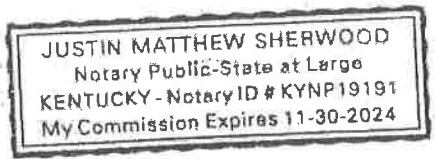
STATE OF Kentucky
 COUNTY OF Fayette

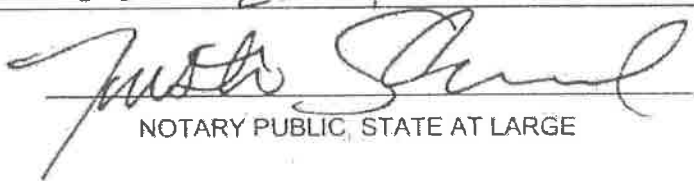
The foregoing instrument was subscribed, sworn to and acknowledged before me by

Cody Lokits on this the 18 day of Jan, 2022

My Commission expires:

11-30-2024





 NOTARY PUBLIC, STATE AT LARGE

1.04 BID SCHEDULE

The Bidder agrees to perform all the Work described in the Specifications and shown on the Plans for the following proposed lump sum and/or unit prices, if applicable, which shall include the furnishing of all labor, materials, supplies, equipment and/or vehicle usage, services, all items of cost, overhead, taxes (federal, state, local), and profit for the Contractor and any Subcontractor involved, within the time set forth herein. All pricing must be submitted correctly in Lonwave to reflect the correct total of your bid. Contractors are responsible for this if items are entered incorrectly your bid will be rejected. Please pay close attention to how the units are specified and enter the unit amounts. Lonwave will calculate the totals and the total bid amount.

The LFUCG's decision on the bid amount is final.

The Contract, if awarded, will be on the basis of materials and equipment specified in the Specifications without consideration of possible substitute or "or equal" items. The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract price. Determination of the actual quantities and classification of unit price work performed by the Contractor will be made by the Engineer in accordance with the General Conditions.

BID SCHEDULE

Item	Description	Qty	Unit	Unit Price	Item Price
1	Mobilization	1	LS	\$22,200.00	\$22,200.00
2	Demobilization	1	LS	\$11,100.00	\$11,100.00
3	Bonds and Insurance	1	LS	\$39,600.00	\$39,600.00
4	Erosion and Sediment Control and Conformance with SWPPP	1	LS	\$28,650.00	\$28,650.00
5	Connection to Existing Sewer, 15-Inch Sewer	1	EA	\$2,400.00	\$2,400.00
6	Concrete Structure Safeloading	1	LS	\$13,000.00	\$13,000.00
7	Manhole Abandonment	1	EA	\$700.00	\$700.00
8	Pipe Abandonment—Safeloading 15-Inch Sewer	30	LF	\$185.00	\$5,550.00
9	General Site Improvement, Complete	1	LS	\$55,000.00	\$55,000.00
10	Bituminous Concrete: Private Parking Lots/Driveways, Area A	80	TON	\$250.00	\$20,000.00
11	Bituminous Concrete—Private Parking Lots and Driveways, Area B	250	TON	\$220.00	\$55,000.00
12	Manhole, 5-Foot Diameter	1	LS	\$13,600.00	\$13,600.00
13	Gravity Sewer Line--16-Inch Ductile Iron Sewer	30	LF	\$600.00	\$18,000.00
14	Force Main Pipe, 10-Inch SDR 26 PVC	105	LF	\$220.00	\$23,100.00
15	Reconnect Existing Gravity Sewer to New Manhole, 15-Inch	1	EA	\$2,500.00	\$2,500.00
16	Comminutor Vault, Including Comminutor, Rails, Hatch, Installed, Complete	1	LS	\$110,000.00	\$110,000.00
17	New Pump Station, Complete	1	LS	\$495,000.00	\$495,000.00
18	Plug Valve, 16-Inch	4	EA	\$9,400.00	\$37,600.00
19	Tie-In To Existing 10-Inch Force Main, Including Bypass Pumping	1	LS	\$1,000.00	\$1,000.00
20	Bypass Pumping and Setup	1	LS	\$14,000.00	\$14,000.00
21	Dense Graded Aggregate (DGA), Extra, as Directed by Engineer	10	Ton	\$50.00	\$500.00
22	No. 9 Crushed Stone, Extra as Directed by Engineer	10	Ton	\$50.00	\$500.00
23	No. 57 Crushed Stone, Extra as Directed by Engineer	10	Ton	\$50.00	\$500.00
24	No. 2 Crushed Stone, Extra as Directed by Engineer	10	Ton	\$50.00	\$500.00

Item	Description	Qty	Unit	Unit Price	Item Price
25	Allowance—Miscellaneous Site Improvement	1	LS	\$100,000.00	\$100,000.00
26	Allowance—Electrical Expense for New Station	1	LS	\$40,000.00	\$40,000.00
TOTAL BASE BID (Items 1 thru 26)				\$1,110,000.00	
TOTAL BID AMOUNT <u>ONE MILLION ONE HUNDRED TEN THOUSAND DOLLARS AND ZERO CENTS</u>					

Respectfully Submitted,

FIRM: LOKITS CONTRACTING, LLC
ADDRESS: 2480 WOODFIELD CIRCLE
CITY/STATE/ZIP: LEXINGTON, KY 40515
DATE: 01/19/2022
BY: 
(must be original signature)
TITLE: OWNER / CEO
PHONE: 859-699-2961 FAX: N/A
(area code, number & extension)
EMAIL ADDRESS: CODY@LOKITSCONTRACTING.COM

OFFICIAL ADDRESS AND PHONE:

2480 WOODFIELD CIRCLE
LEXINGTON, KY 40515
859-699-2961

(Seal if Bid is by Corporation)



By signing this form you agree to all of the terms and associated forms.

I. List Key Bidder Personnel who will work on this Project.

<u>NAME</u>	<u>POSITION DESCRIPTION</u>	<u>NO. OF YEARS WITH BIDDER</u>
Cody M. Lokits, PE	Owner / CEO / Project Manager	Founder
Tim Munday	Site Superintendent	<1 year

J. MWDBE Participation on current bonded projects under contract:

<u>SUBCONTRACTORS (LIST)</u>	<u>PROJECT (SPECIFIC TYPE)</u>	<u>MWDBE</u>	<u>% of WORK</u>
McKinney Painting	WTF Upgrade	WBE	0.6%
State Electric	WTF Upgrade	DBE	7.85%

(USE ADDITIONAL SHEETS IF NECESSARY)

K. We acknowledge that, if we are the apparent low Bidder, we may be required to submit to the Owner within seven (7) calendar days following the Bid Opening, a sworn statement regarding all office management and field management personnel. Additionally, if requested by the Owner, we will within seven (7) days following the request submit audited financial statements and loss history for insurance claims for the three (3) most recent years (or a lesser period if stipulated by the Owner)

1.06 LIST OF PROPOSED SUBCONTRACTORS

The following list of proposed subcontractors is required by the Owner to be executed, completed and submitted with the Bid Form. All subcontractors are subject to approval of the Lexington-Fayette Urban County Government. Failure to submit this list completely filled out may be cause for rejection of Bid.

<u>BRANCH OF WORK**</u> (List each major item)	<u>SUBCONTRACTOR</u>	<u>MWDBE (yes/no)</u>	<u>% of WORK</u>
1. <u>ELECTRICAL</u>	Name: <u>FAUST ELECTRIC</u>	<u>NO</u>	<u>4.7%</u>
	Address: <u>1081 SULPHUR WELL PIKE</u> <u>NICHOLASVILLE, KY 40356</u>		
2. <u>ASPHALT PAVING</u>	Name: <u>RANDLE-DAVIES CONSTR CO.</u>	<u>NO</u>	<u>4.1%</u>
	Address: <u>1 Mill Creek Park</u> <u>Frankfort, KY 40601</u>		
3. <u>PAINTING</u>	Name: <u>McKinney Painting</u>	<u>YES</u>	<u>0.35%</u>
	Address: <u>104 Kuhlman Blvd</u> <u>Versailles, KY 40383</u>		
4. <u>HWY TRUCKING</u>	Name: <u>Blaze Enterprises</u>	<u>YES</u>	<u>0.7%</u>
	Address: <u>PO Box 704</u> <u>Clay City, KY 40312</u>		
5. <u>SURVEYING/ STAKING</u>	Name: <u>Abbey Jones Surveying</u>	<u>YES</u>	<u>0.2%</u>
	Address: <u>1022 Fontaine Road</u> <u>Lexington, KY 40502</u>		
6. <u>FENCING</u>	Name: <u>RIO GRANDE FENCING</u>	<u>NO</u>	<u>1.5%</u>
	Address: <u>137 S Forbes Rd.</u> <u>Lexington, KY 40511-2025</u>		

** Such as: Grading, bituminous paving, concrete, seeding and protection, construction staking, etc.

1.07 AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing:

- A. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership), or an officer or employee of the Bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
- B. That the attached Bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding or planned common course of action, with any other contractor, vendor of materials, supplies, equipment or services described in the Advertisement for Bid, designed to limit independent bidding or competition;
- C. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished, with the Bid or Bids, and will not be communicated to any such person, prior to the official opening of the Bid or Bids;
- D. That the Bidder is legally entitled to enter into the contracts with the Lexington-Fayette Urban County Government, and is not in violation of any prohibited conflict of interest;
- E. (Applicable to corporation only) That as a foreign corporation, we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State _____ or, that as a domestic corporation, we are in good standing with the Secretary of State, Commonwealth of Kentucky X . [Check the statement applicable.]
- F. This offer is for ninety (90) calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Lexington-Fayette Urban County Government of any or all items Bid above, an Agreement shall thereby be created with respect to the items accepted.
- G. That I have fully informed myself regarding the accuracy of the statements made in this statement.
- H. That I certify that Subcontractors have not and will not be awarded to any firm(s) that have been debarred from noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

LOKITS CONTRACTING, LLC
Company

01/19/2022
Date


Representative

1.08 STATEMENT OF EXPERIENCE

NAME OF INDIVIDUAL: CODY M. LOKITS, P.E.

POSITION/TITLE: MANAGER / CEO / PROJECT MANAGER

STATEMENT OF EXPERIENCE: PLEASE SEE ATTACHED RESUME FOR

DETAILED STATEMENT OF EXPERIENCE AND PROJECT HISTORY.

NAME OF INDIVIDUAL: TIM MUNDAY

POSITION/TITLE: SITE SUPERVISOR

STATEMENT OF EXPERIENCE: PLEASE SEE ATTACHED RESUME FOR

DETAILED STATEMENT OF EXPERIENCE AND PROJECT HISTORY.

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

* Include all officers, office management, Affirmative Action officials, and field management personnel.
Attach separate sheets if necessary.

1.09 EQUAL OPPORTUNITY AGREEMENT

The Law

- * Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- * Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and subcontractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- * Section 503 of the Rehabilitation Act of 1973 States:

The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.

- * Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal Contracts.
- * Section 206 (A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors, and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause an Agreement to be canceled and the contractor may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped, and aged persons.



Signature

LOKITS CONTRACTING, LLC 01/19/2022

Name of Business

The Entity (regardless of whether construction Contractor, non-construction Contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

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

- (1) *The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) *The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) *The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) *The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

KRS 45.610. Hiring minorities - Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*
- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

In the case of an Agreement exceeding \$250,000, the Contractor will be required within seven (7) days following the Bid Opening to furnish evidence that its work-force in Kentucky is representative of the available work-force in the area from which it draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the Contract.

1.10 LFUCG MWDBE PARTICIPATION FORM

LFUCG Bid/RFP/Quote Reference No. LFUCG Bid No. 129-2021



The MWDBE and/or Veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the Work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately.

MWDBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
WBE ABBIE JONES CONSULTING 1022 Fontaine Rd Lexington, KY 40502	Surveying / Layout / Staking	~\$2,200	~0.2%
WBE BLAZE ENTERPRISES PO Box 704 Clay City, KY 40312	Highway Hauling / Spoils Stockpile	~\$7,000	~0.7%
WBE MCKINNEY PAINTING 104 Kuhlman Blvd Versailles, KY 40383	Industrial Coatings / Painting	~\$4,000	~0.3%

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the Contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

LOKITS CONTRACTING, LLC
 Company


 Company Representative
 Cody Lokits, PE

January 19, 2022
 Date

Manager / CEO
 Title

FORM NOT APPLICABLE AT THIS TIME

1.11 LFUCG MWDBE SUBSTITUTION FORM

LFUCG Bid/RFP/Quote Reference No. _____ LFUCG Bid No. 129-2021



The substituted MWDBE and/or Veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MWDBE Company Name, Address, Phone, Email	MWDBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract

The undersigned acknowledges that any misrepresentation may result in termination of the Contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

_____ Company

_____ Company Representative

_____ Date

_____ Title

1.12 MWDBE QUOTE SUMMARY FORM

LFUCG Bid/RFP/Quote Reference No. LFUCG Bid No. 129-2021



The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project.

Company Name LOKITS CONTRACTING, LLC	Contact Person Cody Lokits
Address/Phone/Email 2480 Woodfield Circle Lexington, KY 40515 859-699-2961 cody@lokitscontracting.com	Bid Package / Bid Date LFUCG Bid No. 129-2021 01/19/2022

MWDBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event, etc.)	Total dollars (\$) Do Not Leave Blank (Attach Documentation)	DBE * AA HA AS NA Female	Veteran
PLEASE SEE LIST ATTACHED HERETO OF MWDBE & VETERAN OWNED SUBS IN THIS FORMAT - MORE SPACE WAS NEEDED.								

*(DBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the Contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

LOKITS CONTRACTING, LLC
Company


Company Representative
Cody Lokits, PE

01/19/2022
Date

Manager / CEO
Title

1.12 MWDBE QUOTE SUMMARY FORM

LFUCG Bid No. 129-2021

MWDBE COMPANY NAME	STREET ADDRESS	CITY	ST	ZIP	FIRST	LAST	PHONE	EMAIL	DATE CONTACTED	FOLLOW-UPS	SERVICES TO BE PERFORMED Trenching, Landscaping, Haze Tracking, Hauling, Disposal Services	METHOD OF COMM.	TOTAL DOLLAR AMOUNT OF BID	MBE DESIGNATION / VETERAN Minority and Woman-Owned
SU Contracting, LLC	1141 Red Mile Rd., Suite 201	Lexington	KY	40504	Debonzo	Wilder	859-977-6640	wilderd@sealinglife.com	1/12/2022	1/17/2022	Disposal Services	Email	NO BID	Minority and Woman-Owned Business Enterprise
Cedar Valley Seeding, Inc.	851 Redmon Road	Paris	KY	40361	Susan	Redmon	859-987-1497	cvsceding@outlook.com	1/12/2022	1/17/2022	Highway, Site Seeding, Erosion Control, Landscaping	Email	NO BID	Woman-Owned Business Enterprise
MOE Contracting, Inc	102 Preston Court	Versailles	KY	40388	Angela	English	859-631-7941	adelinc1@aol.com	1/12/2022	1/17/2022	Underground utilities, Excavation, Curb and Walk	Email	NO BID	Disadvantaged Business Enterprise, Woman-Owned Business Enterprise
Bailey Construction & General Contracting, LLC	9863 Willowbrook Cir	Louisville	KY	40223	Cory	Bailey	502-333-4768	cory.bailey@baileygc.com	1/12/2022	1/17/2022	Commercial Construction, Skilled and General Labor	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
L Watson Trucking	211 North Beckley Station Rd	Louisville	KY	40245	Larry	Watson	502-387-9211	lwatsontrucking@icloud.com	1/12/2022	1/17/2022	Trucking (Dump Truck), Haul Rock, Asphalt, Soil, etc.	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
S & D Construction Management Inc.	252 North Upper Street	Lexington	KY	40507	Sean	Edwards	859-216-0089 Ext. 0	sean@sdm@gmail.com	1/12/2022	1/17/2022	General Contracting, Dumpster Renting Hauling and Industrial Cleaning	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
Summers Grading Service LLC	8703 High Jackson Road	Charlestown	IN	47111	Charlene	Summers	812-246-4839	summersgrading@yahoo.com	1/12/2022	1/17/2022	Finish Grading, Landscaping, Seed, Strawing, Hydroseeding, Erosion Control, Site Fence, Tr Adle Hauling	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
Blaze Enterprises, LLC	PO Box 704	Clay City	KY	40312	Cara Gigi	Anderson	606-663-1003	blazeenterprises@yahoo.com	1/12/2022	1/17/2022	Construction Contracting and Subcontracting Services, Iron Supplier, Lumberman or pipe, fittings, valves, traps, precast structures, steel rebar, structural beams, asphalt, aggregate, fiber, geotextile, and other construction related materials	Email & Phone	\$95/HR Triable	Disadvantaged Business Enterprise, Minority and Woman-Owned Business Enterprise
Geac Enterprises, Inc.	1221 E. 4th Street/P.O. Box 463	London	KY	40743			606-864-7550	gibacon@windstream.net	1/12/2022	1/17/2022	Precast Products	Email	NO BID	Disadvantaged Business Enterprise, Minority and Woman-Owned Business Enterprise
S & W Precast, Inc.	7315 Old Hwy 111	Memphis	IN	47143	Becky	Graf	812-246-6258	bggraf@sumnercast.com	1/12/2022	1/17/2022	Electrical Contractor	Email	TBD	Woman-Owned Business Enterprise
TEM Group	3550 Bashford Ave	Louisville	KY	40218	Tommy	Clark	502-454-0101	tom@temelectric.com	1/12/2022	1/17/2022	Electrical Contractor	Email & Phone	TBD	Minority Business Enterprise
Bluegrass Electrical Consultants, Inc.	1492 Production Drive	Burlington	KY	41005	Terry	Metzall	859-371-2583	terry.metzall@bcncky.com	1/12/2022	1/17/2022	Commercial, Industrial Electrical Contractor	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
The Fence Co., Inc.	127 Mohawk Lane	Leitchfield	KY	42754	Judy	Braun	270-259-3808	thefenceco@yahoo.com	1/12/2022	1/17/2022	Fencing	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
Metro Fence Industries, Inc	4521 Bishop Lane	Louisville	KY	40218	Brenda	Jett	502-458-8701	brenda@metrofenceinc.com	1/12/2022	1/17/2022	Fence Installation	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
Professional Fence Co.	P.O. Box 143	Crestwood	KY	40014	Bob	Ommer	502-222-0513	bobommer@bellsouth.net	1/12/2022	1/17/2022	Fences Contractor	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
Spriggs Construction Inc.	6550 West U.S. Highway 50	North Vernon	IN	47265	John	Spriggs	812-528-4878	montspriggs@gmail.com	1/12/2022	1/17/2022	General Construction Contractor, Concrete Construction	Email	NO BID	Disadvantaged Business Enterprise, Minority Business Enterprise
McIntirey Painting	104 Kuhlman Blvd	Versailles	KY	40383	Matt	Garnish	859-383-4515	mat@mcintireypainting.com	1/12/2022	1/17/2022	Painting, Industrial Coatings	Email & Phone	TBD	Disadvantaged Business Enterprise, Minority Business Enterprise
Abbie Jones Consulting	1022 Fontaine Rd	Lexington	KY	40502	Abbie	Jones	859-559-3483	abbie@abbie-jones.com	1/12/2022	1/17/2022	Surveying / layout / Staking	Email	\$1,100 / Day	Disadvantaged Business Enterprise, Minority Business Enterprise
Somebitch Bloomin		Lexington	KY		Chiny	England	859-336-7568	shibbitch@outlook.com	1/12/2022	1/17/2022	Soil/Seed/Landscaping	Email	Various	DBE, WBE, W8ENC



TEM Group, Inc.
3560 Bashford Avenue
Louisville, KY 40218
Ph: 502-454-0101
Fax: 502-454-0110

January 19, 2022

Lokits Contracting

Re: LFUCG Hartland 3
Pump Station Replacement
Electrical Quote

Our pricing to furnish labor and material to install the electrical work per the scope of work/clarifications listed below is \$.00.

Our price is based on the following scope of work/clarifications:

1. We acknowledge receipt of Addendums #1, #2 and #3.
2. Straight time non prevailing wages are included based on a forty hour work week.
3. Kentucky Sales tax is included.
4. Permits and inspections are included for T.E.M. furnished equipment only.
5. A performance and payment bond are not included. Add 1.5% if required.
6. TEM will coordinate with local utility for connection of new overhead service to new service riser pole provided by TEM. **No allowance is included for KU's work in our pricing above.**
7. Trenching, backfilling, restoration of existing facilities will be by others. Approximately 80 ft. of trenching will be required.
8. Concrete pad for Electrical Service Rack if required will be provided by others.
9. TEM will furnish and install the following: Electric Service Rack Service Meter Base, Service Rated Double Throw Disconnect/Fuses, Quick Connect Camlocks, 24" x 24" x 8" Nema 4X Terminal Boxes (4 Each), 6" x 6" x 24" Nema 4X Wireway/Pedestals (4 Each), Kellom Grips, Cord Connectors, Conduit, Fittings, Supports, Wiring and Terminations.
10. Please deduct \$ 9,760.00 from our pricing above if the 24" x 24" x 8" Terminal Boxes (4 Each) and 6" x 6" x 24" Wireway/Pedestals (4 Each) are furnished by others.

*We are Certified MBE, DBE
Equal Opportunity Employer*



TEM Group, Inc.
3560 Bashford Avenue
Louisville, KY 40218
Ph: 502-454-0101
Fax: 502-454-0110

11. Please deduct \$ 2,060.00 from our pricing above if the kelloom grips and cord connectors are furnished by others.
12. The following equipment will be furnished by others: Pump Station Control Panel, Communitor Control Panel, Communitor Vendor Furnished Cable, RTU Telemetry Panel, Telemetry Antenna/Bracket, Antenna Cable, Pump Power/Control Cords, Level Floats/Cords and stainless steel cable hangers. TEM will install the equipment and provide power/control wiring as shown on drawings.
13. Please add \$ 1,350.00 to our pricing above if the TEM furnishes the stainless steel cable hangers (4 Each).
14. TEM will coordinate with the Utility Company for disconnection of the existing service to lift station being demolished. TEM will remove meter/disconnect, pull out feeder circuit and will abandon underground conduits in place. All other demolition will be by others.
15. Assistance with checkout and startup of Pump Station is included.

Please call if you have any questions (502) 498-1981(office) or (502) 639-4201(cell).

Best regards,
TEM Group, Inc.

Thomas J. Clark, Sr.
Electrical Estimator
tclark@temgroupinc.com

*We are Certified MBE, DBE
Equal Opportunity Employer*

Cody Lokits

From: Matt Gamlin <matt@mckinneypainting.com>
Sent: Monday, January 17, 2022 9:45 AM
To: Cody Lokits
Subject: RE: ADDENDA NOTIFICATION: LFUCG Hartland 3 Pump Station

Good Morning, Cody,

SOW:
Mobilize
Prepare Factory Epoxy Primed DI Piping (Wet Well and Valve Vault and Vent)
Install Epoxy field coats per Bell engineering specification
Touch up and clean up
Mobilize off site

Labor, Equipment and Materials - \$3500.00

Let me know if you need anything else.

Matt

Matthew Gamlin
McKinney Painting Inc.
"A Womans Business Enterprise"
Versailles, Ky & Sellersburg, In
Vice President & Treatment Plant / Industrial Specialist

From: Cody Lokits <cody@lokitscontracting.com>
Sent: Monday, January 17, 2022 8:35 AM
To: Matt Gamlin <matt@mckinneypainting.com>
Subject: ADDENDA NOTIFICATION: LFUCG Hartland 3 Pump Station

Matt,

Please note that **Addenda #1, 2, & 3** have been issued for the **LFUCG Hartland 3 Pump Station** project. Please follow the link below to download and review:

[Addenda](#)

The bid date remains **Wednesday, January 19, 2022 at 2:00 PM EST.**

Complete electronic bidding documents (including all addenda) may be accessed at the following link:

[2201191 - LFUCG Hartland 3 Pump Station Replacement](#)

If you have not already confirmed your intention to bid, or provided a scope, please do so as soon as possible.



ABBIE JONES CONSULTING
1022 Fontaine Rd, Lexington, KY 40502
859.559.3443
www.abbie-jones.com

Via Email: cody@lokitscontracting.com

January 13, 2022

Mr. Cody Lokits, PE
Lokits Contracting LLC

RE: Proposal for bid#11 LFUCG Hartland Pump Station Replacement

Dear Mr. Lokits:

Abbie Jones Consulting is pleased to offer our professional land survey and civil engineering services to you. It may or may not be helpful to note that we are DBE Certified by KYTC and other agencies.

Task 3: Construction Staking and Layout

1. \$1100/day no per diems in bid amount, Restaking will be extra \$1200/day.
2. Office required for setup: \$120.00 (PLS Time)
3. Csv and/or pdf of as-staked points per trip will be provided (Worksheet style)
4. All calls/emails will go directly to Michelle with 48hr notice. As much notice as possible is kindly requested for layout.
5. We require 72 hr before first staking request.
6. Hard hats, safety glasses, steel toes, work vests required
7. Additional costs above our standard \$2M insurance would be a reimbursable cost.

Task 2: Asbuilts (if required in your contract) Lump Sum \$4000.00

Notes:

1. Project Coordination through Office Manager, 859.699.3440 office@abbie-jones.com
2. Deliverable The services above include the preparation and distribution of reports associated with the field. Deliverables can include AutoCAD, Paper copies of plat as needed, pdf of plat, and legal description document(s). Please request in writing which type(s) of deliverable is required for this project.
3. Prices are valid for 180 days from date of letter.
4. Billing will be monthly by the 10th, net 30

Please indicate your acceptance by signing the Agreement and returning it to office@abbie-jones.com. Unless otherwise requested, Abbie Jones Consulting will return an electronic copy of the fully executed agreement to the Client's Project Manager via email. By executing below, you hereby authorize Abbie Jones Consulting to proceed with the work detailed herein and agree to the conditions contained in this document and in the attached general terms and conditions [hereinafter referred to as "Proposal"].

Abbie Jones Consulting appreciates the opportunity to provide professional services on this project. If you have questions, or need additional information, please contact us at 859.559.3443. We look forward to working with you.

Sincerely,

A handwritten signature in cursive script that reads 'Abbie Jones'. Below the signature, the text 'Abbie Jones, PE, PLS' and 'President' is printed in a standard font.

Abbie Jones, PE, PLS
President



ABBIE JONES CONSULTING
1022 Fontaine Rd, Lexington, KY 40502
859.559.3443
www.abbie-jones.com

2021 SCHEDULE OF FEES

Unless otherwise agreed to in writing, the following schedule of fees shall apply for direct labor and direct expenses associated with the delivery of services:

Principal	\$160
Senior Engineer (PE)	\$110
Staff Engineer (EIT)	\$75
Expert Witness Research/Prep	\$150
Expert Witness Deposition/Court	\$250
2-Person Crew	\$120
2-Person Crew (PLS reqd)	\$130
3-Person Crew	\$150
Senior Surveyor (PLS)	\$120
Project Surveyor (LSIT)	\$75
Microstation Drafting	\$85
Rod Person	\$60
CADD Technician	\$60
Clerical	\$75
Private Locates	\$100

Compensation For Reimbursable Expenses

Reimbursable Items will be charged a multiplier of 1.10.

Per diems will be as defined by KYTC, TDOT, Federal, other agency or, if no agency, then by IRS standards.


Compensation For Overtime

All overtime on projects will be charged a multiplier of 1.50

1.16 WORKFORCE ANALYSIS FORM

Name of Organization: LOKITS CONTRACTING, LLC

Categories	Total	White (not Hispanic or Latino)		Hispanic or Latino		Black or African-American (not Hispanic or Latino)		Native Hawaiian and other Pacific Islander (not Hispanic or Latino)		Asian (not Hispanic or Latino)		American Indian or Alaskan Native (not Hispanic or Latino)		Two or more races (not Hispanic or Latino)		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Administrators	2	1	1													1	1
Professionals																	
Superintendents	1	1														1	
Supervisors																	
Foremen																	
Technicians																	
Protective Service																	
Para-Professionals																	
Office/Clerical																	
Skilled Craft	1	1														1	
Service/Maintenance																	
Total	4	3	1													3	1

Prepared By:  Cody M. Lokits

Date 01 / 19 / 2022

1.17 EVIDENCE OF INSURABILITY

LEXINGTON-FAYETTE UBAN COUNTY GOVERNMENT CONSTRUCTION PROJECT
(Use separate form for each Agency or Brokerage agreeing to provide coverage)

Names Insured: LOKITS CONTRACTING, LLC
 Address: 2480 Woodfield Circle, Lexington, KY 40515
 Project to be insured: LFUCG Hartland 3 Pump Station Replacement

In lieu of obtaining certificates of insurance at this time, the undersigned agrees to provide the above Named Insured with the minimum coverage listed below. These are outlined in the Insurance and Risk Management of Section 00600 - Bonds and Certifications, including all requirements, and conditions:

Article Items	Coverage	Minimum Limits and Policy Requirements	Limits Provided to Insured	Name of Insurer	A.M. Best's	
					Code	Rating
1.05.D.1	CGL	\$1,000,000/per occ., \$2,000,000/aggregate or \$2,000,000 combined single limit Requirements (a) through (e)	\$1,000,000 per occ \$2,000,000 aggregate	Crum & Forster Specialty Insurance Company	018245	A
1.05.D.1	Auto	Combined single \$1,000,000/per occ. aggregate Requirements (a) through (c)	\$1,000,000 per occ	Auto Owners Insurance	004354	A++
1.05.D.1	WC	\$ 1,000,000 Statutory	\$1,000,000	KEMI	011781	A-
1.05.D.1	Employer's Liability	\$500,000	\$1,000,000	KEMI	011781	A-

Section 00600 includes required provisions, statements regarding insurance requirements, and the undersigned agrees to abide by all provisions for the coverage's checked above unless stated otherwise when submitting

Houchens Insurance Group
 Agency or Brokerage: Allen J. Baas
 Name of Authorized Representative: Allen J. Baas
 Street Address: 505 Wellington Way, Suite 350
 City: Lexington, KY 40503
 Telephone Number: 859-263-2771
 Title: Agent
 Authorized Signature: *Allen J. Baas*
 Date: 01/19/2022

NOTE: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of authorized representative of insurer.

IMPORTANT: CONTRACT MAY NOT BE AWARDED IF A COMPLETED AND SIGNED COPY OF THIS FORM FOR ALL COVERAGES LISTED ABOVE IS NOT PROVIDED.

1.18 DEBARRED FIRMS

PROJECT NAME: Hartland 3 Pump Station Replacement

LFUCG BID NO.: 129-2021

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY**

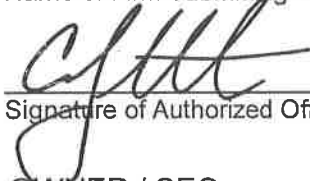
All prime Contractors shall certify that Subcontractors have not and will not be awarded to any firms that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

All Bidders shall complete the Debarment Certification in duplicate and submit both copies to the Owner with the Bid Form. The Owner (grantee) shall transmit one copy to the Lexington-Fayette Urban County Government, Division of Community Development within fourteen (14) days after Bid opening.

The undersigned hereby certifies that the firm of LOKITS CONTRACTING, LLC has not and will not award a subcontract, in connection with any Agreement award to it as the result of this bid, to any firm that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964, Executive Order 11246 As Amended or any Federal Law.

LOKITS CONTRACTING, LLC

Name of Firm Submitting Bid



Signature of Authorized Official

OWNER / CEO

Title

January 19, 2022

Date

1.19 DEBARMENT CERTIFICATION

All Contractors/Subcontractors shall complete this certification.

The Contractor/Subcontractor certifies in accordance with Executive Order 12549 (Debarment and Suspension 2/18/86) that to the best of its knowledge and belief, that it and its principals:

- 1) Are not presently debarred, suspended, proposed for debarment, declared negligible, or voluntarily excluded from covered transactions or contract by any Federal department or agency for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.
 - a) Have not within a three year period preceding this Bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;
 - b) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(a) of this certification; and
 - c. Have not within a three (3) year period preceding this Bid has one or more public (Federal, State or local) transactions or contracts terminated for cause or default.
- 2) Where the Contractor is unable to certify to any of the statements in this certification, such prospective contractors shall attach an explanation to this certification form.

Firm Name: LOKITS CONTRACTING, LLC

Project: LFUCG Hartland 3 Pump Station Replacement

Printed Name: Cody M. Lokits

Title of Authorized Representative: Owner/CEO

Signature: 

Date: January 19, 2022

1.20 CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements


The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty for not less than \$10,000 and not more than \$100,000 for each such failure.

Cody M. Lokits, Owner/CEO

Typed Name & Title of Authorized Representative



Signature of Authorized Representative

January 19, 2022

Date

____ I am unable to certify to the above statements. My explanation is attached.

1.21 BID BOND

BID BOND

Bond Number: _____

KNOW ALL MEN BY THESE PRESENTS, that we Lokits Contracting, LLC

as principal (the "Principal") and Nationwide Mutual Insurance Company

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

as obligee (the "Obligee"), in the penal sum of 5% of amount bid dollars
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

WHEREAS, the Principal has submitted a bid for
Heartland 3 Pump Station Replacement LFUCG BID No. 129-2021 Remedial Measures Plan ID No. EH-18

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal within the period specified therein,
or, if no period be specified, within ninety (90) days after opening, and the Principal shall enter into a
contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may
be specified in the bidding or contract documents, or in the event of the failure of the Principal to enter
into such contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference in
money not to exceed the penal sum hereof between the amount specified in said bid and such larger
amount for which the Obligee may in good faith contract with another party to perform the work covered
by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect. In no
event shall the liability hereunder exceed the penal sum thereof.

PROVIDED AND SUBJECT TO THE CONDITION PRECEDENT, that any claim by Obligee under this
bond must be submitted in writing by registered mail, to the attention of the Surety Law Department at the
address above, within 120 days of the date of this bond. Any suit under this bond must be instituted
before the expiration of one (1) year from the date of this bond. If the provisions of this paragraph are void
or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction
of the suit shall apply.

DATED as of this 19th day of January, 2022.

WITNESS / ATTEST:

Kayla Lokits
Principal (Secretary)

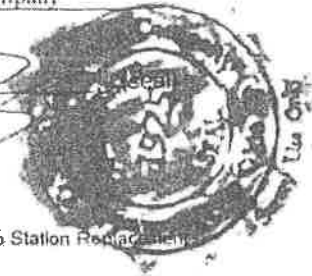
Alan Han
Surety (Secretary)

Lokits Contracting, LLC
Principal

By [Signature] (seal)
Name: Cody Lokits
Title: CEO

Nationwide Mutual Insurance Company
Surety

By: [Signature] (seal)
Name: Benjamin P Dycus
Title: Attorney-in-fact



SCHEDULE B – PREVIOUS EXPERIENCE

PAST PROJECT EXPERIENCE OF CODY LOKITS, P.E.

City of Brandenburg New Wastewater Treatment Plant: Brandenburg, KY

Oct 2020

Kentucky's first Public Private Partnership (P3) project delivery consisted of construction of a new 0.5 MGD wastewater treatment plant including new headworks facility, grit removal equipment, orbal oxidation ditch, two clarifiers, RAS/WAS pump station, chlorine contact chamber, sludge holding basin, and modifications to an existing control building to accommodate new sludge press equipment including all necessary site and electrical improvements for a new greenfield wastewater treatment plant. Project also consisted of limited demolition and closure of the existing lagoon process wastewater treatment plant.

Project Value: \$8.4 million

Project Design Engineer: GRW Engineers, Joe Pavoni, PE (502-751-1313)

Owner Contact: Mayor Ronnie Joyner (270-422-4981)

Role: Exec. Vice President / Director of Construction, The Walker Company

City of Marion New Wastewater Treatment Plant: Marion, KY

January 2020

The primary scope of work included construction of a new 1.5 MGD wastewater treatment plant including an influent pump station, screening and grit removal headworks building, orbal oxidation ditch, three clarifiers, a post aeration contact chamber, a cascade aeration channel, solids processing and administration building, blower / electrical building, various pump stations, ductile iron yard piping, and all necessary site and electrical improvements for a new greenfield wastewater treatment plant.

Project Value: \$13.7 million

Project Design Engineer: Eclipse Engineers, PLLC / Alan Robinson, PE (859-433-9585)

Owner Contact: Adam Ledford, City Administrator (270-965-5313)

Role: Exec. Vice President / Director of Construction, The Walker Company

V.D. Parrott Jr. WTP 40MGD Membrane Filtration Upgrades: Dalton, GA

Oct 2019 – Nov 2020

Project consists of the following: Modifications to the 42" and 48" raw water mains at the water treatment plant; a new flow splitter box to the five flocculation channels; rehabilitation of the existing serpentine flocculation channels including new FRP baffles; rehabilitation of the existing mechanical scraper equipment in five sedimentation basins; concrete repairs within the flocculation and sedimentation basins; a new 25' deep Membrane Pump Station with five vertical turbine pumps; new Membrane Building including a control room, laboratory, break room, restrooms, training room, offices, electrical room, and areas for membrane equipment and piping systems; installation of the membrane filtration equipment, chemical feed equipment, and other associated equipment; electrical improvements including a new electrical feed to the Membrane Building, switchgear, motor control centers, variable frequency drives, building power and lighting, site lighting, and other associated improvements; improvements to the existing Lagoons No. 1 and No. 2 including a new duplex suction lift pump station with associated piping; renovation of the Operations Building interior including new HVAC equipment, new electrical circuits and lighting in the Operations Building and Filter Building, upgrade control room, removal of existing lime silos, chemical storage tanks, elevator equipment, and other equipment on the upper level of the Operations Building.

Project Value: \$41.5 million

Project Design Engineer: Barge Design Solutions, Inc. / Raymond Cordon, PE (919-961-0663)

Owner Contact: Leslie Rush, Watershed Director (706-463-1670)

Role: Senior Project Manager, 3D Enterprises

Consolidated Utility District WTP Expansion: Murfreesboro, TN

Oct 2017 – March 2020

Project consisted of drilling and blasting of structure excavations including a new Filter Building with clearwell, pipe gallery, filter influent channel and twelve new anthracite/sand filters; four new flocculation basins; a new Backwash Basin; new yard piping, process piping, and process equipment; new electrical and SCADA systems as well as new architectural finishes. Existing plant renovation included interface with the new filter influent channel as well as new yard piping systems, new decant piping in existing settling basins and other miscellaneous facility renovation work scopes.

Project Value: \$15.5 million

Project Design Engineer: James C. Hailey & Co. / Jimmy Hailey, PE (615-351-5704)

Owner Contact: Chris Forte, Plant Manager (615-642-5273)

Role: Project Manager, 3D Enterprises

Sinking Creek WWTP Expansion: Murfreesboro, TN

Jan 2015 – Dec 2017

Project consisted of an expansion to the existing Sinking Creek WWTP while keeping all existing plant components in service. Work included drilling and blasting of structure excavations, ~10,000 cy of concrete placement, new standby generators, upgrade of existing automated controls, and upgrade of the existing plant SCADA system. Project completed successfully under budget with glowing owner reviews.

Project Value: \$30 million

Project Design Engineer: Smith, Seckman, & Reid / Brent Fowler, PE (615-979-2050)

Owner Contact: John Strickland, Plant Manager (615-848-3225)

Role: Project Manager, 3D Enterprises

Eastern Band of Cherokee Indians WTP & RW/PS Upgrades: Cherokee, NC

Jun 2015 – Jan 2017

Project consisted of construction of new raw water intake and pumping station, demolition of existing raw water intake and pump station, improvements to existing water treatment plant including new in-line UV Reactor, new sludge pumps, new aluminum building, new clearwell, sludge holding tank modifications, miscellaneous site piping, and electrical and SCADA improvements. Project was a negotiated change order to WWTP project (below) due to owner's significant trust and fostered relationships with 3D management.

Project Value: \$8 million

Project Design Engineer: URS

Owner Contact: Ken Green, Facilities Director (828-359-6120)

Role: Project Manager, 3D Enterprises

Eastern Band of Cherokee Indians WWTP Expansion: Cherokee, NC

Dec 2014 – Jun 2016

Project consisted of construction of aeration basins, secondary clarifiers, sludge holding basins, headworks, dewatering building, administration building, ultraviolet disinfection system, post-aeration basin, odor control systems, alkaline stabilization system, and miscellaneous modifications to existing infrastructure, yard piping, and other support facilities. Project completed successfully under budget with glowing owner reviews.

Project Value: \$30 million

Project Design Engineer: Vaughn & Melton Engineers / Marios Gergiou, PE (828-253-2796)

Owner Contact: Ken Green, Facilities Director (828-359-6120)

Role: Project Manager, 3D Enterprises

Noman M. Cole PCP - Degritting Facilities Upgrades: Lorton, VA

Oct 2013 – Nov 2014

Project consisted of upgrades and rehabilitation of all Primary Sludge Degritting mechanical, electrical, and instrumentation systems as well as miscellaneous architectural and structural improvements. Mechanical construction also included installation of a new building sump and associated transfer pump drain piping and installation of new plant process water piping throughout all systems. Electrical and instrumentation installations included a new MCC and PLC for control of all new, as well as old equipment.

Project Value: \$5 million

Project Design Engineer: Parsons

Role: Project Engineer, Ulliman Schutte Construction

Noman M. Cole PCP - Dry Ash Handling System Improvements: Lorton, VA

Oct 2013 – Nov 2014

Project consisted of upgrades to the ash handling and conveying systems within sludge receiving and incinerator facilities. Upgrades include replacement of all ash conditioning equipment within facilities as well as a new ash silo, baghouse, bin vent, and primary separator within facility. Mechanical installations also included the replacement of three new vacuum pumps and associated vacuum piping, silencer piping, and pneumatically operated valving.

Project Value: \$5 million

Project Design Engineer: Hazen & Sawyer

Role: Project Engineer, Ulliman Schutte Construction

ENR-North Secondary Treatment Upgrades - Blue Plains Advanced WWTP: Washington, DC

March 2013 – Sep 2013

Project consisted of rehab of existing Secondary Reactors, Dual Purpose Sedimentation Basins, Secondary Sedimentation Basins, and associated process systems.

Project Value: \$40 million

Project Design Engineer: Black & Veatch

Role: Project Engineer, Ulliman Schutte Construction

CSO-019 Overflow & Diversion Structures – Clean Rivers Project: Washington, DC

Sep 2012 – March 2013

Project consisted of the construction and the elimination of an existing CSO (Combined Sewer Outfall) by making modifications to existing tunnels. New construction consisted of a multi-barrel overflow structure for future tie-in to a new tunnel system as well as a diversion structure constructed upstream in the existing CSO tunnel flow of the Northeast Boundary Trunk Sewer (NEBTS).

Project Value: \$28 million

Project Design Engineer: Whitman, Requardt and Associates, LLP

Role: Project Engineer, Ulliman Schutte Construction

US-27 Bypass: Cynthiana, KY

Jan 2011 – Sep 2012

Project consisted of new construction of four miles of a three-lane highway bypass around the city of Cynthiana, KY. Project contained two pre-stressed concrete I-beam bridges and one 900' steel girder bridge to be constructed over the Licking River and CSX Railroad. Project required 1.2 million cubic yards of site drilling and blasting, grading, roundabout construction, over two miles of curb and gutter construction, and construction of two reinforced concrete box culverts.

Project Value: \$40 million.

Role: Project Manager, The Walker Company

KY-15 Realignment: Breathitt County, KY

Aug 2010 – Jan 2011

Project consisted of new construction of a four-lane highway through the mountains of Eastern Kentucky. Construction consisted of removal of 1.7 million cubic yards of blasted stone material to reach roadway grade, 72" storm drain installation under an existing roadway, water and sewer relocation, and asphalt paving.

Project Value: \$15 million

Role: Project Manager, The Walker Company

US-27 Bridge Relocation: Harrison County, KY

Aug 2010 – Jan 2011

Project consisted of construction of a new pre-stressed concrete I-beam bridge structure adjacent to an existing bridge structure over CSX Railroad.

Project Value: \$15 million

Role: Project Manager, The Walker Company

CODY M. LOKITS, P.E.

2480 Woodfield Circle, Lexington, KY 40515

859-699-2961

Career Experience

W. Principles, LLC d/b/a The Walker Company

Mt. Sterling, KY

Executive Vice President, Director of Construction, Safety Officer / November 2020 – August 2021

Responsible for the overall safety, supervision, and success of the company. Responsibilities include monitoring company safety, fostering safety culture, cost management of corporate & project budgets, supervision of labor force and capital equipment requirements, project negotiations, development and implementation of strategic plans, and the overall administration of the company along with direct coordination and collaboration with consultants and owners.

3D Enterprises Contracting Corporation

Lexington, KY

Senior Project Manager / November 2014 – November 2020 (6 yrs)

Responsible for the overall safety, schedule, supervision, and success of large, complex water/wastewater treatment plant construction projects. Responsibilities include monitoring project safety, fostering safety culture, cost management of project budgets, supervision of labor force requirements, change order negotiation, development and implementation of work plans, coordination of subcontractors and vendors, and the overall administration and technical review of the construction project with direct coordination and collaboration with consultants and owners. Additional duties include project estimation of all work scopes for hard-bid public projects.

Ulliman Schutte Construction

Washington, DC / Lorton, VA

Project Engineer / September 2012 – November 2014 (2 yrs)

Responsible for monitoring compliance with company safety programs and ensuring quality work that complies with plans and specifications for water/wastewater treatment plant construction projects. Specific duties include: developing plans and working drawings, reviewing and approving engineering shop drawings, preparing and updating construction schedules and sequences utilizing Primavera P6 software, coordinating field quality control efforts, coordinating subcontractors and suppliers, procuring materials and services, negotiating contracts and associated pricing, tracking and analyzing labor and equipment costs, projecting project costs and gross margin analysis, managing inventory control systems, monitoring company safety programs, and implementing quality control programs.

The Walker Company

Mt. Sterling, KY

Project Manager / May 2010 – September 2012 (2 yrs)

Duties include maintaining multiple projects' cost and budget analysis, shop drawing review, material management, as well as labor and equipment cost analysis. Designed and implemented surveying data in 3D modeling programs for machine grading control. Managed schedule, jobsite personnel, and communicated heavily with KYDOT, subcontractors, superintendents, and foremen to progress the construction process in a timely, safe, and effective manner. Performed field quality control on all concrete structures and grading activities for conformance to the design documents.

Education/Qualifications/Certifications

Bachelor of Science in Civil Engineering

University of Kentucky – Lexington, KY

2006-2010

Licensed Professional Engineer (KY)

License No. 31264

Kentucky Energy & Environment Non-Coal, Explosives & Blasting License

License No. G 11303

AGC of KY Construction Leadership Council

Member, 2018-present

[REDACTED]

TIMOTHY "TIM" A. MUNDAY
PROJECT SUPERINTENDENT/ASST SUPERINTENDENT FOR THE FOLLOWING PROJECTS:

PROJECT LOCATION	PROJECT NAME	CONSTRUCTION AMOUNT	COMPL DATE
Mount Olive	NC Mount Olive WWTP Lagoon Liner Repair	\$ 473,600.00	2020
Fayetteville	NC P.O. Hoffer Raw Water Intake Screen & Slide Gate Replacement	\$ 1,132,000.00	2019
Dalton	GA Reservoir Pump Station Rehabilitation	\$ 3,242,819.00	2018
Knoxville	TN KUB Mark B. Whitaker WTP Bulk Hypochlorite Conversion	\$ 4,841,627.00	2017
Knoxville	TN KUB Mark B. Whitaker WTP Intake Modifications	\$ 177,272.00	2017
Rock Hill	SC WTP High Service Pumping Modifications & Expansion	\$ 4,383,028.00	2016
Burlington	NC East Burlington WWTP Nutrient Removal Improvements	\$ 7,658,370.00	2014
Burlington	NC East Burlington WWTP Force Main Replacement	W/112-201	2014
Danville	VA Rehabilitation of Clarifier No 4	\$ 271,600.00	2013
Danville	VA Northside WWTP Aeration System Improvements	\$ 2,278,500.00	2012
South Pittsburg	TN WTP Modifications and System Improvements	\$ 723,840.00	2011
South Pittsburg	TN WTP High Service Pump System Improvements	\$ 60,900.00	2011
Brinkley	AR Brinkley Water Treatment Plant Improvements	\$ 1,252,857.00	2010
Midland(Concord)	NC Muddy Creek Wastewater Treatment Plant Expansion	\$ 2,345,873.00	2010
York	SC Little Allison Creek WW Pump Station & Force Main Contract A	\$ 4,324,034.00	2009
Cartersville	GA Cartersville Wastewater Treatment Plant Modifications	\$ 6,934,234.00	2008
Rock Hill	SC Div II Dutchman Creek Pump Station & Force Main	\$ 4,180,387.00	2008
Cabarrus County	NC Mt. Pleasant WW Transmission Facility PS II Impr	\$ 713,566.00	2007
Cumming	GA Lower Etowah River Pump Station	\$ 876,921.00	2007
Morristown	TN Turkey Creek Sewer Line Replacement - Phase I	\$ 2,939,694.00	2007
Winston-Salem	NC South Fork Creek Pump Station	\$ 2,279,034.00	2007
Highlands	NC Cullasaja River WWTP Expansion	\$ 4,834,547.00	2006
Greeneville	TN Water Treatment Plant	\$ 1,216,257.00	1992
Knoxville	TN Forks of the River Wastewater Treatment Plant	\$ 724,894.00	1991

TIMOTHY MUNDAY JOB EXPERIENCE

HAREN CONSTRUCTION COMPANY INC.

2014 - 2015

Rock Hill WTP High Service Pumping Improvements, Rock Hill, SC – Superintendent

2012 – 2014

East Burlington WWTP EBNRI, Burlington NC – Superintendent

2011 – 2012

Northside WWTP Aeration Basin Modifications, Danville Virginia WWTP – Superintendent

Northside WWTP Clarifier Repair, Danville VA - Superintendent

2011

South Pittsburg WTP Modifications, East Pittsburg TN WTP – Superintendent

2010 – 2011

Brinkley WTP Renovation, Brinkley Arkansas – Superintendent

2009 – 2010

Muddy Creek WWTP, Water and Sewer Authority of Cabarrus County NC – Superintendent

2008 - 2009

Little Allison Creek Pump Station, York SC – Superintendent

2007 – 2008

Dutchman Creek Pump Station and Force Main, Rock Hill SC – Superintendent

2006 – 2007

Cartersville GA WWTP Modifications – Superintendent

2006 – 2007

Turkey Creek Sewer Line Replacement, Morristown TN – Superintendent

2006 – 2007

Mt. Pleasant Wastewater Transmission Pump Station II Improvements, Cabarrus County, NC – Superintendent

2006

South Creek Pump Station, Winston-Salem NC – Superintendent

2006

Lower Etowah River Pump Station, Cumming GA – Superintendent

2005 – 2006

Cullasaja River WWTP Expansion, Highlands, NC – Superintendent

2005

Canton WTP Improvements, Canton NC

2003 – 2005

Phillips and Jordan – Subcontractor repairing roadways and infrastructure due to hurricane flooding in Appalachian Mountains.

1998 – 2003

Greeneville Water Commission, Greeneville TN – Assistant Superintendent - head of water and wastewater treatment plants operations. Was Supervisor of collection and distribution departments, operations and maintenance crews and shop. Started I&I, valve location, and fire hydrant flow rate programs.

Crowder Construction Company – Charlotte, NC

1994 – 1998

Bryson City WTP, Bryson City NC – Superintendent

Cullowhee WTP and Raw Water Intake, Cullowhee NC – Superintendent

Greeneville Raw Water Intake, Greeneville Water Commission, Greeneville TN. – Superintendent

Unimin Quartz Mine, Spruce Pine NC – Superintendent

Oliver Rubber Company Press Installation, Asheboro NC – Superintendent

Sugar Creek WWTP digester/clarifier conversion, Charlotte NC – Superintendent

HAREN CONSTRUCTION COMPANY INC. – ETOWAH, TN

1989 – 1994

Conover WWTP, Conover NC – Assistant Superintendent

Hendersonville WWTP, Hendersonville NC – Superintendent

Greeneville WTP Improvements, Greeneville Water Commission, Greeneville TN – Superintendent

Goldsboro WWTP, Goldsboro NC – Superintendent

Monroe WWTP Modifications, Monroe NC – Superintendent

Brasfield & Gorrie - Birmingham AL

1983 - 1989

Greeneville WWTP – Greeneville Water Commission, Greeneville TN – Mechanical Superintendent

Bay County WTP Filter/Clarifier Improvements, Panama City Florida – Superintendent

Southwest WTP, Huntsville, AL – Mechanical Superintendent

Village Creek WWTP, Jefferson County AL – Mechanical Superintendent

Patricia Walker Shaw Water Pump Station – Memphis Light, Gas, and Water, Memphis, TN – Mechanical Superintendent

Bush Building Company – Nashville, TN

1976 – 1983

Kingsport WTP, Kingsport TN – Assistant Superintendent

Madisonville WWTP, Madisonville KY – Mechanical Superintendent

Dry Creek WWTP, Nashville TN – Assistant Superintendent

Boaz WWTP, Boaz AL – Assistant Superintendent

Tuskegee WWTP, Tuskegee AL – Assistant Superintendent

Brasfield & Gorrie – Birmingham AL

1975 - 1976

Campbellsville WWTP, Campbellsville KY – Carpenter Foreman/Crane Operator

Ellis Construction Company – Campbellsville, KY

1973 – 1975

Taylor County Bank – Campbellsville KY – Carpenter Foreman

73 Convenient Stores from Knoxville to Nashville – Foreman

TIM MUNDAY REFERENCES: UTILITIES & COMMERCIAL

BOB PATTERSON	WATER RESOURCES ENGINEER, BURLINGTON NC	336-516-2255
CLAY HELM	CONST. SUPERVISOR, CUMMINS ENGINE PLANT	252-955-9905
KEITH GARTH	SUPT. MARION WATER & GAS, S.PITTSBURG, TN	423-667-7712
MARK LOMAX	WATER & SEWER AUTHORITY OF CABARRUS COUNTY	704-786-1783
STEVE KIRBY	PROJECT MGR., HAREN CONST.CO.	731-676-9575
TOM BACH	WATER RESOURCES ENGINEER, CONCORD NC	980-428-5083

AFFIRMATIVE ACTION PLAN

ADOPTED BY

LOKITS CONTRACTING, LLC

AS REQUIRED UNDER SECTION 503 AND EXECUTIVE ORDER 11246

APPROVED BY: _____


Cody M. Lokits, PE – Manager / CEO

DATE APPROVED: _____

8/17/21

Policy Statement on Equal Employment Opportunity for Protected Veterans [41 C.F.R. § 60-300.44(a)]

As the Chief Executive Officer of Lokits Contracting, LLC, I am committed to the principles of affirmative action and equal employment opportunity for protected veterans. Therefore, it is the policy of LOKITS CONTRACTING, LLC not to discriminate because of protected veteran status and to take affirmative action to employ and advance in employment qualified protected veterans at all levels within the company. LOKITS CONTRACTING, LLC will ensure that all employment actions, including but not limited to recruitment, hiring, selection for training, promotion, transfer, demotion, layoff, recall, termination, rates of pay or other forms of compensation, will be administered without regard to status as a protected veteran. LOKITS CONTRACTING, LLC will also provide qualified applicants and employees who are disabled veterans with needed reasonable accommodations, as required by law, and will ensure that all employment decisions are based only on valid job requirements. LOKITS CONTRACTING, LLC prohibits harassment of employees and applicants because they are protected veterans and will conduct training to try to prevent any harassment or discrimination before it occurs. LOKITS CONTRACTING, LLC also prohibits retaliation against employees and applicants for filing a complaint, opposing any discriminatory act or practice, assisting or participating in any manner in a review, investigation, or hearing or otherwise seeking to obtain their legal rights under any Federal, State, or local EEO law requiring equal employment opportunity for protected veterans. Prohibited retaliation includes, but is not limited to, harassment, intimidation, threats, coercion or other adverse actions that might dissuade someone from asserting their rights. In furtherance of LOKITS CONTRACTING, LLC's policy regarding affirmative action and equal employment opportunity, LOKITS CONTRACTING, LLC has developed a written Affirmative Action Program (AAP) that sets forth the policies, practices and procedures that LOKITS CONTRACTING, LLC is committed to in order to ensure that its policy of nondiscrimination and affirmative action for qualified protected veterans is accomplished. This AAP is available for inspection by any employee or applicant for employment upon request, during normal business hours, in LOKITS CONTRACTING, LLC's Administrative Department office located at 2480 Woodfield Circle, Lexington, KY. Interested persons should contact the Human Resources Office at 859-699-2961. for assistance. In order to ensure employment opportunity and affirmative action throughout all levels of LOKITS CONTRACTING, LLC, I have designated LOKITS CONTRACTING, LLC's Director of Human Resources, Kayla Lokits, as the Equal Employment Opportunity (EEO) Officer for LOKITS CONTRACTING, LLC. The EEO Officer will establish and maintain an internal audit and reporting system that will track and measure the effectiveness of LOKITS CONTRACTING, LLC's AAP and show where additional action is needed to meet LOKITS CONTRACTING, LLC's objectives.

Policy Statement on Equal Employment Opportunity for Individuals with Disabilities [41 CFR 60-741.44(a)]

As the Chief Executive Officer of LOKITS CONTRACTING, LLC, I am committed to the principles of affirmative action and equal employment opportunity for individuals with disabilities. Therefore, it is the policy of LOKITS CONTRACTING, LLC not to discriminate on the basis of disability and to take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels within the company. LOKITS CONTRACTING, LLC will ensure that all employment actions, including but not limited to recruitment, hiring, selection for training, promotion, transfer, demotion, layoff, recall, termination, rates of pay or other forms of compensation, will be administered without regard to disability. LOKITS CONTRACTING, LLC will also provide qualified applicants and employees with disabilities with needed reasonable accommodations, as required by law, and will ensure that all employment decisions are based only on valid job requirements. LOKITS CONTRACTING, LLC prohibits harassment of employees and applicants on the basis of disability and will conduct training to try to prevent any harassment or discrimination before it occurs. LOKITS CONTRACTING, LLC also prohibits retaliation or punishment against employees and applicants for filing a complaint, opposing any discriminatory act or practice, assisting or participating in any manner in a review, investigation, or hearing regarding LOKITS CONTRACTING, LLC's employment practices, or otherwise seeking to obtain their legal rights under any Federal, State, or local EEO law requiring equal employment opportunity for individuals with disabilities. Prohibited retaliation includes, but is not limited to harassment, intimidation, threats, coercion or other adverse actions that might dissuade someone from asserting their rights. In furtherance of LOKITS CONTRACTING, LLC's policy regarding affirmative action and equal employment opportunity, LOKITS CONTRACTING, LLC has developed a written Affirmative Action Program (AAP) that sets forth the policies, practices and procedures that LOKITS CONTRACTING, LLC is committed to in order to ensure that its policy of nondiscrimination and affirmative action for qualified individuals with disabilities is accomplished. This AAP is available for inspection by any employee or applicant for employment upon request, during normal business hours, in LOKITS CONTRACTING, LLC's Administrative Department office located at 2480 Woodfield Circle, Lexington, KY. Interested persons should contact the Human Resources Office at 859-699-2961 for assistance. In order to ensure equal employment opportunity and affirmative action throughout all levels of LOKITS CONTRACTING, LLC, I have designated LOKITS CONTRACTING, LLC's Director of Human Resources, Kayla Lokits, as the Equal Employment Opportunity (EEO) Officer for LOKITS CONTRACTING, LLC. The EEO Officer will establish and maintain an internal audit and reporting system that will track and measure the effectiveness of LOKITS CONTRACTING, LLC's AAP and show where additional action is needed to meet LOKITS CONTRACTING, LLC's objectives.

Guidelines on Discrimination Because of Religion or National Origin

It is the policy of LOKITS CONTRACTING, LLC, to take affirmative action to insure that applicants are employed, without regard to their religion or national origin. Such action includes, but is not limited to the following employment practices: hiring, promotion, demotion, transfer, recruitment or recruitment advertising, layoff, termination, rates of pay or other forms of compensation and selection for training. Employment practices have been reviewed to determine whether members of the various religions and/or ethnic groups are receiving fair consideration for job opportunities. Attention has been directed toward executive and middle management levels.

1. The policy concerning LOKITS CONTRACTING, LLC's obligation to provide equal employment opportunity without regard to religion or national origin is communicated to all employees via employee handbooks, policy statement and the Affirmative Action Program.
2. Internal procedures have been developed in this program to insure that LOKITS CONTRACTING, LLC's obligation to provide equal employment opportunity without regard to religion or national origin is being fully implemented.
3. Employees are informed at least annually of LOKITS CONTRACTING, LLC's commitment to equal employment opportunity for all persons, without regard to religion or national origin.
4. Recruiting sources have been informed of our commitment to provide equal employment opportunity without regard to religion or national origin.
5. Employment records of all employees are reviewed to determine the availability of promotable and transferable employees.
6. Contacts with religious and ethnic organizations will be made for purposes of advice, education, technical assistance and referral of potential employees as necessary to accomplish the purpose of this program.
7. LOKITS CONTRACTING, LLC engages in recruitment activities at educational institutions with substantial enrollments of students from various ethnic and religious groups.
8. Ethnic and religious media may be used for employment advertising.

Reasonable accommodations to the religious observances and practices of employees or prospective employees will be made, unless doing so would result in undue hardship. In determining whether undue hardship exists, factors such as the cost to the company and the impact on the rights of other employees would be considered.

SECTION I - INTRODUCTION

Lokits Contracting, LLC enters into this Affirmative Action Plan (AAP) with good faith for the purpose of promoting equality of opportunity into its corporate structure. Lokits Contracting, LLC seeks to increase the recruitment of qualified women and/or minorities for possible selection into the company in the event women and/or minorities are underutilized in the company. Lokits Contracting, LLC hereby adopts the following nondiscriminatory pledge and the AAP.

Any changes made to the program by Lokits Contracting, LLC will become part of this written AAP.

SECTION II - EQUAL OPPORTUNITY PLEDGE

Lokits Contracting, LLC commits to the following Equal Opportunity Pledge:

"The recruitment, selection, employment, and training of employees, shall be without discrimination because of race, color, religion, national origin, or sex. Lokits Contracting, LLC will take affirmative action to provide equal opportunity in employment and will operate the company as required under Title 29 of the Code of Federal Regulations, part 30."

SECTION III - UTILIZATION AND ANALYSIS. GOALS AND TIMETABLES

In order to allow positive recruitment and full utilization of minorities and women in the company, Lokits Contracting, LLC pledges to identify outreach efforts under Section IV which will be undertaken. The purpose of the analysis is to determine the minority and women's labor force in Lokits Contracting, LLC's labor market area. Once the labor force is determined, Lokits Contracting, LLC can determine if deficiencies exist in terms of underutilization of minorities and/or women in the occupations registered with the Registration Agency. (See attached Affirmative Action Plan Workforce Analysis Worksheet)

SECTION IV - OUTREACH AND POSITIVE RECRUITMENT

Lokits Contracting, LLC's AAP includes the following "checked" outreach and positive recruitment efforts that would reasonably be expected to increase minority and women's participation in the company by expanding the opportunity of minorities and women to become eligible for employment selection. **Once those efforts have been checked, Lokits Contracting, LLC will set forth the specific steps they intend to take under each identified effort.** Lokits Contracting, LLC will identify a significant number of activities in order to enable it to meet its obligation under Title 29, CFR part 30.4(c).

A. An announcement of specific employment openings must be disseminated thirty (30) days in advance of the earliest date for application at each interval to the following agencies/organizations:

- Registration Agency
- Women's Organizations/Centers
- Local Schools
- Employment Service Centers
- One Stop Centers
- Vocational Education Schools
- Other Organizations/Centers (which can effectively reach minorities and women)
- Newspapers (which are circulated in the minority community and among women)

The announcement will include the nature of the job opening, requirements for the role, availability of opportunities, sources of applications, and Lokits Contracting, LLC's equal opportunity policy. The period for accepting applications as established by Lokits Contracting, LLC is **30 days**.

B. Participation in annual workshops conducted by employment service agencies for the purpose of familiarizing school, employment service and other appropriate personnel with the company and current opportunities.

C. Cooperation with school boards and vocational educational systems to develop programs for preparing students to meet the standards and criteria required to qualify for entry into the company.

D. Internal communication of Lokits Contracting, LLC's equal opportunity policy should be conducted in such a manner to foster understanding, acceptance, and support among Lokits Contracting, LLC's various officers, supervisors, employees, and members, and to encourage such persons to take the necessary action to aid in meeting its obligation under Title 29, CFR part 30.

E. Engaging in programs such as outreach for the positive recruitment and preparation of potential applicants for employment opportunities; where appropriate and feasible, such programs will provide for pre-testing experience and training. In initiating and conducting these programs, Lokits Contracting, LLC may be required to work with other employers and appropriate community organizations. Lokits Contracting, LLC will also initiate programs to prepare women and encourage women to enter traditionally male programs.

- F. Encouraging the establishment and utilization of programs of apprenticeship, preparatory trade training, or others designed to afford related work experience or prepare candidates for employment opportunities. Lokits Contracting, LLC will make appropriate provisions in its AAP to assure that those who complete such programs are afforded full and equal opportunity for admission into the company.
 - G. Utilizing journeyworkers to assist in the implementation of affirmative action in the company.
 - H. Granting advance standing or credit on the basis of previously acquired experience, training, skills, or aptitude for all applicants equally.
 - I. Other appropriate action to ensure that the recruitment, selection, employment, and training of apprentices during their apprenticeship will be without discrimination because of race, color, religion, national origin, or sex (e.g., general publication of apprenticeship opportunities and advantages in advertisements, industry reports, articles, etc., use of present minority and women apprentices and journeyworkers as recruiters; career counseling; development of reasonable procedures to ensure employment opportunity, including reporting systems, on-site reviews, briefing sessions).
-

SECTION VI - OFFICIAL ADOPTION

Lokits Contracting, LLC hereby officially adopts this Affirmative Action Plan on this 17th day of August 2021.



SIGNATURE OF MANAGER / CEO

Cody M. Lokits, P.E.

PRINTED NAME

SCHEDULE B – PREVIOUS EXPERIENCE

PAST PROJECT EXPERIENCE OF CODY LOKITS, P.E.

City of Brandenburg New Wastewater Treatment Plant: Brandenburg, KY

Oct 2020

Kentucky's first Public Private Partnership (P3) project delivery consisted of construction of a new 0.5 MGD wastewater treatment plant including new headworks facility, grit removal equipment, orbal oxidation ditch, two clarifiers, RAS/WAS pump station, chlorine contact chamber, sludge holding basin, and modifications to an existing control building to accommodate new sludge press equipment including all necessary site and electrical improvements for a new greenfield wastewater treatment plant. Project also consisted of limited demolition and closure of the existing lagoon process wastewater treatment plant.

Project Value: \$8.4 million

Project Design Engineer: GRW Engineers, Joe Pavoni, PE (502-751-1313)

Owner Contact: Mayor Ronnie Joyner (270-422-4981)

Role: Exec. Vice President / Director of Construction, The Walker Company

City of Marion New Wastewater Treatment Plant: Marion, KY

January 2020

The primary scope of work included construction of a new 1.5 MGD wastewater treatment plant including an influent pump station, screening and grit removal headworks building, orbal oxidation ditch, three clarifiers, a post aeration contact chamber, a cascade aeration channel, solids processing and administration building, blower / electrical building, various pump stations, ductile iron yard piping, and all necessary site and electrical improvements for a new greenfield wastewater treatment plant.

Project Value: \$13.7 million

Project Design Engineer: Eclipse Engineers, PLLC / Alan Robinson, PE (859-433-9585)

Owner Contact: Adam Ledford, City Administrator (270-965-5313)

Role: Exec. Vice President / Director of Construction, The Walker Company

V.D. Parrott Jr. WTP 40MGD Membrane Filtration Upgrades: Dalton, GA

Oct 2019 – Nov 2020

Project consists of the following: Modifications to the 42" and 48" raw water mains at the water treatment plant; a new flow splitter box to the five flocculation channels; rehabilitation of the existing serpentine flocculation channels including new FRP baffles; rehabilitation of the existing mechanical scraper equipment in five sedimentation basins; concrete repairs within the flocculation and sedimentation basins; a new 25' deep Membrane Pump Station with five vertical turbine pumps; new Membrane Building including a control room, laboratory, break room, restrooms, training room, offices, electrical room, and areas for membrane equipment and piping systems; installation of the membrane filtration equipment, chemical feed equipment, and other associated equipment; electrical improvements including a new electrical feed to the Membrane Building, switchgear, motor control centers, variable frequency drives, building power and lighting, site lighting, and other associated improvements; improvements to the existing Lagoons No. 1 and No. 2 including a new duplex suction lift pump station with associated piping; renovation of the Operations Building interior including new HVAC equipment, new electrical circuits and lighting in the Operations Building and Filter Building, upgrade control room, removal of existing lime silos, chemical storage tanks, elevator equipment, and other equipment on the upper level of the Operations Building.

Project Value: \$41.5 million

Project Design Engineer: Barge Design Solutions, Inc. / Raymond Cordon, PE (919-961-0663)

Owner Contact: Leslie Rush, Watershed Director (706-463-1670)

Role: Senior Project Manager, 3D Enterprises

Consolidated Utility District WTP Expansion: Murfreesboro, TN

Oct 2017 – March 2020

Project consisted of drilling and blasting of structure excavations including a new Filter Building with clearwell, pipe gallery, filter influent channel and twelve new anthracite/sand filters; four new flocculation basins; a new Backwash Basin; new yard piping, process piping, and process equipment; new electrical and SCADA systems as well as new architectural finishes. Existing plant renovation included interface with the new filter influent channel as well as new yard piping systems, new decant piping in existing settling basins and other miscellaneous facility renovation work scopes.

Project Value: \$15.5 million

Project Design Engineer: James C. Hailey & Co. / Jimmy Hailey, PE (615-351-5704)

Owner Contact: Chris Forte, Plant Manager (615-642-5273)

Role: Project Manager, 3D Enterprises

Sinking Creek WWTP Expansion: Murfreesboro, TN

Jan 2015 – Dec 2017

Project consisted of an expansion to the existing Sinking Creek WWTP while keeping all existing plant components in service. Work included drilling and blasting of structure excavations, ~10,000 cy of concrete placement, new standby generators, upgrade of existing automated controls, and upgrade of the existing plant SCADA system. Project completed successfully under budget with glowing owner reviews.

Project Value: \$30 million

Project Design Engineer: Smith, Seckman, & Reid / Brent Fowler, PE (615-979-2050)

Owner Contact: John Strickland, Plant Manager (615-848-3225)

Role: Project Manager, 3D Enterprises

Eastern Band of Cherokee Indians WTP & RWI/PS Upgrades: Cherokee, NC

Jun 2015 – Jan 2017

Project consisted of construction of new raw water intake and pumping station, demolition of existing raw water intake and pump station, improvements to existing water treatment plant including new in-line UV Reactor, new sludge pumps, new aluminum building, new clearwell, sludge holding tank modifications, miscellaneous site piping, and electrical and SCADA improvements. Project was a negotiated change order to WWTP project (below) due to owner's significant trust and fostered relationships with 3D management.

Project Value: \$8 million

Project Design Engineer: URS

Owner Contact: Ken Green, Facilities Director (828-359-6120)

Role: Project Manager, 3D Enterprises

Eastern Band of Cherokee Indians WWTP Expansion: Cherokee, NC

Dec 2014 – Jun 2016

Project consisted of construction of aeration basins, secondary clarifiers, sludge holding basins, headworks, dewatering building, administration building, ultraviolet disinfection system, post-aeration basin, odor control systems, alkaline stabilization system, and miscellaneous modifications to existing infrastructure, yard piping, and other support facilities. Project completed successfully under budget with glowing owner reviews.

Project Value: \$30 million

Project Design Engineer: Vaughn & Melton Engineers / Marios Gergiou, PE (828-253-2796)

Owner Contact: Ken Green, Facilities Director (828-359-6120)

Role: Project Manager, 3D Enterprises

Noman M. Cole PCP - Degritting Facilities Upgrades: Lorton, VA

Oct 2013 – Nov 2014

Project consisted of upgrades and rehabilitation of all Primary Sludge Degritting mechanical, electrical, and instrumentation systems as well as miscellaneous architectural and structural improvements. Mechanical construction also included installation of a new building sump and associated transfer pump drain piping and installation of new plant process water piping throughout all systems. Electrical and instrumentation installations included a new MCC and PLC for control of all new, as well as old equipment.

Project Value: \$5 million

Project Design Engineer: Parsons

Role: Project Engineer, Ulliman Schutte Construction

Noman M. Cole PCP - Dry Ash Handling System Improvements: Lorton, VA

Oct 2013 – Nov 2014

Project consisted of upgrades to the ash handling and conveying systems within sludge receiving and incinerator facilities. Upgrades include replacement of all ash conditioning equipment within facilities as well as a new ash silo, baghouse, bin vent, and primary separator within facility. Mechanical installations also included the replacement of three new vacuum pumps and associated vacuum piping, silencer piping, and pneumatically operated valving.

Project Value: \$5 million

Project Design Engineer: Hazen & Sawyer

Role: Project Engineer, Ulliman Schutte Construction

ENR-North Secondary Treatment Upgrades - Blue Plains Advanced WWTP: Washington, DC

March 2013 – Sep 2013

Project consisted of rehab of existing Secondary Reactors, Dual Purpose Sedimentation Basins, Secondary Sedimentation Basins, and associated process systems.

Project Value: \$40 million

Project Design Engineer: Black & Veatch

Role: Project Engineer, Ulliman Schutte Construction

CSO-019 Overflow & Diversion Structures – Clean Rivers Project: Washington, DC

Sep 2012 – March 2013

Project consisted of the construction and the elimination of an existing CSO (Combined Sewer Outfall) by making modifications to existing tunnels. New construction consisted of a multi-barrel overflow structure for future tie-in to a new tunnel system as well as a diversion structure constructed upstream in the existing CSO tunnel flow of the Northeast Boundary Trunk Sewer (NEBTS).

Project Value: \$28 million

Project Design Engineer: Whitman, Requardt and Associates, LLP

Role: Project Engineer, Ulliman Schutte Construction

US-27 Bypass: Cynthiana, KY

Jan 2011 – Sep 2012

Project consisted of new construction of four miles of a three-lane highway bypass around the city of Cynthiana, KY. Project contained two pre-stressed concrete I-beam bridges and one 900' steel girder bridge to be constructed over the Licking River and CSX Railroad. Project required 1.2 million cubic yards of site drilling and blasting, grading, roundabout construction, over two miles of curb and gutter construction, and construction of two reinforced concrete box culverts.

Project Value: \$40 million.

Role: Project Manager, The Walker Company

KY-15 Realignment: Breathitt County, KY

Aug 2010 – Jan 2011

Project consisted of new construction of a four-lane highway through the mountains of Eastern Kentucky. Construction consisted of removal of 1.7 million cubic yards of blasted stone material to reach roadway grade, 72" storm drain installation under an existing roadway, water and sewer relocation, and asphalt paving.

Project Value: \$15 million

Role: Project Manager, The Walker Company

US-27 Bridge Relocation: Harrison County, KY

Aug 2010 – Jan 2011

Project consisted of construction of a new pre-stressed concrete I-beam bridge structure adjacent to an existing bridge structure over CSX Railroad.

Project Value: \$15 million

Role: Project Manager, The Walker Company

CODY M. LOKITS, P.E.

2480 Woodfield Circle, Lexington, KY 40515
859-699-2961

Career Experience

W. Principles, LLC d/b/a The Walker Company

Mt. Sterling, KY

Executive Vice President, Director of Construction, Safety Officer / November 2020 – August 2021

Responsible for the overall safety, supervision, and success of the company. Responsibilities include monitoring company safety, fostering safety culture, cost management of corporate & project budgets, supervision of labor force and capital equipment requirements, project negotiations, development and implementation of strategic plans, and the overall administration of the company along with direct coordination and collaboration with consultants and owners.

3D Enterprises Contracting Corporation

Lexington, KY

Senior Project Manager / November 2014 – November 2020 (6 yrs)

Responsible for the overall safety, schedule, supervision, and success of large, complex water/wastewater treatment plant construction projects. Responsibilities include monitoring project safety, fostering safety culture, cost management of project budgets, supervision of labor force requirements, change order negotiation, development and implementation of work plans, coordination of subcontractors and vendors, and the overall administration and technical review of the construction project with direct coordination and collaboration with consultants and owners. Additional duties include project estimation of all work scopes for hard-bid public projects.

Ulliman Schutte Construction

Washington, DC / Lorton, VA

Project Engineer / September 2012 – November 2014 (2 yrs)

Responsible for monitoring compliance with company safety programs and ensuring quality work that complies with plans and specifications for water/wastewater treatment plant construction projects. Specific duties include: developing plans and working drawings, reviewing and approving engineering shop drawings, preparing and updating construction schedules and sequences utilizing Primavera P6 software, coordinating field quality control efforts, coordinating subcontractors and suppliers, procuring materials and services, negotiating contracts and associated pricing, tracking and analyzing labor and equipment costs, projecting project costs and gross margin analysis, managing inventory control systems, monitoring company safety programs, and implementing quality control programs.

The Walker Company

Mt. Sterling, KY

Project Manager / May 2010 – September 2012 (2 yrs)

Duties include maintaining multiple projects' cost and budget analysis, shop drawing review, material management, as well as labor and equipment cost analysis. Designed and implemented surveying data in 3D modeling programs for machine grading control. Managed schedule, jobsite personnel, and communicated heavily with KYDOT, subcontractors, superintendents, and foremen to progress the construction process in a timely, safe, and effective manner. Performed field quality control on all concrete structures and grading activities for conformance to the design documents.

Education/Qualifications/Certifications

Bachelor of Science in Civil Engineering

University of Kentucky – Lexington, KY

2006-2010

Licensed Professional Engineer (KY)

License No. 31264

Kentucky Energy & Environment Non-Coal, Explosives & Blasting License

License No. G 11303

AGC of KY Construction Leadership Council

Member, 2018-present

[REDACTED]

TIMOTHY "TIM" A. MUNDAY
PROJECT SUPERINTENDENT/ASST SUPERINTENDENT FOR THE FOLLOWING PROJECTS:

PROJECT LOCATION	PROJECT NAME	CONSTRUCTION AMOUNT	COMPL DATE
Mount Olive	NC Mount Olive WWTP Lagoon Liner Repair	\$ 473,600.00	2020
Fayetteville	NC P.O. Hoffer Raw Water Intake Screen & Slide Gate Replacement	\$ 1,132,000.00	2019
Dalton	GA Reservoir Pump Station Rehabilitation	\$ 3,242,819.00	2018
Knoxville	TN KUB Mark B. Whitaker WTP Bulk Hypochlorite Conversion	\$ 4,841,627.00	2017
Knoxville	TN KUB Mark B. Whitaker WTP Intake Modifications	\$ 177,272.00	2017
Rock Hill	SC WTP High Service Pumping Modifications & Expansion	\$ 4,383,028.00	2016
Burlington	NC East Burlington WWTP Nutrient Removal Improvements	\$ 7,658,370.00	2014
Burlington	NC East Burlington WWTP Force Main Replacement	w/112-201	2014
Danville	VA Rehabilitation of Clarifier No 4	\$ 271,600.00	2013
Danville	VA Northside WWTP Aeration System Improvements	\$ 2,278,500.00	2012
South Pittsburg	TN WTP Modifications and System Improvements	\$ 723,840.00	2011
South Pittsburg	TN WTP High Service Pump System Improvements	\$ 60,900.00	2011
Brinkley	AR Brinkley Water Treatment Plant Improvements	\$ 1,252,857.00	2010
Midland(Concord)	NC Muddy Creek Wastewater Treatment Plant Expansion	\$ 2,345,873.00	2010
York	SC Little Allison Creek WW Pump Station & Force Main Contract A	\$ 4,324,034.00	2009
Cartersville	GA Cartersville Wastewater Treatment Plant Modifications	\$ 6,934,234.00	2008
Rock Hill	SC Div II Dutchman Creek Pump Station & Force Main	\$ 4,180,387.00	2008
Cabarrus County	NC Mt. Pleasant WW Transmission Facility PS II Impr	\$ 713,566.00	2007
Cumming	GA Lower Etowah River Pump Station	\$ 876,921.00	2007
Morristown	TN Turkey Creek Sewer Line Replacement - Phase I	\$ 2,939,694.00	2007
Winston-Salem	NC South Fork Creek Pump Station	\$ 2,279,034.00	2007
Highlands	NC Cullasaja River WWTP Expansion	\$ 4,834,547.00	2006
Greeneville	TN Water Treatment Plant	\$ 1,216,257.00	1992
Knoxville	TN Forks of the River Wastewater Treatment Plant	\$ 724,894.00	1991

TIMOTHY MUNDAY JOB EXPERIENCE

HAREN CONSTRUCTION COMPANY INC.

2014 - 2015

Rock Hill WTP High Service Pumping Improvements, Rock Hill, SC – Superintendent

2012 – 2014

East Burlington WWTP EBNRI, Burlington NC – Superintendent

2011 – 2012

Northside WWTP Aeration Basin Modifications, Danville Virginia WWTP – Superintendent

Northside WWTP Clarifier Repair, Danville VA - Superintendent

2011

South Pittsburg WTP Modifications, East Pittsburg TN WTP – Superintendent

2010 – 2011

Brinkley WTP Renovation, Brinkley Arkansas – Superintendent

2009 – 2010

Muddy Creek WWTP, Water and Sewer Authority of Cabarrus County NC – Superintendent

2008 - 2009

Little Allison Creek Pump Station, York SC – Superintendent

2007 – 2008

Dutchman Creek Pump Station and Force Main, Rock Hill SC – Superintendent

2006 – 2007

Cartersville GA WWTP Modifications – Superintendent

2006 – 2007

Turkey Creek Sewer Line Replacement, Morristown TN – Superintendent

2006 – 2007

Mt. Pleasant Wastewater Transmission Pump Station II Improvements, Cabarrus County, NC – Superintendent

2006

South Creek Pump Station, Winston-Salem NC – Superintendent

2006

Lower Etowah River Pump Station, Cumming GA – Superintendent

2005 – 2006

Cullasaja River WWTP Expansion, Highlands, NC – Superintendent

2005

Canton WTP Improvements, Canton NC

2003 – 2005

Phillips and Jordan – Subcontractor repairing roadways and infrastructure due to hurricane flooding in Appalachian Mountains.

1998 – 2003

Greeneville Water Commission, Greeneville TN – Assistant Superintendent - head of water and wastewater treatment plants operations. Was Supervisor of collection and distribution departments, operations and maintenance crews and shop. Started I&I, valve location, and fire hydrant flow rate programs.

Crowder Construction Company – Charlotte, NC

1994 – 1998

Bryson City WTP, Bryson City NC – Superintendent

Cullowhee WTP and Raw Water Intake, Cullowhee NC – Superintendent

Greeneville Raw Water Intake, Greeneville Water Commission, Greeneville TN. – Superintendent

Unimin Quartz Mine, Spruce Pine NC – Superintendent

Oliver Rubber Company Press Installation, Asheboro NC – Superintendent

Sugar Creek WWTP digester/clarifier conversion, Charlotte NC – Superintendent

HAREN CONSTRUCTION COMPANY INC. – ETOWAH, TN

1989 – 1994

Conover WWTP, Conover NC – Assistant Superintendent

Hendersonville WWTP, Hendersonville NC – Superintendent

Greeneville WTP Improvements, Greeneville Water Commission, Greeneville TN – Superintendent

Goldsboro WWTP, Goldsboro NC – Superintendent

Monroe WWTP Modifications, Monroe NC – Superintendent

Brasfield & Gorrie - Birmingham AL

1983 - 1989

Greeneville WWTP – Greeneville Water Commission, Greeneville TN – Mechanical Superintendent

Bay County WTP Filter/Clarifier Improvements, Panama City Florida – Superintendent

Southwest WTP, Huntsville, AL – Mechanical Superintendent

2006

Lower Etowah River Pump Station, Cumming GA – Superintendent

2005 – 2006

Cullasaja River WWTP Expansion, Highlands, NC – Superintendent

2005

Canton WTP Improvements, Canton NC

2003 – 2005

Phillips and Jordan – Subcontractor repairing roadways and infrastructure due to hurricane flooding in Appalachian Mountains.

1998 – 2003

Greeneville Water Commission, Greeneville TN – Assistant Superintendent - head of water and wastewater treatment plants operations. Was Supervisor of collection and distribution departments, operations and maintenance crews and shop. Started I&I, valve location, and fire hydrant flow rate programs.

Crowder Construction Company – Charlotte, NC

1994 – 1998

Bryson City WTP, Bryson City NC – Superintendent

Cullowhee WTP and Raw Water Intake, Cullowhee NC – Superintendent

Greeneville Raw Water Intake, Greeneville Water Commission, Greeneville TN. – Superintendent

Unimin Quartz Mine, Spruce Pine NC – Superintendent

Oliver Rubber Company Press Installation, Asheboro NC – Superintendent

Sugar Creek WWTP digester/clarifier conversion, Charlotte NC – Superintendent

HAREN CONSTRUCTION COMPANY INC. – ETOWAH, TN

1989 – 1994

Conover WWTP, Conover NC – Assistant Superintendent

Hendersonville WWTP, Hendersonville NC – Superintendent

Greeneville WTP Improvements, Greeneville Water Commission, Greeneville TN – Superintendent

Goldsboro WWTP, Goldsboro NC – Superintendent

Monroe WWTP Modifications, Monroe NC – Superintendent

Brasfield & Gorrie - Birmingham AL

1983 - 1989

Greeneville WWTP – Greeneville Water Commission, Greeneville TN – Mechanical Superintendent

Bay County WTP Filter/Clarifier Improvements, Panama City Florida – Superintendent

Southwest WTP, Huntsville, AL – Mechanical Superintendent

TIMOTHY MUNDAY JOB EXPERIENCE

HAREN CONSTRUCTION COMPANY INC.

2014 - 2015

Rock Hill WTP High Service Pumping Improvements, Rock Hill, SC – Superintendent

2012 – 2014

East Burlington WWTP EBNRI, Burlington NC – Superintendent

2011 – 2012

Northside WWTP Aeration Basin Modifications, Danville Virginia WWTP – Superintendent

Northside WWTP Clarifier Repair, Danville VA - Superintendent

2011

South Pittsburg WTP Modifications, East Pittsburg TN WTP – Superintendent

2010 – 2011

Brinkley WTP Renovation, Brinkley Arkansas – Superintendent

2009 – 2010

Muddy Creek WWTP, Water and Sewer Authority of Cabarrus County NC – Superintendent

2008 - 2009

Little Allison Creek Pump Station, York SC – Superintendent

2007 – 2008

Dutchman Creek Pump Station and Force Main, Rock Hill SC – Superintendent

2006 – 2007

Cartersville GA WWTP Modifications – Superintendent

2006 – 2007

Turkey Creek Sewer Line Replacement, Morristown TN – Superintendent

2006 – 2007

Mt. Pleasant Wastewater Transmission Pump Station II Improvements, Cabarrus County, NC – Superintendent

2006

South Creek Pump Station, Winston-Salem NC – Superintendent

Village Creek WWTP, Jefferson County AL – Mechanical Superintendent
Patricia Walker Shaw Water Pump Station – Memphis Light, Gas, and Water, Memphis, TN –
Mechanical Superintendent

Bush Building Company – Nashville, TN
1976 – 1983

Kingsport WTP, Kingsport TN – Assistant Superintendent
Madisonville WWTP, Madisonville KY – Mechanical Superintendent
Dry Creek WWTP, Nashville TN – Assistant Superintendent
Boaz WWTP, Boaz AL – Assistant Superintendent
Tuskegee WWTP, Tuskegee AL – Assistant Superintendent

Brasfield & Gorrie – Birmingham AL
1975 - 1976

Campbellsville WWTP, Campbellsville KY – Carpenter Foreman/Crane Operator

Ellis Construction Company – Campbellsville, KY
1973 – 1975

Taylor County Bank – Campbellsville KY – Carpenter Foreman
73 Convenient Stores from Knoxville to Nashville – Foreman

TIM MUNDAY REFERENCES: UTILITIES & COMMERCIAL

BOB PATTERSON	WATER RESOURCES ENGINEER, BURLINGTON NC	336-516-2255
CLAY HELM	CONST. SUPERVISOR, CUMMINS ENGINE PLANT	252-955-9905
KEITH GARTH	SUPT. MARION WATER & GAS, S.PITTSBURG, TN	423-667-7712
MARK LOMAX	WATER & SEWER AUTHORITY OF CABARRUS COUNTY	704-786-1783
STEVE KIRBY	PROJECT MGR., HAREN CONST.CO.	731-676-9575
TOM BACH	WATER RESOURCES ENGINEER, CONCORD NC	980-428-5083

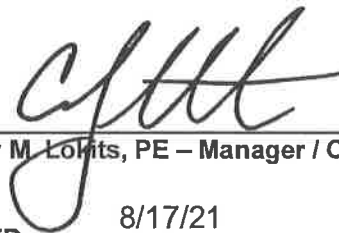
AFFIRMATIVE ACTION PLAN

ADOPTED BY

LOKITS CONTRACTING, LLC

AS REQUIRED UNDER SECTION 503 AND EXECUTIVE ORDER 11246

APPROVED BY:



Cody M. Lokits, PE – Manager / CEO

DATE APPROVED:

8/17/21

SECTION I - INTRODUCTION

Lokits Contracting, LLC enters into this Affirmative Action Plan (AAP) with good faith for the purpose of promoting equality of opportunity into its corporate structure. Lokits Contracting, LLC seeks to increase the recruitment of qualified women and/or minorities for possible selection into the company in the event women and/or minorities are underutilized in the company. Lokits Contracting, LLC hereby adopts the following nondiscriminatory pledge and the AAP.

Any changes made to the program by Lokits Contracting, LLC will become part of this written AAP.

SECTION II - EQUAL OPPORTUNITY PLEDGE

Lokits Contracting, LLC commits to the following Equal Opportunity Pledge:

“The recruitment, selection, employment, and training of employees, shall be without discrimination because of race, color, religion, national origin, or sex. Lokits Contracting, LLC will take affirmative action to provide equal opportunity in employment and will operate the company as required under Title 29 of the Code of Federal Regulations, part 30.”

SECTION III - UTILIZATION AND ANALYSIS. GOALS AND TIMETABLES

In order to allow positive recruitment and full utilization of minorities and women in the company, Lokits Contracting, LLC pledges to identify outreach efforts under Section IV which will be undertaken. The purpose of the analysis is to determine the minority and women's labor force in Lokits Contracting, LLC's labor market area. Once the labor force is determined, Lokits Contracting, LLC can determine if deficiencies exist in terms of underutilization of minorities and/or women in the occupations registered with the Registration Agency. (See attached Affirmative Action Plan Workforce Analysis Worksheet)

SECTION IV - OUTREACH AND POSITIVE RECRUITMENT

Lokits Contracting, LLC's AAP includes the following “checked” outreach and positive recruitment efforts that would reasonably be expected to increase minority and women's participation in the company by expanding the opportunity of minorities and women to become eligible for employment selection. **Once those efforts have been checked, Lokits Contracting, LLC will set forth the specific steps they intend to take under each identified effort.** Lokits Contracting, LLC will identify a **significant number of activities** in order to enable it to meet its obligation under Title 29, CFR part 30.4(c).

A. An announcement of specific employment openings must be disseminated thirty (30) days in advance of the earliest date for application at each interval to the following agencies/organizations:

- Registration Agency
- Women's Organizations/Centers
- Local Schools
- Employment Service Centers
- One Stop Centers
- Vocational Education Schools
- Other Organizations/Centers (which can effectively reach minorities and women)
- Newspapers (which are circulated in the minority community and among women)

The announcement will include the nature of the job opening, requirements for the role, availability of opportunities, sources of applications, and Lokits Contracting, LLC's equal opportunity policy. The period for accepting applications as established by Lokits Contracting, LLC is **30 days**.

B. Participation in annual workshops conducted by employment service agencies for the purpose of familiarizing school, employment service and other appropriate personnel with the company and current opportunities.

C. Cooperation with school boards and vocational educational systems to develop programs for preparing students to meet the standards and criteria required to qualify for entry into the company.

D. Internal communication of Lokits Contracting, LLC's equal opportunity policy should be conducted in such a manner to foster understanding, acceptance, and support among Lokits Contracting, LLC's various officers, supervisors, employees, and members, and to encourage such persons to take the necessary action to aid in meeting its obligation under Title 29, CFR part 30.

E. Engaging in programs such as outreach for the positive recruitment and preparation of potential applicants for employment opportunities; where appropriate and feasible, such programs will provide for pre-testing experience and training. In initiating and conducting these programs, Lokits Contracting, LLC may be required to work with other employers and appropriate community organizations. Lokits Contracting, LLC will also initiate programs to prepare women and encourage women to enter traditionally male programs.

- F. Encouraging the establishment and utilization of programs of apprenticeship, preparatory trade training, or others designed to afford related work experience or prepare candidates for employment opportunities. Lokits Contracting, LLC will make appropriate provisions in its AAP to assure that those who complete such programs are afforded full and equal opportunity for admission into the company.
 - G. Utilizing journeyworkers to assist in the implementation of affirmative action in the company.
 - H. Granting advance standing or credit on the basis of previously acquired experience, training, skills, or aptitude for all applicants equally.
 - I. Other appropriate action to ensure that the recruitment, selection, employment, and training of apprentices during their apprenticeship will be without discrimination because of race, color, religion, national origin, or sex (e.g., general publication of apprenticeship opportunities and advantages in advertisements, industry reports, articles, etc., use of present minority and women apprentices and journeyworkers as recruiters; career counseling; development of reasonable procedures to ensure employment opportunity, including reporting systems, on-site reviews, briefing sessions).
-

SAMPLE WORKFORCE ANALYSIS WORKSHEET FOR EMPLOYMENT OPPORTUNITIES AVAILABLE

A. EMPLOYER INFORMATION

Program Number:	001, Rev. 0		
Name of Employer:	Lokits Contracting, LLC		
Address:	2480 Woodfield Circle		
City/State/Zip Code:	Lexington, KY 40515		
Contact Person:	Cody Lokits, PE		
Phone Number:	859-699-2961	FAX Number:	N/A
E-Mail Address:	cody@lokitscontracting.com		

B. OCCUPATIONAL INFORMATION

Occupational Title: *	
Labor Market Area description:	

C. LABOR MARKET AREA DATA

Total Labor Force in Labor Market Area *			
	Number of Women:		% of labor force
	Number of Minorities:		% of labor force
Working Age Population in Labor Market Area *			
	Number of Women:		% of labor force
	Number of Minorities:		% of labor force
Apprentices in Particular Craft in Labor Market Area **			
	Number of Women:		% of apprentices
	Number of Minorities:		% of apprentices
The General Availability of Minorities and Women with the Present or Potential Capacity for Apprenticeship in Program Sponsor's Labor Market Area. ***			
	Number of Women:		
	Number of Minorities:		

Resources for obtaining labor market information.

* http://www.census.gov/hhes/www/eeoindex/page_c.html

** Data available from Registration Agency.

*** Program Sponsors may use any reasonable method for determining the general availability of minorities and women with the present or potential capacity for apprenticeship, including relying on the data recorded in Section C for "Total Labor Force", "Working Age Population", and "Apprentices in Particular Craft" to propose the entries for "The General Availability of Minorities and Women."

SAMPLE WORKFORCE ANALYSIS WORKSHEET FOR EMPLOYMENT OPPORTUNITIES AVAILABLE

A. EMPLOYER INFORMATION

Program Number:	001, Rev. 0	
Name of Employer:	Lokits Contracting, LLC	
Address:	2480 Woodfield Circle	
City/State/Zip Code:	Lexington, KY 40515	
Contact Person:	Cody Lokits, PE	
Phone Number:	859-699-2961	FAX Number: N/A
E-Mail Address:	cody@lokitscontracting.com	

B. OCCUPATIONAL INFORMATION

Occupational Title: *	
Labor Market Area description:	

C. LABOR MARKET AREA DATA

Total Labor Force in Labor Market Area *		
Number of Women:		% of labor force
Number of Minorities:		% of labor force
Working Age Population in Labor Market Area *		
Number of Women:		% of labor force
Number of Minorities:		% of labor force
Apprentices in Particular Craft in Labor Market Area **		
Number of Women:		% of apprentices
Number of Minorities:		% of apprentices
The General Availability of Minorities and Women with the Present or Potential Capacity for Apprenticeship in Program Sponsor's Labor Market Area. ***		
Number of Women:		
Number of Minorities:		

Resources for obtaining labor market information.

* http://www.census.gov/hhes/www/eeoindex/page_c.html

** Data available from Registration Agency.

*** Program Sponsors may use any reasonable method for determining the general availability of minorities and women with the present or potential capacity for apprenticeship, including relying on the data recorded in Section C for "Total Labor Force", "Working Age Population", and "Apprentices in Particular Craft" to propose the entries for "The General Availability of Minorities and Women."

D. EMPLOYERS'S WORKFORCE DATA

E-1 Total Number of Journey/Craft Workers Employed:	2	
Number of Women:	1	50% of work force
Number of Minorities:	0	0% of work force
E-2 Total Percentage of Employees of Applicant Pool (depending on selection method used)		
Numerical percentage of Women employees or women in applicant pool:	0	%
Numerical percentage of Minority employees or minorities in applicant pool:	0	%

E. DETERMINATION OF UTILIZATION

Analysis	Yes	No
Minority Underutilization:		
Female Underutilization:		

F. EMPLOYER'S GOALS:

The program sponsor proposes and agrees to make a good faith effort to attain the goal of selecting 10 % minorities and 10 % women during the next EEO Review cycle. These goals will not be used to discriminate against any qualified applicant on the basis or race, color, religion, national origin or sex.

The number of new employees to be hired during the next year (or selection period) is estimated to be: 10

IN WITNESSETH WHEREOF, the parties hereto have executed this AGREEMENT (CONTRACT) as of the date and year above written.

(Seal)

Lexington-Fayette Urban County Government
Lexington, Kentucky

(Owner)

ATTEST:

Mackenzie Stock
Clerk of Urban County Council

By: Linda Gorton
(Signature of Mayor)

Linda Gorton , Mayor
(Name/Title)

(Seal)

Lokits Contracting, LLC

(Contractor)

Karla Lokits
(Secretary)*

By: [Signature]
(Contractor's Signature)

Donna S Herrick
(Witness)

Cody Lokits / CEO
(Name/Title)

2480 WOODFIELD CIRCLE
(Address)

LEXINGTON, KY 40515

*IMPORTANT: Strike out any non-applicable terms:

Secretary of the OWNER should attest. If the CONTRACTOR is corporation, Secretary should attest. Give proper title of each person-executing AGREEMENT (CONTRACT).

END OF SECTION

SECTION 00550 – NOTICE TO PROCEED

CONTRACTOR: Lokits Contracting, LLC
2480 Woodfield Circle
Lexington, Kentucky 40515

OWNER: Lexington-Fayette Urban County Government
Lexington, Kentucky

PROJECT: Hartland 3 Pump Station Replacement
Lexington-Fayette Urban County Government
Lexington, Kentucky

LFUCG Bid No. 129-2021

Agreement (Contract) Amount:
One Million, One Hundred Ten Thousand and no/100 dollars (\$1,110,000.00)

This Notice to Proceed is issued on _____, 20__; therefore, Contractor is hereby notified to commence Work on the referenced Project on or before _____, 20__ and to substantially complete Work within 270 CONSECUTIVE CALENDAR DAYS thereafter. The Agreement (Contract) completion date is therefore _____, 20__.

The Agreement (Contract) provides for assessment of the sum of One Thousand and no/100 dollars (\$1,000.00) as liquidated damages for each consecutive calendar day after the above established Agreement (Contract) completion date that the Work remains incomplete.

Lexington-Fayette Urban County Government

By: _____

Title: _____

Date: _____

END OF SECTION

SECTION 00600 – BONDS AND CERTIFICATES

(This page is intentionally left blank.)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Herrick Company, Inc.

(Name of CONTRACTOR)

2176 Waddy Rd, Lawrenceburg, KY 40342

(Address of CONTRACTOR)

a _____ Corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and United Fire & Casualty Company
(Name of Surety)

118 Second Ave SE, Cedar Rapids, IA 52401

(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

One Million, One Hundred Ten Thousand and 00/100 dollars (\$1,110,000.00), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the Hartland 3 Pump Station Replacements, LFUCG Bid No. 129-2021 in accordance with Contract Documents prepared by Bell Engineering and GRW and dated December 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

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

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER'S obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Agreement (Contract) in accordance with its terms and conditions or
2. Obtain a Bid or Bids for completing the Agreement (Contract) in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments thereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

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

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of (number)

which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

Herrick Company, Inc.
Principal

[Signature]
(Principal) Secretary

By: *Donna S Herrick* (s)

2176 Waddy Rd
Address
Lawrenceburg, KY 40342

[Signature]
Witness as to Principal

2176 Waddy Rd
Address
Lawrenceburg, KY 40342

United Fire & Casualty Company
Surety

ATTEST:

By: *[Signature]*
Attorney-in-Fact

(Surety) Secretary

118 Second Ave SE
Address
Cedar Rapids, IA 52401

(SEAL)
[Signature]
Witness to Surety

2307 River Rd. Ste 200
Address
Louisville, KY 40206

Title: Attorney-in-Fact
Surety

By: Leigh McCarthy

Title: Jennifer Edwards, Underwriting Assistant

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).



PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

Herrick Company, Inc.

(Name of CONTRACTOR)

2176 Waddy Rd, Lawrenceburg, KY 40342

(Address of CONTRACTOR)

a _____ Corporation _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and United Fire & Casualty Company

(Name of Surety)

118 Second Ave SE, Cedar Rapids, IA 52401

(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

One Million, One Hundred Ten Thousand and 00/100 dollars (\$1,110,000.00), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the Hartland 3 Pump Station Replacements, LFUCG Bid No. 129-2021, in accordance with Contract Documents prepared by Bell Engineering and GRW and dated December, 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined for all labor and material used or reasonably required for use in the performance of the Agreement (Contract), then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor material, or both, used or reasonably required for use in the performance of the Agreement (Contract), labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Agreement (Contract).

2. The above named Principal and Surety hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.
3. No suit or action shall be commenced hereunder by any claimant:
 - (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the OWNER, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, OWNER, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.
 - (b) After the expiration of one (1) year following the date on which Principal ceased Work on said Agreement (Contract), it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.
4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against aid improvement, whether or not claim for the amount of such lien be presented under and against this bond.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of (number)

which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

Herrick Company, Inc.
Principal

[Signature]
(Principal) Secretary

By: Donna S Herrick (s)

2176 Waddy Rd
Address
 Lawrenceburg, KY 40342

[Signature: Ryan P. Hubbard]
Witness as to Principal

2176 Waddy Rd
Address
 Lawrenceburg, KY 40342

United Fire & Casualty Company
Surety

ATTEST:

By: [Signature: Leigh McCarthy]
Attorney-in-Fact

(Surety) Secretary

118 Second Ave SE
Address
 Cedar Rapids, IA 52401

(SEAL) [Signature: Jennifer Edwards]
Witness to Surety

Title: Attorney-in-Fact
Surety

2307 River Rd, Ste 200
Address
 Louisville, KY 40206

By: Leigh McCarthy

Title: Jennifer Edwards, Underwriting Assistant

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).



EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Herrick Company, Inc.

(Name of CONTRACTOR)

2176 Waddy Rd, Lawrenceburg, KY 40342

(Address of CONTRACTOR)

a _____ Corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and United Fire & Casualty Company

(Name of Surety)

118 Second Ave SE, Cedar Rapids, IA 52401

(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of:

Eleven Thousand, One Hundred and 00/100 dollars (\$11,100.00), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the Hartland 3 Pump Station Replacements, LFUCG Bid No. 129-2021, in accordance with Contract Documents prepared by Bell Engineering and GRW and dated December, 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Agreement (Contract), then this obligation shall be null and void; otherwise it shall remain in full force and effect.

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

Whenever, Principal shall be, and declared by OWNER to be in default under the Agreement (Contract), the OWNER having performed OWNER's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site in accordance with the Agreement (Contract), the LFUCG Land Disturbance Permit, Chapter 16 Article X Division 5 of the LFUCG Code of Ordinances, and the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR 10).

2. Obtain a Bid or Bids for completing the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site in accordance with the Agreement's (Contract's) terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for an Agreement (Contract) between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Agreement (Contract) or Agreements (Contracts) of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Agreement (Contract) Amount; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Agreement (Contract) Amount", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Agreement (Contract) and any amendments hereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration one (1) year from the date on which final payment under the Agreement (Contract) falls due.

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

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of (number)

which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

Herrick Company, Inc.
Principal

[Signature]
(Principal) Secretary

By: Donna S Herrick (s)

2176 Waddy Rd
Address

Lawrenceburg, KY 40342

Ryan P. Sabbard
Witness as to Principal

2176 Waddy Rd
Address

Lawrenceburg, KY 40342

United Fire & Casualty Company
Surety

By: Leigh McCarthy
Attorney-in-Fact

118 Second Ave SE
Address

Cedar Rapids, IA 52401

ATTEST:

(Surety) Secretary

(SEAL)

Jennifer Edwards
Witness to Surety

2307 River Rd, Ste 200
Address

Louisville, KY 40206

Title: Attorney-in-Fact
Surety

By: Leigh McCarthy

Title: Jennifer Edwards, Underwriting Assistant

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).



WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS, that

Herrick Company, Inc.

(Name of CONTRACTOR)

2176 Waddy Rd, Lawrenceburg, KY 40342

(Address of CONTRACTOR)

a _____ Corporation, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and United Fire & Casualty Company
(Name of Surety)

118 Second Ave SE, Cedar Rapids, IA 52401

(Address of Surety)

hereinto called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called "OWNER" in the penal sum of: _____

Fifty-Five Thousand, Five Hundred and 00/100 dollars (\$55,500.00),
for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents. The warranty bond shall be in the amount of five percent (5%) of the final construction cost amount (based on contractor's final pay request).

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the Hartland 3 Pump Station Replacements, LFUCG Bid No. 129-2021 in accordance with Contract Documents prepared by Bell Engineering and GRW and dated December, 2021, which Agreement (Contract) is by reference made a part hereof, and is hereinafter referred to as the Agreement (Contract).

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that, if the Principal shall well and faithfully do and perform the required maintenance and shall indemnify and save harmless the OWNER against all claims, loss or damage, and expenses of reconstruction or additional work required to restore the Project to its acceptable condition within a period of one (1) year from the date of acceptance by OWNER of the Project, then this obligation shall be void; otherwise, it shall remain in full force and effect.

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

Any suit under this bond must be instituted before the expiration of one (1) year from the date on which final payment under the Contract falls due.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators, successors, or assigns of the OWNER.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of (number)

which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

Herrick Company, Inc.
Principal

[Signature]
(Principal) Secretary

By: Donna S Herrick (s)

2176 Waddy Rd
Address
Lawrenceburg, KY 40342

[Signature]
Witness as to Principal

2176 Waddy Rd
Address
Lawrenceburg, KY 40342

United Fire & Casualty Company
Surety
By: [Signature]
Attorney-in-Fact

ATTEST:

(Surety) Secretary

118 Second Ave SE
Address
Cedar Rapids, IA 52401

(SEAL)
[Signature]
Witness to Surety

2307 River Rd, Ste 200
Address
Louisville, KY 40206

Title: Attorney-in-Fact
Surety

By: Leigh McCarthy

Title: Jennifer Edwards, Underwriting Assistant

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Agreement (Contract).





UNITED FIRE & CASUALTY COMPANY, CEDAR RAPIDS, IA
 UNITED FIRE & INDEMNITY COMPANY, WEBSTER, TX
 FINANCIAL PACIFIC INSURANCE COMPANY, ROCKLIN, CA
 CERTIFIED COPY OF POWER OF ATTORNEY
 (original on file at Home Office of Company – See Certification)

Inquiries: Surety Department
 118 Second Ave SE
 Cedar Rapids, IA 52401

KNOW ALL PERSONS BY THESE PRESENTS, That United Fire & Casualty Company, a corporation duly organized and existing under the laws of the State of Iowa; United Fire & Indemnity Company, a corporation duly organized and existing under the laws of the State of Texas; and Financial Pacific Insurance Company, a corporation duly organized and existing under the laws of the State of California (herein collectively called the Companies), and having their corporate headquarters in Cedar Rapids, State of Iowa, does make, constitute and appoint

JAMES T. SMITH, JAMES H. MARTIN, BROOK T. SMITH, RAYMOND M. HUNDLEY, DEBORAH NEICHTER, MICHELE LACROSSE, JASON CROMWELL, LEIGH MCCARTHY, EACH INDIVIDUALLY

their true and lawful Attorney(s)-in-Fact with power and authority hereby conferred to sign, seal and execute in its behalf all lawful bonds, undertakings and other obligatory instruments of similar nature provided that no single obligation shall exceed \$75,000,000.00 and to bind the Companies thereby as fully and to the same extent as if such instruments were signed by the duly authorized officers of the Companies and all of the acts of said Attorney, pursuant to the authority hereby given and hereby ratified and confirmed.

The Authority hereby granted shall expire the 16th day of April, 2022 unless sooner revoked by United Fire & Casualty Company, United Fire & Indemnity Company, and Financial Pacific Insurance Company.

This Power of Attorney is made and executed pursuant to and by authority of the following bylaw duly adopted on May 15, 2013, by the Boards of Directors of United Fire & Casualty Company, United Fire & Indemnity Company, and Financial Pacific Insurance Company.

"Article VI – Surety Bonds and Undertakings"

Section 2, Appointment of Attorney-in-Fact. "The President or any Vice President, or any other officer of the Companies may, from time to time, appoint by written certificates attorneys-in-fact to act in behalf of the Companies in the execution of policies of insurance, bonds, undertakings and other obligatory instruments of like nature. The signature of any officer authorized hereby, and the Corporate seal, may be affixed by facsimile to any power of attorney or special power of attorney or certification of either authorized hereby; such signature and seal, when so used, being adopted by the Companies as the original signature of such officer and the original seal of the Companies, to be valid and binding upon the Companies with the same force and effect as though manually affixed. Such attorneys-in-fact, subject to the limitations set forth in their respective certificates of authority shall have full power to bind the Companies by their signature and execution of any such instruments and to attach the seal of the Companies thereto. The President or any Vice President, the Board of Directors or any other officer of the Companies may at any time revoke all power and authority previously given to any attorney-in-fact.

IN WITNESS WHEREOF, the COMPANIES have each caused these presents to be signed by its vice president and its corporate seal to be hereto affixed this 16th day of April, 2020

UNITED FIRE & CASUALTY COMPANY
 UNITED FIRE & INDEMNITY COMPANY
 FINANCIAL PACIFIC INSURANCE COMPANY

By: *Dennis J. Richmann*
 Vice President



State of Iowa, County of Linn, ss:

On 16th day of April, 2020, before me personally came Dennis J. Richmann to me known, who being by me duly sworn, did depose and say; that he resides in Cedar Rapids, State of Iowa; that he is a Vice President of United Fire & Casualty Company, a Vice President of United Fire & Indemnity Company, and a Vice President of Financial Pacific Insurance Company the corporations described in and which executed the above instrument; that he knows the seal of said corporations; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporations and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporations.



Judith A. Jones
 Notary Public
 My commission expires: 4/23/2021

I, Mary A. Bertsch, Assistant Secretary of United Fire & Casualty Company and Assistant Secretary of United Fire & Indemnity Company, and Assistant Secretary of Financial Pacific Insurance Company, do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Section of the bylaws and resolutions of said Corporations as set forth in said Power of Attorney, with the ORIGINALS ON FILE IN THE HOME OFFICE OF SAID CORPORATIONS, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

In testimony whereof I have hereunto subscribed my name and affixed the corporate seal of the said Corporations this _____ day of _____, 20_____.



By: *Mary A. Bertsch*
 Assistant Secretary,
 UF&C & UF&I & FPIC

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

- c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the

Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete

and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract

Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's

recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid

or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees

- specified therein, or from Contractor's continuing obligations under the Contract Documents;
and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will justify termination for cause:
 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
 1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.

- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.

- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

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

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00800 – SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700) (2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

1.01.A.12 Replace in its entirety with the following:

"12. Contract Documents – The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and Engineer's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or Hardcopies of the items listed in this paragraph are Contract Documents. Files in electronic format of text, data, graphics, and the like that may be furnished by Owner to Contractor are not Contract Documents".

1.01.A.44 First sentence, change: "in the opinion of the Engineer", to "in the opinion of Engineer and Owner".

1.02 Terminology

Delete 1.02.E and replace with the following:

1.02.E The words "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install complete in place and ready for service".

Add the following:

1.02.G The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700, (2007 Edition) have the meanings assigned to them in the General Conditions.

ARTICLE 2 – PRELIMINARY MATTERS

Add the following:

2.00 Execution of Agreement

2.00.A At least six (6) counterparts of the Agreement will be executed and delivered by the Contractor to the OWNER within fifteen (15) days of the Notice of Award and receipt of the Contract Documents by the Contractor for execution; and OWNER will execute and deliver one counterpart to Contractor within ten (10) days of receipt of the executed Agreement from Contractor.

2.01 Delivery of Bonds and Evidence of Insurance

- 2.01.B Replace "Before any Work at the Site is started, Contractor and Owner shall each deliver to the other" with "When Contractor delivers the executed counterparts of the Agreement to the Owner, Contractor shall deliver to the Owner", and replace "and Owner respectively are" with "is".
- 2.02 Copies of Documents
- 2.02A Revise as follows:
- Owner shall furnish to Contractor up to ~~ten~~ three printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.
- 2.03 Commencement of Contract Times; Notice to Proceed:
- 2.03.A Delete in its entirety and substitute the following:
- 2.03.A The Contract Time will commence to run on the day indicated in the Notice to Proceed; but in no event will the Contract Time commence to run later than the ninetieth day after the day of Bid opening or the thirtieth day after the effective date of the Agreement. By mutual consent of the parties to the Contract, these time limits may be changed.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING AND REUSE

3.01 Intent

Add the following:

- 3.01.D It is the intent of the Specification and Contract Documents to obtain an operable Project. Equipment, components, systems, etc., therein shall be made operable by the Contractor.
- 3.01.E The Contract Drawings may be supplemented from time to time with additional Drawings by the Engineer as may be required to illustrate the work or, as the work progresses, with additional Drawings, by the Contractor, subject to the approval of the Engineer. Supplementary Drawings, when issued by the Engineer or by the Contractor, after approval by the Engineer, shall be furnished in sufficient quantity to all those who, in the opinion of the Engineer, are affected by such Drawings.

3.03 Reporting and Resolving Discrepancies

Add the following:

- 3.03.B.2 In resolving such conflicts, errors and discrepancies, the Contract Documents shall be given precedence in the following order:
- a. Agreement
 - b. Field and Change Orders
 - c. Addenda
 - d. Special Conditions
 - e. Instruction to Bidders
 - f. General Conditions
 - g. Project Specifications and Drawings
 - h. LFUCG standard specifications and standard details

Figure dimensions on drawings shall govern over scale dimensions and detailed Drawings shall govern over general Drawings.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS.

4.02 Subsurface and Physical Conditions

4.02.A Delete: "the Supplementary Conditions", and substitute "Section 00320 – Geotechnical Data".

4.02.B Second sentence, delete: "Supplementary Conditions" and substitute "Specifications and Contract Drawings".

4.04 Underground Facilities

Add the following:

4.04.B.3 The Owner, Engineer, and Engineer's Consultants shall not be liable to Contractor for any claims, costs, losses or damages incurred or sustained by Contractor on or in connection with any other project or anticipated project.

4.06 Hazardous Environmental Condition at Site

4.06.A First sentence, delete "Supplementary Conditions" and substitute "Section 00300 – Information Available To Bidders."

4.06.B Second sentence, delete "Supplementary Conditions: and substitute "Specifications and Contract Drawings."

4.06.G First sentence, insert "Kentucky" between "by" and "Laws".

Add the following at the end of this section: "The parties understand and acknowledge that no Kentucky case, statute, or Constitutional provision authorizes a local government to indemnify a contractor and that this contract provision may be unenforceable.

ARTICLE 5 – BONDS AND INSURANCE

Delete Article 5 in its entirety and substitute the following:

5.01 Performance and Payment Bonds

5.01A Concurrent with execution of the Agreement and within fifteen (15) days of the Notice of Award, the successful Contractor shall procure, execute and deliver to the OWNER and maintain, at his own cost and expense, the following bonds in the forms attached, of a surety company approved by the State of Kentucky as a Surety:

5.01.B Performance Bond – in an amount not less than 100% of the total amount payable to the Contractor by the terms of the Contract as security for the faithful performance of the work. Bond must be valid until one (1) year after the date of issuance of the Certificate of Substantial Completion.

5.01.C Payment Bond – in an amount not less than 100% of the total amount payable to the Contractor by the terms of the Contract as security for the payment of all persons performing labor and furnishing material in connection with the work. Bond must be valid until one (1) year after date of issuance of the Certificate of Substantial Completion.

5.01.D All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

- 5.01.E If the Surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business in the State of Kentucky is revoked, the Contractor shall within five (5) days thereafter substitute another Bond or Surety, both of which shall be acceptable to the OWNER.
- 5.02 Insurance Requirements
See Section 00600 – Bonds and Certificates for Insurance Requirements.
- 5.03 Contractor's Liability Insurance
See Section 00600 – Bonds and Certificates for Insurance Requirements.
- 5.04 Indemnification Agreement
See Section 00600 – Bonds and Certificates for Indemnification.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

- 6.06 Concerning Subcontractors, Suppliers and Others
- 6.06.B First sentence, delete: "If the Supplementary Conditions", and substitute "The Bid Form". The seventh line, delete "Supplementary Conditions", and substitute "Bid Form".
- 6.06.G Delete in its entirety and substitute the following:
- 6.06.G All work performed for Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and Subcontractor. The Subcontractor shall not commence work until Contractor has obtained all insurance as required by Paragraphs 5.02 through 5.03 inclusive.
- 6.07 Patent Fees and Royalties
- 6.07 Delete 6.07.A, 6.07.B, and 6.07.C in their entirety and substitute the following:
- 6.07.A Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work of any invention, design, process, products or device which is the subject of patent rights or copyrights held by others. Contractor shall indemnify and hold harmless OWNER and Engineer, and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses, including attorney's fees, arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or furnished by him in fulfillment of the requirements of this Contract. In the event of any claim or action by law on account of such patents or fees, it is agreed that the OWNER may retain out of the monies which are, or which may become due the Contractor under this Contract, a sum of money sufficient to protect itself against loss, and to retain the same until said claims are paid or are satisfactorily adjusted.
- 6.08 Permits
- 6.08.A Third sentence of paragraph delete, "or if there are no Bids.....to the Work.", and substitute "and the Contractor shall pay all charges of utility owners for connections to the Work."
- 6.09 Laws and Regulations
- 6.09.B Delete 6.09B in its entirety and substitute the following:
- 6.09.B If Contractor observes that the Specifications or Drawings are at variance with any Laws or Regulations, he shall give Engineer prompt written notice thereof. If Contractor performs

any Work knowing it to be contrary to such Laws or Regulations, and without such notice to Engineer, he shall bear all costs arising therefrom. The Contractor shall, at all times, observe and comply with and shall cause all his agents and employees and all his Subcontractors to observe and comply with all such existing Laws or Regulations, and shall protect and indemnify the OWNER and the Engineer and the municipalities in which work is being performed, and their officers and agents against any claim, civil penalty, fine or liability arising from or based on the violation of any such Law or Regulation, whether by himself or his employees or any of his Subcontractors.

6.13 Safety and Protection

6.13.B First sentence, after "CONTRACTOR" add the following:

", subject to provisions 6.09.B,"

6.19 Contractor's General Warranty and Guarantee

6.19.A After the first sentence of Section 6.19.A add the following:

"All materials or equipment delivered to the site shall be accompanied by certificates, signed by an authorized officer of the supplier, and notarized guaranteeing that the materials or equipment conform to specification requirements, Such certificates shall be immediately turned over to the Engineer. Materials or equipment delivered to the site without such certificates will be subject to rejection. The warranty and guarantee period shall be for a period of one (1) year, or such longer period as may be prescribed by Law, from the date of Substantial Completion."

6.20 Indemnification

6.20.A First sentence, after "...claims, costs" add the following:

", civil penalties, fines,"

6.20.C Add the following:

6.30.C.3 Nothing in the Contract Documents shall create or give to third parties any claim or right of action against the Contractor, the OWNER or the Engineer beyond such as may legally exist irrespective of the Contract.

ARTICLE 7 – OTHER WORK AT THE SITE

7.02 Coordination

Delete in its entirety.

7.03 Legal Relationships

7.03.B Delete "Owner and".

7.03.C Delete "Owner and".

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.02 Replacement of Engineer

8.02.A Delete in its entirety.

- 8.06 Insurance
- 8.06.A Delete in its entirety.
- 8.11 Evidence of Financial Arrangements
- 8.11.A Delete in its entirety.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

- 9.01 OWNER'S Representative
- 9.01.A Delete in its entirety and substitute the following:
- 9.01.A Engineer will be the OWNER'S representative during the construction period, and his instructions shall be carried into effect promptly and efficiently.
- 9.03 Project Representative

Add the following:

- 9.03.B The Resident Project Representative will serve as the Engineer's liaison with the Contractor, working principally through the Contractor's resident superintendent to assist him in understanding the intent of the Contract Documents.
- 9.03.C The Resident Project Representative shall conduct on-site observations of the work in progress to confirm that the work is proceeding in accordance with the Contract Documents. He will verify that tests, equipment and systems start-ups and operating maintenance instructions are conducted as required by the Contract Documents. He will have the authority to disapprove or reject defective work in accordance with Article 13.
- 9.09 Limitations on Engineer's Authority and Responsibilities

Add the following:

- 9.09.F Except upon written instructions of the Engineer, the Resident Project Representative:
 1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
 2. Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.
 3. Shall not undertake any of the responsibilities of Contractor, Subcontractors, or Contractor's superintendent, or expedite the Work.
 4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract.
 5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES, UNIT PRICE WORK

- 11.01 Cost of the Work
- 11.01.A Last sentence, following "...in Paragraph 11.01.B," insert the following:
- "or claims for extra cost shall be considered based on an escalation of labor costs throughout the period of the Contract,"
- 11.01.A.2 Add the following at the end of the paragraph:
- "No claims for extra cost shall be considered based on an escalation of material costs throughout the period of the Contract."
- 11.01.A.3 Delete second sentence "If required...be acceptable."
- 11.01.A.4 Delete in its entirety.
- 11.01.A.5.a Delete in its entirety.
- 11.01.A.5.c Add the following before last sentence of paragraph:
- "These rates shall include all fuel, lubricants, insurance, etc. Equipment rental charges shall not exceed the prorated monthly rental rates listed in the current edition of the 'Compilation of Rental Rates for Construction Equipment' as published by the Associated Equipment Distributors. Charges per hour shall be determined by dividing the monthly rates by 176."
- 11.01.A.5.f Delete in its entirety.
- 11.01.A.5.g Delete in its entirety.
- 11.01.A.5.h Delete in its entirety.
- 11.03 Unit Price of Work:
- 11.03.D.1 Delete "materially and significantly", and insert "by more than plus or minus twenty percent (20%)".

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

- 12.01 Change of Contract Price
- 12.01.A Add the following after the last sentence:
- Section 01025 shall be given precedence over section 00700 regarding changes in contract price.
- 12.03 Delays
- 12.03.B Delete in its entirety and substitute the following:
- 12.03.B Delays beyond the control of the Contractor, as provided in paragraph 12.03.A, shall not entitle the Contractor to obtain additional project overhead costs unless such delays extend the Project as described below:
1. beyond the original Contract Times,

2. beyond the Contract Times for which the overhead costs have been previously approved, or
3. beyond Contract Times that are extended as a result of delays described in 12.03.C.

For the purpose of this paragraph, overhead costs shall be the supplemental costs defined in 11.01.A.5, paragraphs a, b, c, g, h and i. The Contractor's bid shall include all overhead costs as necessary to be on the Project for the original Contract Times.

12.03.C Add the following after the last sentence:

If the Contractor and the Owner cannot agree upon an equitable adjustment in the Contract Times, delays described in this Paragraph 12.03.C shall be determined as follows:

1. Contractor shall obtain weather history for the most recent five (5) years (minimum) preceding the Bid date. Weather history shall be obtained from the National Oceanic & Atmospheric Administration (NOAA) or other source approved by the Engineer. Historical weather shall be based on data from the weather reporting station closest to the project site.
2. For delays to be considered that are associated with an abnormal amount of rain, the Contractor shall use the weather history to calculate an average number of days that rainfall exceeded 0.1-inches for the period (month, quarter, year, etc.) in question. The average value calculated shall be rounded up to the next full day. A time extension may be considered equal to the number of days, above the calculated average, that the period in question experienced rainfall in excess of 0.1-inches. A Contract Time extension will not be considered for rain amounts less than 0.1-inches.
3. For daily rain amounts in excess of 1-inch, a time extension of one day beyond the number of days calculated as described above may be considered.
4. For delays associated with other abnormal weather events, the weather history shall be used to calculate an average number of days for the type of weather considered to be the cause of a delay. (Calculation of the average number of days shall be as described above.) Where the Contractor can demonstrate that the abnormal weather event has impaired his ability to perform work, beyond the day of the abnormal event, to perform site maintenance as necessary to restore the site to a workable condition may be considered.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.03 Tests and Inspections

13.03.B Delete in its entirety and substitute the following:

13.03.B Contractor shall employ and pay for inspections and testing services specifically noted as such in the Contract.

13.03.C Delete in its entirety and substitute the following:

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

Add the following:

- 13.03.G The OWNER reserves the right to independently perform at its own expense, laboratory tests on random samples of material or performance tests on equipment delivered to the site. These tests if made will be conducted in accordance with the appropriate referenced standards or Specification requirements. The entire shipment represented by a given sample, samples or piece of equipment may be rejected based on the failure of samples or pieces of equipment to meet specified test requirements. All rejected materials or equipment shall be removed from the site, whether stored or installed in the Work, and the required replacement shall be made, all at no additional cost to the OWNER.
- 13.05 OWNER May Stop the Work:
- 13.05A First sentence, after "...conform to the Contract Documents", insert "or if the Work interferes with the operation of the existing facility".
- 13.06 Correction or Removal of Defective Work

Add the following:

- 13.06.C At any time during the progress of the Work and up to the date of final acceptance, the Engineer shall have the right to reject any work which does not conform to the requirements of the Contract Documents, even though such work has been previously inspected and paid for. Any omissions or failure on the part of the Engineer to disapprove or reject any Work or materials at the time of inspection shall not be construed as an acceptance of any defective work or materials.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

- 14.01 Schedule of Values

Add the following:

- 14.01.B The Contractor shall submit for the Engineer's approval, a complete breakdown of all Lump Sum Items in the Proposal. This breakdown, modified as directed by the Engineer, will be used as a basis for preparing estimates and establishing progress payments.
- 14.02 Progress Payments
- 14.02.A.3 Delete in its entirety and replace with the following:
- 14.02.A.3 Progress payment request shall include the percentage of the total amount of the Contract which has been completed from initiation of construction of the Project to and including the last day of the preceding month, or other mutually agreed upon day of the month accompanied by such data and supporting evidence as OWNER or Engineer may require.

Add the following:

- 14.02.A.4 Forms to be used shall be prepared by the Contractor and submitted to the Engineer for approval.
- 14.02.A.5 At the option of the OWNER, partial payment up to the estimated value, less retainage, may be allowed for any materials and equipment not incorporated in the Work, pursuant to the following conditions:
- a. Equipment or materials stored on the site shall be property stored, protected and maintained.

- b. For any partial payment, the Contractor shall submit, with his monthly progress payment from each material or equipment manufacturer, bills or invoices indicating actual material cost.
 - c. Contractor shall submit evidence that he has paid for materials or equipment stored and for which the Engineer has authorized partial payment and previous progress payments, prior to submission to the next monthly payment request. (See example letter at the end of this Section 00800).
- 14.02.A.6 The OWNER will retain ten percent (10%) of the amount of each such estimate until Work covered by the Contract is fifty percent (50%) complete. After fifty percent (50%) of the Work of the original Contract has been completed as evidenced by approved Partial Payment Requests exclusive of stored materials and in the opinion of the OWNER, satisfactory progress is being made, the OWNER may adjust future partial payment so that five percent (5%) of the original Contract Price is retained.
- 14.02.A.7 If the OWNER determines it is appropriate to reduce retainage, the method used for such adjustment shall be to fix retainage at five percent (5%) of the original Contract amount (when the work is 50% complete) and to pay all subsequent Partial Payment Requests to the full approved amount. The intent of such an adjustment is to gradually reduce retainage to five percent (5%) of the original Contract amount when the work is one hundred percent (100%) complete.
- 14.02.A.8 The OWNER may reinstate up to ten percent (10%) retainage if it is determined that the Contractor is not making satisfactory progress or there is other specific cause for retainage.
- 14.02.B.1 Review of Applications:
First sentence delete "10 days", insert "30 days".
- 14.02.C.1 Payment Becomes Due:
First sentence delete "Ten days" and insert "Thirty Days".
- 14.02.D.3 Delete in its entirety.
- 14.04 Substantial Completion
- 14.04 Delete paragraphs A, B, C, and D in their entirety and substitute the following:
- 14.04.A Contractor may, in writing to OWNER and Engineer, certify that the entire Project is substantially complete and request that Engineer issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, Contractor and Engineer shall inspect the Project to determine the status of completion. If Engineer and OWNER do not consider the Project substantially complete, Engineer will notify Contractor in writing giving his reasons, therefore. If Engineer and OWNER consider the Project substantially complete, Engineer will prepare and deliver to OWNER a tentative certificate of Substantial Completion and the responsibilities between OWNER and Contractor for maintenance, heat and utilities. There shall be attached to the certificate a tentative list of items to be completed or corrected before Final Completion, and the certificate shall fix the time within which such items shall be completed or corrected, said time to be within Contract Time. No warranties associated with the Project shall start until issuance of the certificate of Substantial Completion.
- 14.04.B In accordance with KRS 371.410, Substantial Completion is the point at which, as certified in writing by OWNER, a project is at the level of completion, in strict compliance with the contract, where:
1. Necessary approval by public regulatory authorities has been given.

2. The Owner has received all required warranties and documentation; and
3. The Owner may enjoy beneficial use or occupancy and may use, operate, and maintain the project in all respects, for its intended purpose.

14.05 Partial Utilization

14.05.A Delete in its entirety and substitute the following:

14.05.A Partial Utilization is also referred to as "Beneficial Occupancy" and "In Service Date". Partial Utilization (Beneficial Occupancy) will occur before Substantial Completion of entire Project. Prior to Substantial Completion of the entire Project, OWNER may request Contractor to permit them to use a specified part of the Project which they believe they may use without significant interference with construction of the other parts of the Project. Prior to requesting Beneficial Occupancy all testing shall be complete and passed, all training shall be complete, and that part of the Project shall be operational for its functional design. If Contractor agrees, Contractor shall certify to OWNER and Engineer that said part of the Project has achieved Beneficial Occupancy and request the Engineer to issue a memorandum declaring Beneficial Occupancy for that part of the Project. Within a reasonable time thereafter, OWNER, Contractor, and Engineer shall inspect that part of the Project to determine its status of completion. If Engineer and OWNER do not consider that it has achieved Beneficial Occupancy, Engineer will notify Contractor in writing giving his reasons therefor. If Engineer and OWNER consider that part of the Project to have reached Beneficial Occupancy, Engineer will execute and deliver to OWNER and Contractor a memorandum to that effect, fixing the date of Beneficial Occupancy and the responsibility between OWNER and Contractor for maintenance, heat, and utilities, as it pertains to that part of the Project.

14.05.B Equipment Warranties will not begin until after successful start-up, training, and acceptance by Owner for Substantial Completion of the entire Project. Any manufacturer's request to initiate warranty period earlier than Owner's acceptance will not be valid.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

Add the following:

15.01.B Should the OWNER suspend Work due to repeated unsafe Work conducted by the Contractor, which is confirmed by subsequent inspection by OSHA, the Contractor shall not be allowed any adjustment in Contract Price or extension of Contract Time attributed to the delay.

15.02 Owner May Terminate for Cause

15.02.A.2 Add the following to the end of first sentence after "jurisdiction":

"(including those governing employee safety)"

15.02D Delete in its entirety.

Add the following:

15.05 Assignment of Contract

15.05 Contractor shall not assign, transfer, convey or otherwise dispose of the Contract, or of his legal right, title, or interest in or to the same or to any part thereof, without the prior written consent of the OWNER. Contractor shall not assign by power of attorney or otherwise any monies due him and payable under this Contract without the prior written consent of the

OWNER. Such consent, if given, will in no way relieve the Contractor from any of the obligations of this Contract. OWNER shall not be bound to abide by or observe the requirements of any such assignment.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

16.01.A Replace the first sentence with the following:

“If required by applicable laws and regulations, and not specifically excluded elsewhere, either OWNER or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding.”

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

Add the following:

17.01.B No oral statement of any person whomsoever shall in any manner or degree modify or otherwise affect the terms of this Contract. Any notice to the Contractor, from OWNER and Engineer, relative to any part of this Contract shall be in writing.

Add the following:

17.07 Claims for Injury or Damage

17.07.A Should OWNER or Contractor suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.08 Non-Discrimination in Employment

17.08.A The Contractor shall comply with the following requirements prohibiting discrimination:

17.08.A.1 That no person (as defined in KRS 344.010) shall Bid on Lexington-Fayette Urban County Government Construction projects or bid to furnish materials or supplies to the Lexington-Fayette Urban County Government, if, within six months prior to the time of opening of Bids, said person shall have been found, by declaratory judgment action in Fayette Circuit Court, to be presently engaging in an unlawful practice, as hereinafter defined. Such declaratory judgment action may be brought by an aggrieved individual or upon an allegation that an effort at conciliation pursuant to KRS 344.200 has been attempted and failed, by the Lexington-Fayette County Human Rights Commission.

17.08.A.2 That it is an unlawful practice for any employer:

- a. to fail or refuse to hire, or to discharge any individual or otherwise to discriminate against an individual, with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, age, or national origin; or

- b. to limit, segregate or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee because of such individual's sex, race, color, religion, age, or national origin.
- 17.08.A.3 That it is unlawful practice for an employer, labor organization, or joint-labor management committee controlling apprenticeship or other training or retraining, including on-the-job training programs to discriminate against an individual because of his race, color, religion, sex, age, or national origin in admission to, or employment in, any program established to provide apprenticeship or other training.
- 17.08.A.4 That a copy of the LFUCG Ordinance shall be available for viewing at the Lexington-Fayette Urban County Government offices.
- 17.09 Temporary Street Closing or Blockage
- 17.09.A The Contractor will notify the Engineer, Owner, and LFUCG Division of Traffic Engineering at least 72 hours prior to making any temporary street closing or blockage. This will permit orderly notification to all concerned public agencies.
- 17.10 Percentage of Work Performed by Prime Contractor
- 17.10.A The Contractor shall perform on site, and with its own organization, Work equivalent to at least fifty percent (50%) of the total amount of Work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during performing the Work, the Contractor requests a reduction, and the Engineer determines that the reduction would be to the advantage of the OWNER.
- 17.11 Clean-Up
- 17.11.A Clean-up shall progress, to the greatest degree practicable, throughout the course of the Work. The Work will not be considered as completed, and final payment will not be made, until the right-of-way and all ground occupied or affected by the Contractor in connection with the Work has been cleared of all rubbish, equipment, excess materials, temporary structures, and weeds. Rubbish and all waste materials of whatever nature shall be disposed of, off the project site, in an acceptable manner. All property, both public and private, which has been damaged in the prosecution of the Work, shall be restored in an acceptable manner. All areas shall be draining, and all drainage-ways shall be left unobstructed, and in such a condition that drift will not collect, or scour be induced.
- 17.12 General
- 17.12.A The duties and obligations imposed by the Contract Documents and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor, and all of the rights and remedies available to OWNER and Engineer, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.
- 17.13 Debris Disposal
- 17.13.A For all LFUCG projects any fill, trash, construction demolition debris, yard waste, dirt or debris of any kind that is removed from the project site must be disposed of in accordance with local, state, and federal regulations. The disposal site or facility must be approved in

advance by the LFUCG and disposal documentation is required. The Contractor will be responsible for payment of any fines associated with improper disposal of material removed from the project site.

17.14 Maintenance of Traffic

17.14.A Traffic shall be maintained on state and LFUCG highways and streets at all times during construction. For all work that impacts traffic, the Contractor shall obtain a traffic permit at least two (2) working days in advance from the Division of Traffic Engineering (859) 258-3489.

17.14.B It shall be the Contractor's responsibility to notify LFUCG Police Department's Safety Officer (859) 258-3600 prior to performing any construction work, which might interfere with traffic or compromise the public safety.

Add the following:

ARTICLE 18 – LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE WORK ON TIME

18.01 Liquidated Damages

18.01.A If the Contractor shall fail to complete the Work within the Contract Time, or extension of time granted by the OWNER in accordance with Article 12, then the Contractor will pay to the OWNER the amount for liquidated damages as specified in the Contract for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

(Reference Section 00800, Article 14.02.A.5.c)

PUT ON CONTRACTOR'S LETTERHEAD

DATE: _____

TO: OWNER: Lexington-Fayette Urban County Government

ADDRESS: Division of Water Quality

125 Lisle Industrial Road, Suite 180

Lexington, Kentucky 40511

RE: Project Title: Hartland 3 Pump Station Replacement
Lexington Fayette Urban County Government
Lexington, Kentucky
LFUCG Bid No.: 129-2021

We hereby certify that the labor and materials listed on this request for payment have been used in the construction of this work, or that all materials included in this request for payment and not yet incorporated into the construction are now on the site or stored at an approved location with proper insurance to protect these stored materials; and that all lawful charges for labor, materials etc., covered by previous Certificates of Payment have been paid and that all other lawful charges on which this request for payment is based have been paid for in full or will be paid for in full from the funds received in payment of this request within ten (10) calendar days from receipt of this partial payment from the OWNER.

CONTRACTOR: _____

BY: _____

TIME: _____

State of: _____

County of: _____

Sworn to and subscribed before me this _____ day of _____, 20____.

Notary Public (Seal)

My Commission Expires: _____

END OF SECTION



ADDENDUM #1

Bid Number: **#129-2021**

Date: January 3, 2021

Subject: Hartland 3 Pump Station Replacement

Address inquiries to:
Brian Marcum
brianm@lexingtonky.gov
(859) 258-3325

TO ALL PROSPECTIVE SUBMITTERS:

Please be advised of the following clarifications to the above referenced Bid:

1. SPECIFICATIONS

A. SPECIFICATION SECTION 00100 – ADVERTISEMENT FOR BIDS

Replace text in Article 1.12 – Pre-Bid Meeting and Site Visit with the following:

“A mandatory pre-Bid meeting will be held at 1:30 p.m. local time, January 5, 2021, via teleconference. A site visit will be conducted following the meeting at 3:00 p.m. local time.

Teleconference link:

Microsoft Teams meeting - Join on your computer or mobile app:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_NmFjOWYzMGMtN2YwYS00YTNmLWE0YTItYjYwZjgzM2M0YTlz%40thread.v2/0?context=%7b%22Tid%22%3a%22083fc4d2-72ad-412b-ae7d-6b81b83916dd%22%2c%22Oid%22%3a%22148017a5-c42e-4f7e-864e-3de5bb20c0bc%22%7d

Or call in (audio only)

+1 502-208-2565,,439178378# United States, Louisville

Phone Conference ID: 439 178 378#



MAYOR LINDA GORTON



LEXINGTON

TODD SLATIN
DIRECTOR
CENTRAL PURCHASING

2. DRAWINGS

N/A

A handwritten signature in black ink that reads "Todd Slatin".

Todd Slatin, Director
Division of Central Purchasing

All other terms and conditions of the Bid and specifications are unchanged.
This letter should be signed, attached to and become a part of your Bid.

COMPANY NAME: LOKITS CONTRACTING, LLC

ADDRESS: 2480 WOODFIELD CIR, LEXINGTON, KY 40515

SIGNATURE OF BIDDER: 



**ADDENDUM #2**Bid Number: **#129-2021**

Date: January 13, 2021

Subject: Hartland 3 Pump Station Replacement

Address inquiries to:
Brian Marcum
brianm@lexingtonky.gov
(859) 258-3325**TO ALL PROSPECTIVE SUBMITTERS:**

Please be advised of the following clarifications to the above referenced Bid:

1. GENERAL QUESTIONS

	Questions	Answers
1.	Is the site visit set for January 5 th the only time contractors can tour/access the site?	This was answered in the Prebid Meeting Summary. The schedule site visit will be the only time that the fence to the existing station will be opened. The site itself is accessible through the Hartland Racquet Club
2.	My asphalt contractor informed me that they will not warranty the asphalt paving due to the design thickness of asphalt. Can this be changed to add base asphalt under surface instead of stone?	See the attached Pavement section detail. Pavement section shall be 2" of asphalt surface, 3" asphalt base, and 8" DGA.
3.	Would the full depth asphalt shading (Note#1 on sheet C-05) need to be extended west a bit as we will be tearing up a lot of the existing paving for new excavation of wet wells & manholes?	Bid as shown. If any adjustments are needed during construction, they can be made and paid at the unit price per ton.
4	How wide & what depth will the class 2 channel lining be along the 200'f west side of the road?	6 feet wide x 12 -inch depth
5	Unit price #5 connection to existing 15"inch pipe. What kind of pipe is the existing?	PVC truss pipe. Contractor is responsible for confirming OD of pipe for fittings.
6	How tall is the chain link fence around the pump station?	8 feet tall. See LFUCG standard drawing 309 on Sheet SD3
7	We have a couple of submersible pump options for which we are seeking approval as an equal to the specified pumps.	See Specification Section 00300-Information Available to Bidders, item 1.18 Substitute or "or - equal" Items. Submersible Sewage Pumps must meet section 11310 in its entirety to be considered.





8	Erosion & Sediment Control performance bond. 00300-3 states bond shall be for total unit bid price amount. 00600-8 Erosion & Sediment Control performance bond should be for 1% of total bid price. Please clarify.	Erosion and Sediment Control performance bond shall be 1% of the total bid price.
9	Page 00800-7, 11.03.D.1 Delete materially and significantly and insert by "more than plus or minus 20%". Is it correct to say any unit price quantity can run over by 20% and no extra compensation will start until after exceeding 20%?	Contractor's compensation will be made on units installed based on the unit bid price.
10	Page 01025-3 Gravity sewer fitting paid separately. Page 01025-4 Force main fitting paid separately. Should fittings be included in the unit price for line items...13-Gravity Sewer Line, and 14-Force Main Pipe	<p>Specification Section 01025 – Measurement and Payment</p> <p>A. Remove the following sentence from Section 01025, Part 2.5 Gravity Sewer:</p> <p style="padding-left: 40px;">a. Fittings and tees are paid for separately under a different pay item and not included in the length of the pipe.</p> <p>B. Remove the following sentence from Section 01025, Part 2.6 Force Main Pipe:</p> <p style="padding-left: 40px;">a. Fittings are paid for separately under a different pay item and not included in the length of the pipe.</p> <p>Fittings shall be included in the unit price for line items 13 – Gravity Sewer Line and 14 -Force Main Pipe</p>





11	<p>Bid item 25 Miscellaneous site improvements and Item 26 Electrical expense for new station: Bid Item 26 Electrical expense for new station – this allowance per page 01210-2, 1.06, B states contractors cost at project site for labor, installation, overhead and profit and similar cost related to the equipment ordered under allowance shall be included as part of the contract sum and not part of the allowance. At this time we do not know labor, installation, overhead required for this as it is not specified so we can't provide compensation & cost to do this work? Please advise.</p>	<p>See section 01025.2.23 and 01210.1.06-1.07 for allowable expenses under each allowance.</p>
12	<p>Also, to be clear, all electric on plan sheets C-00 to E-06 are to be included in unit pricing and not compensated by allowance bid item 26, correct?</p>	<p>Correct</p>
13	<p>Bid Item 25 – Miscellaneous site improvements is an undefined allowance. 1.07 Page 01210-2 and allows contractors cost plus mark-up for profit & overhead, if allowance is used. Correct?</p>	<p>See section 01025.2.23 and 01210.1.06-1.07 for allowable expenses under each allowance.</p>
14	<p>Page 01520-2 of the specifications calls for contractor to reconnect existing pipes that are being bypassed with temporary pumping so temporary by-pass pumping does not occur when contractor is not onsite. Once demolition of existing components are removed they cannot be reconnected. Please clarify.</p>	<p>Contractor is responsible for maintaining flow throughout construction.</p>
15	<p>Page 02532-8 – TV Survey of sewer line. With short length of gravity sewer pipeline is this required?</p>	<p>Yes.</p>





16	Page 02531-5 Electrical markers are specified but plans do not show them. Are these required?	Yes. Electronic markers will be required on the new force main installed per section 02531.2.06.
17	Page 11900-3 Open Channel Grinder. LFUCG has previously accepted Vogelsang as an approved equal, will Vogelsang be considered an approved equal for this project?	See Specification Section 00300-Information Available to Bidders, item 1.18 Substitute or "or - equal" Items. We cannot evaluate an alternate equipment at this time. Open Channel Grinder alternate equipment must meet section 11900 in its entirety to be considered.
18	Can bidder receive a complete profile plan sheet of existing force main? Or can you provide length of existing force main?	Approximately length of the existing force main is 1,700 LF.
19	Can new force main be tied into existing force main before the existing temporary bypass connection?	Bid as shown.
20	Plan Sheet C-05, 8' Diameter Wetwell No. 1 & 2. Has invert elevation of 938.40. Is this referring to the new 16" diameter gravity line?	Yes. Invert 938.40 is for the 16" diameter gravity line coming from the comminutor vault.
21	Plan Sheet C-07. Valve vault does not show access ladder. Is one required?	No
22	Geotechnical report has some recommendations. Are these recommendations required if they are not included in the specifications or mentioned in the plans? Or is geotechnical report for reference only?	Geotechnical report is included in the Specifications and part of the Contract Documents.





23	Plan Sheet E-02, Note 7 – Are contractors responsible for programing RTU or contractor just responsible for setting the RTU panel & Yagi antennae for LFUCG to do programming? On past projects LFUCG has been responsible for RTU programming.	LFUCG will be responsible for integration, but Contractor will be required to coordinate with and facilitate the integrator.
24	Page 02608-1, 2.01, C&D we interpret the conshield admixture does not apply to any new manholes or precast or any existing precast on this project? Correct?	Correct.
25	Specification Section 11310, Page 5, 1.06 Guarantee period and pump warranty with 3-years inspection and 5 year parts & labor. Can the contractor transfer this warranty to be between LFUCG and the pump manufacturer, and the contractor only be involved in the 1-year construction warranty? Please advise.	See Section 2 – Specifications of this Addendum for clarification.
26	General construction plan sheet requires contractor to have power broom on site at all times. Is this a requirement?	Contractor is responsible for keeping access road to and from the site clean at all times.
27	Plan Sheet C-07. All pipe penetration into wet well and valve vault shall use only link seals which will require core holes? Is this correct?	All penetrations will require Link seals. How penetrations are created gets into Means and Methods and are the responsibility of the contractor.



MAYOR LINDA GORTON



LEXINGTON

TODD SLATIN
DIRECTOR
CENTRAL PURCHASING

ADDENDUM #3

Bid Number: **#129-2021**

Date: January 14, 2021

Subject: Hartland 3 Pump Station Replacement

Address inquiries to:
Brian Marcum
brianm@lexingtonky.gov
(859) 258-3325

TO ALL PROSPECTIVE SUBMITTERS:

Please be advised of the following clarifications to the above referenced Bid:


1. Revised pre-bid attendance roster.

Todd Slatin, Director
Division of Central Purchasing

All other terms and conditions of the Bid and specifications are unchanged.
This letter should be signed, attached to and become a part of your Bid.

COMPANY NAME: LOKITS CONTRACTING, LLC

ADDRESS: 2480 WOODFIELD CIR, LEXINGTON, KY 40515

SIGNATURE OF BIDDER:  _____

Attachments:

1. Pre bid Meeting Roster



SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Work to be done under this Contract and in accordance with these Specifications consists of furnishing all equipment, supervision, labor, skill, material and all other items necessary for the construction of the Hartland 3 Pump Station Replacement.
- B. The Contractor shall perform all work required for such construction in accordance with the Contract Documents and subject to the terms and conditions of the Contract, complete and ready for use.
- B. The principal features of the Work to be performed under this Contract includes, but is not limited to:
 - 1. Installation of gravity sanitary sewers and/or force mains, reinforced concrete manholes, and appurtenances.
 - 2. Connections to existing sanitary sewers and service laterals, as necessary.
 - 3. Maintenance of existing sanitary sewer flows during construction
- D. The foregoing description(s) shall not be construed as a complete description of all work required.

1.02 CONTRACT DOCUMENTS

- A. Work to be done is shown on the set of Drawings entitled: Hartland 3 Pump Station Replacement. The numbers and titles of all Drawings appear on the index sheet of the Drawings. All drawings so enumerated shall be considered an integral part of the Contract Documents as defined herein.

1.03 GENERAL ARRANGEMENT

- A. Drawings indicate the extent and general arrangement of the work. If any departures from the Drawings are deemed necessary by the Contractor to accommodate the materials and equipment he proposes to furnish, details of such departures and reasons therefore shall be submitted as soon as practicable to the Engineer for approval. No such departures shall be made without the prior written approval of the Engineer. Approved changes shall be made without additional cost to the Owner for this work or related work under other Contracts of the Project.

1.04 CONSTRUCTION PERMITS, EASEMENTS AND ENCROACHMENTS

- A. The Owner shall obtain or cause to be obtained all permanent and temporary construction easements as shown on the Drawings or required for completion of the Work. The Contractor shall verify that these easements have been obtained and shall comply with the conditions set forth in each easement.
- B. The Contractor shall obtain, keep current and pay all fees for any necessary construction permits from those authorities, agencies, or municipalities having jurisdiction over land areas, utilities, or structures which are located within the Contract limits and which will be occupied,

1.09 FIRE PROTECTION

- A. Contractor shall take all necessary precautions to prevent fires at or adjacent to the work and shall provide adequate facilities for extinguishing fires which do occur. Burning shall not be permitted on site.
- B. When fire or explosion hazards are created in the vicinity of the work as a result of the locations of fuel tanks or similar hazardous utilities or devices, the Contractor shall immediately alert the local Fire Marshal, the Engineer, and the Owner of such tank or device. The Contractor shall exercise all safety precautions and shall comply with all instructions issued by the Fire Marshal and shall cooperate with the Owner of the tank or device to prevent the occurrence of fire or explosion.

1.10 CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, or reactant of other classification, must show approval of either the EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with all applicable rules and regulations.

1.11 FIRST AID FACILITIES AND ACCIDENTS

A. First Aid Facilities

- 1. The Contractor shall provide at the site such equipment and facilities as are necessary to supply first aid to any of his personnel who may be injured in connection with the work.

B. Accidents

- 1. The Contractor shall promptly report, in writing, to the Engineer and Owner all accidents whatsoever out of, or in connection with, the performance of the work, whether on or adjacent to the site, which cause death, personal injury or property damage, giving full details and statements of witnesses.
- 2. If death, serious injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Owner and the Engineer.
- 3. If any claim is made by anyone against the Contractor or a Subcontractor on account of any accidents, the Contractor shall promptly report the facts, in writing, to the Engineer and Owner, giving full details of the claim.

1.12 ULTIMATE DISPOSITION OF CLAIMS BY ONE CONTRACTOR ARISING FROM ALLEGED DAMAGE BY ANOTHER CONTRACTOR

- A. During the progress of the Work, other Contractors may be engaged in performing other work or may be awarded other Contracts for additional work on this project. In that event, the Contractor shall coordinate the work to be done hereunder with the work of such other Contractors and the Contractor shall fully cooperate with such other Contractors and carefully fit its own work to that provided under other Contracts as may be directed by the Engineer. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor.
- B. If the Engineer shall determine that the Contractor is failing to coordinate his work with the work of the other Contractors as the Engineer directed, then the Owner shall have the right to withhold any payments otherwise due hereunder until the Contractor completely complies with the Engineer's directions.

- C. If the Contractor notifies the Engineer in writing that another Contractor is failing to coordinate his work with the work of this Contract as directed, the Engineer will promptly investigate the charge. If the Engineer finds it to be true, he will promptly issue such directions to the other Contractor with respect thereto as the situation may require. The Owner, the Engineer, nor any of their agents shall not, however, be liable for any damages suffered by the Contractor by reason of the other Contractor's failure to promptly comply with the directions so issued by the Engineer, or by reason of another Contractor's default in performance, it being understood that the Owner does not guarantee the responsibility or continued efficiency of any Contractor.
- D. The Contractor shall indemnify and hold the Owner and the Engineer harmless from any and all claims of judgments for damages and from costs and expenses to which the Owner may be subjected or which it may suffer or incur by reason of the Contractor's failure to promptly comply with the Engineer's directions.
- E. Should the Contractor sustain any damage through any act or omission of any other Contractor having a Contract with the Owner for the performance of work upon the site or of work which may be necessary to be performed for the proper execution of the work to be performed hereunder, or through any act or omission of a Subcontractor of such Contract, the Contractor shall have no claim against the Owner or the Engineer for such damage, but shall have a right to recover such damage from the other Contractor under the provision similar to the following provisions which have been or will be inserted in the Contracts with such other Contractors.
- F. Should any other Contractor having or who shall hereafter have a Contract with the Owner for the performance of work upon the site sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any Subcontractor of the Contractor, the Contractor agrees to reimburse such other Contractor for all such damages and to defend at his own expense any suit based upon such claim and if any judgment or claims against the Owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and shall indemnify and hold the Owner harmless from all such claims.
- G. The Owner's right to indemnification hereunder shall in no way be diminished, waived or discharged, by its recourse to assessment of liquidated damages as provided in the Contract, or by the exercise of any other remedy provided for by Contract Documents or by law.

1.13 BLASTING AND EXPLOSIVES

- A. No blasting is allowed.

1.14 LIMITS OF WORK AREA

- A. The Contractor shall confine his construction operations within the Contract limits shown on the Drawings and/or property lines and/or fence lines. Storage of equipment and materials, or erection and use of sheds outside of the Contract limits, if such areas are the property of the Owner, shall be used only with the Owner's approval. Such storage or temporary structures, even within the Contract's limits, shall not be placed on properties designated as easements or rights-of-way unless specifically permitted elsewhere in the Contract Documents.
- B. The Contractor shall secure, insure, maintain, rent/lease, and restore staging area.
- C. The Contractor shall provide Engineer and Owner copy of agreement with landowner of staging areas.

1.15 WEATHER CONDITIONS

- A. The Contractor shall take necessary precautions (in the event of impending storms) to protect all work, materials, or equipment from damage or deterioration due to floods, driving rain, or wind, and snow storms. The Owner reserves the right, through the opinion of the Engineer, to order that additional protection measures over and beyond those proposed by the Contractor, be taken to safeguard all components of the Project. The Contractor shall not claim any compensation for such precautionary measures so ordered, nor claim any compensation from the Owner for damage to the work from weather elements.

1.16 PERIODIC CLEANUP: BASIC SITE RESTORATION

- A. During construction, the Contractor shall regularly remove from the site of the work all accumulated debris and surplus materials of any kind which result from his operations. Unused equipment and tools shall be stored at the Contractor's staging area for the Project.
- B. As the work involves installation of sewers, drains, manholes, underground structures, or other disturbance of existing features in or across streets, rights-of-way, easements, or private property, the Contractor shall (as the work progresses) promptly backfill, compact, grade, and otherwise restore the disturbed area to the basic condition which will permit resumption of pedestrian or vehicular traffic and any other critical activity or functions consistent with the original use of the land. The requirements for temporary paving of streets, walks, and driveways are specified elsewhere. Unsightly mounds of earth, large stones, boulders, and debris shall be removed so that the site presents a neat appearance.
- C. The Contractor shall perform the cleanup work on a regular basis and as frequently as ordered by the Engineer. Basic site restoration in a particular area shall be accomplished immediately following the installation or completion of the required facilities in that area. Furthermore, such work shall also be accomplished, when ordered by the Engineer, if partially completed facilities must remain incomplete for some time period due to unforeseen circumstances.
- D. Upon failure of the Contractor to perform periodic cleanup and basic restoration of the site to the Engineer's satisfaction, the Owner may, upon five (5) days prior written notice to the Contractor, without prejudice to any other rights or remedies of the Owner, cause such work for which the Contractor is responsible to be accomplished to the extent deemed necessary by the Engineer, and all costs resulting therefrom shall be charged to the Contractor and deducted from the amounts of money that may be due him.

1.17 USE OF FACILITIES BEFORE COMPLETION

- A. The Owner reserves the right to enter the site and use any portion of the constructed facilities before final completion of the whole work to be done under this Contract. However, only those portions of the facilities which have been completed to the Engineer's satisfaction, as evidenced by his issuing a Certificate of Substantial Completion covering that part of the work, shall be placed in service.
- B. It shall be the Owner's responsibility to prevent premature connections to or use of any portion of the installed facilities by private or public parties, persons or groups of persons, before the Engineer issues his Certificate of Substantial Completion covering that portion of the work to be placed in service.
- C. Consistent with the approved progress schedule, the Contractor shall cooperate with the Owner, his agents, and the Engineer to accelerate completion of those facilities, or portions thereof, which have been designated for early use by the Owner.

1.18 CONSTRUCTION VIDEO

- A. The Contractor shall video the entire project site including all concrete and asphalt pavements, curb and gutter, fencing to remain, structures to be demolished, and existing structures that are to remain or be modified. The original video image shall be turned over to the Engineer prior to beginning construction activities. The video shall be provided as an Audio Video Interleave File (.avi) and shall be provided on a jump/flash drive compatible media only. The video shall clearly identify existing site and structural conditions prior to construction. Drone footage will not be considered for the preconstruction video.

PART 2 – PRODUCT (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, equipment, service, other necessary supplies and perform all work including all excavation and backfilling (without additional compensation, except where specifically set out in these specifications) at the contract unit prices bid for the work described in Part 2 of this Section.

1.02 PROGRESS AND PAYMENTS SCHEDULES

- A. Within fifteen (15) days after the date of formal execution of the Agreement (Contract), the Contractor shall prepare and submit to the Engineer, for approval, a construction schedule of the Critical Path Method (CPM) type which depicts the Contractor's plan for completing the contract requirements and show work placement in dollars versus contract time. The Contractor's construction schedule must be approved by the Engineer before any payments shall be made on this contract.
- B. Within fifteen (15) days after the date of formal execution of the Agreement (Contract), the Contractor shall prepare and submit to the Engineer, for approval, a periodic estimate which depicts the Contractor's cost for completing the contract requirements and show by major unit of the project work, the Contractor's dollar value for the material and the labor (two separate amounts) to be used as a basis for the periodic payments. The Contractor's periodic estimate must be approved by the Engineer before any payments shall be made on this contract.
- C. The Engineer's decision as to sufficiency and completeness of the Contractor's construction schedule and periodic estimate shall be final.
- D. The Contractor must make current, to the satisfaction of the Engineer, the construction schedule and periodic estimate each time the Contractor requests a payment on this contract.
- E. The Contractor's construction schedule and periodic estimate must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.
- F. When the Contractor requests a payment on this contract, it must be on the approved periodic estimate and be current. Further, the current periodic estimate and construction schedule (both updated and revised) shall be submitted for review and approval by the Engineer before monthly payments shall be made by the Owner. The Contractor shall submit as stored materials for pay purposes provided proper documentation is provided.
 - a. Documentation for stored materials includes at a minimum, an approved Shop Drawing, materials to be on site, etc. See Specification Section 00800-14.02.A.5 for additional information.
- G. Payment for pipeline items shall be limited to seventy percent (70%) of the bid price prior to testing and acceptance by the Engineer, then shall be limited to eighty-five percent (85%) after passing testing included in the line item, and one hundred percent (100%) after rough clean up and grading (final restoration paid separately).
- H. Payment for structures (manholes, junction boxes, curb box inlets, etc.) shall be limited to eighty-five percent (85%) when set and backfilled, with the remaining fifteen percent (15%) being paid after passing testing (if applicable).
- I. Refer to Section 00800, Articles 14.02.A.6-8 for retainage requirements.

1.04 CLAIMS FOR EXTRA WORK

- A. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, the Contractor shall give the Engineer written notice of said claim within seven (7) days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of its claim or claims. No such claim shall be valid unless so made.
- B. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, shall not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and topographical maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the Engineer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by the Contractor from the Engineer.
- D. If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".
- E. By execution of this Contract, the Contractor warrants that it has visited the site of the proposed work and fully acquainted himself with the conditions there existing relating to construction and labor, and that it fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that it has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract its failure when it was bidding on this Contract to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no way relieves the Contractor from any obligation under the Contract, and the Contractor agrees that the Owner shall be justified in rejecting any claim based on facts regarding which it should have been on notice as a result thereof.

1.05 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

- A. The value of extra (additional) or omitted work shall be determined in one or more of the following ways:
 - 1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials, and use of equipment, plus a maximum 15 percent for added work or a minimum 15 percent for deleted work which shall cover the Contractor's general supervision, overhead and profit.
 - a. Labor may include on-site supervision, on-site project management, in addition to field personal associated with the work.
 - b. In case of subcontracts, the 15 percent (maximum for added work and minimum for deleted work) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional 5 percent (maximum for added work and minimum for deleted work) may then be added to such costs to cover the General Contractor's supervision, overhead and profit.
 - c. The cost of labor shall include required insurance, taxes and fringe benefits.
 - d. Equipment costs shall be based on current rental rates in Lexington, Kentucky.

2. By estimate and acceptance in a lump sum.
 3. By unit prices named in the Contract or subsequently agreed upon.
- B. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the Owner.
 - C. All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.
 - D. Except for over-runs in contract unit price items, no extra (additional) work shall be done except upon a written Change Order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

PART 2 - PRODUCTS

2.1 MOBILIZATION

Payment for the Contractor's mobilization shall be made at the Contract lump sum price and shall include all costs incurred for moving equipment onto the project area, staging, security fencing, and any pertinent costs related thereto, for the duration of the contract term. Mobilization unit price shall not exceed two percent (2%) of the total Bid Amount.

2.2 BONDS AND INSURANCE

Payment for bonds and insurance shall be made at the Contract lump sum price, and shall include the costs of all bonds provided under the Contract, and the premiums for insurance required under the Contract, for the duration of the contract term. Unit price shall be based on actual invoices and payment shall be made upon receipt of invoices attached to a monthly progress payment request.

2.3 DEMOBILIZATION

Payment for the Contractor's demobilization upon completion of the project shall be made at the Contract lump sum price and shall include all costs incurred for removing equipment and materials from the project area and any pertinent costs related thereto, for the duration of the Contract term. Demobilization unit price shall not exceed one percent (1%) of the total Bid Amount.

2.4 EROSION AND SEDIMENT CONTROL AND CONFORMANCE WITH SWPPP

Payment is for furnishing, installing, maintaining and removing erosion and sediment control devices. This is to be paid at the contract lump sum price, complete in place, which shall include compensation for materials, placing, cleaning, and maintaining the sediment and erosion control devices throughout the construction period and removal of the of the sediment and erosion control devices once vegetation is established. Payment shall be distributed as follows: 25% when all ESC measures are in place and operating correctly; 50% equally distributed across the Contract term; and 25% for the removal of the ESC measures and final stabilization/restoration.

2.5 GRAVITY SEWER PIPE

Payment is for furnishing and installing Gravity Sewer Pipe at the contract unit price per linear foot, based on the line size and burial depth as indicated on the Plans. Depth of burial is measured from existing ground surface to invert of sewer pipe and paid for accordingly. The quantity of sewer to be paid for shall be the actual length of installed in trench and into boot of manhole. Fittings and tees are paid for separately under a different pay item and not included in

the length of pipe. Gravity sewer pipe is to be paid at the contract unit price, complete in place, which shall include compensation for pipe, materials, hauling, clearing and grubbing, excavation (including rock excavation), shoring, sheeting, removal of existing pipe, bedding, backfilling, cleanup, restoration (excluding permanent seeding), testing, and all other items necessary for a complete installation.

2.6 FORCE MAIN PIPE

Payment is for furnishing and installing Force Main Pipe at the contract unit price per linear foot, based on the line size as indicated on the Bid Schedule. The quantity of sewer to be paid for shall be the actual length of pipe measured along the centerline of the completed pipelines deducting the length of branches and fittings. Fittings are paid for separately under a different pay item and not included in this pay item. This is to be paid at the contract unit price, complete in place, which shall include compensation for pipe, materials, hauling, excavation (including rock excavation), shoring, sheeting, removal of existing pipe, bedding, backfilling, cleanup, restoration, testing, and all other items necessary for a complete installation.

2.7 CONCRETE STRUCTURE SAFELOADING

Payment is for safeloading the existing concrete structures, as shown on the plans. Safeloading shall include the removal of internal piping and equipment, removal of sections of the concrete structure, crushed stone, and concrete backfill as defined in the Plans, and all other items necessary for a complete safeload of the structure. This is to be paid at the contract unit price, complete in place, which shall include compensation for excavation (including rock excavation), demolition, disposal, concrete, crushed stone fill, backfilling, cleanup, restoration, and all other items necessary for a complete installation.

2.8 MANHOLE ABANDONMENT

Payment is for safeloading the existing concrete manhole, as shown on the Plans, including removal of sections of concrete, crushed stone, and concrete backfill.

2.9 MANHOLE

Payment is for furnishing and installing a Manhole, based on the size and depth as indicated on the Plans. This is to be paid at the contract unit price each, complete in place, which shall include compensation for the manhole casting, Xypex admixture, boots, steps, gaskets, crushed stone, SS frame anchors, infiltration pans, frame and cover, grout, materials, removal of existing manhole, hauling, excavation (including rock excavation), bedding, backfilling, testing, cleanup, and all other items necessary for a complete installation on new or existing sewer lines.

2.10 RECONNECT EXISTING GRAVITY SEWER TO NEW MANHOLE

Payment is for furnishing and installing a new manhole connection to an existing gravity sewer or service lateral based on the size as indicated on the bid schedule. This is to be paid at the contract unit price each, complete in place, which shall include compensation for gasket, Fernco Strongback coupling, full length of pipe, grout, materials, furnishing, excavation (including rock excavation), bedding, backfilling, cleanup, coring, and all other items necessary for a complete installation.

2.11 COMMUNOTOR VAULT

Payment for the comminutor vault shall be made as a lump sum, including excavation and backfill, furnish and install concrete structure, furnish and install comminutor, guiderails, electrical components for comminutor, startup, and all other items necessary for a complete functioning pump station.

2.12 PIPE ABANDONMENT, SAFELOADING

Payment is for abandoning an existing sewer by safeloading, at the contract unit price per linear foot based on the size as indicated on the Bid Schedule. This includes compensation for concrete, cutting pipe, materials, equipment, excavation (including rock excavation), backfilling, flowable fill, cleanup, restoration, and all other items necessary for a complete installation.

2.13 TIE-IN TO EXISTING FORCE MAIN

Payment for tie-in shall include furnishing and installing a new connection to an existing force main, including fittings, kickers, bypass pumping, and all other items necessary for a complete installation.

2.14 NEW PUMP STATION—COMPLETE

Payment for the new pump station shall be made as a lump sum, including excavation at backfill, furnish and install concrete structures (wetwell 1 and 2, valve vault); all internal structure piping and valves; all piping between structures; electrical components for pump station; new service feed, pumps, pump controls, guiderails and hatches; security fencing and gate; startup and testing; and all other items necessary for a complete, functioning pump station.

2.15 PLUG VALVE—16-INCH

Payment for the plug valve shall be made as a unit price, including furnishing and installing the plug valve, valve box, and concrete collar.

2.16 BITUMINOUS CONCRETE—PRIVATE PARKING LOTS AND DRIVEWAYS

Payment for bituminous concrete relating to construction in private parking lots and driveways shall be paid for at the Contract unit price per ton, which shall include placement of aggregate, compaction, bituminous concrete, removal of existing surface, placement of bituminous concrete, proper grading, milling and/or taper of new pavement into existing pavement, and all appurtenances necessary for a complete installation.

2.17 DENSE GRADED AGGREGATE—DGA, EXTRA AS DIRECTED BY ENGINEER

Payment for dense graded aggregate shall be paid for at the Contract unit price per ton, which shall include placement of aggregate, compaction and all appurtenances necessary for a complete installation.

2.18 NO. 9 CRUSHED STONE, EXTRA AS DIRECTED BY ENGINEER

Payment for No. 9 crushed stone shall be paid for at the Contract unit price per ton, which shall include placement of aggregate, compaction and all appurtenances necessary for a complete installation.

2.19 NO. 57 CRUSHED STONE, EXTRA AS DIRECTED BY ENGINEER

Payment for No. 57 crushed stone shall be paid for at the Contract unit price per ton, which shall include placement of aggregate, compaction and all appurtenances necessary for a complete installation.

2.20 NO. 2 CRUSHED STONE, EXTRA AS DIRECTED BY ENGINEER

Payment for No. 2 crushed stone shall be paid for at the Contract unit price per ton, which shall include placement of aggregate, compaction and all appurtenances necessary for a complete installation.

2.21 GENERAL SITE IMPROVEMENT

Payment for general site improvement shall be paid for at a lump sum, including miscellaneous demolition items as shown on the plan sheet, fencing removal, site grading, excavation for pavement, install subbase course for pavement, final restoration, and all appurtenances related to the site improvements.

2.22 BYPASS PUMPING AND SETUP

Payment is for operation and setup of bypass pumping required for installation of all items shown in Contract Documents. This is to be paid for at the Contract lump sum as indicated on the Bid Schedule. Work shall be complete in place, which shall include compensation for all mobilizations, set ups, testings (per section 01520), takedowns, relocations, and demobilization for the pumps, hoses, line plugs, generator, rental fees, fuel, monitoring, piping, duty and backup pumps, check valve, adapters, hose, labor, maintenance, and all appurtenances necessary for the continued setup and operation of the bypass pumping system throughout the project. Provision of redundant pumping capability per Section 01520 is incidental to the cost of bypass pumping and shall be included in this pay item.

2.23 ALLOWANCE--MISCELLANEOUS SITE IMPROVEMENTS

An allocation has been established for Miscellaneous Site Improvements or other work not included in the Contract Documents but deemed necessary for the project during construction. Miscellaneous Site Improvements will be as directed by the Engineer in a Field Order which will document costs associated with the directed Miscellaneous Site Improvement(s). Costs shall include all labor, equipment, materials, and other incidental costs required to perform the directed work. Funds from the Miscellaneous Site Improvements allocation not encumbered by a Field Order will be credited to the final contract amount in a Final Adjusting Change Order.

2.24 ALLOWANCE—ELECTRICAL EXPENSE FOR NEW STATION

An allocation has been established for electrical expenses for new station or other work not included in the Contract Documents but deemed necessary for the electrical component of the new station.

PART 3 - EXECUTION

3.01 PAY ITEMS

- A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and are the only pay items for this contract.
- B. Any and all other items of work listed in the specifications or shown on the Contract Drawings for this contract shall be considered incidental to and included in the associated pay items.

3.01 PAY ITEMS

- A. The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, service and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications and Contract Documents at the lump sum price as indicated by the Bidder in the Bid.

END OF SECTION

SECTION 01040 - COORDINATION

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall allow the Owner or his agents, and other project Contractors or their agents, to enter upon the work for the purpose of constructing, operating, maintaining, removing, repairing, altering, or replacing such pipes, sewers, conduits, manholes, wires, poles, or other structures and appliances which may be required to be installed at or in the work. The Contractor shall cooperate with all aforesaid parties and shall allow reasonable provisions for the prosecution of any other work by the Owner, or others, to be done in connection with his work, or in connection with normal use of the facilities.
- B. Each Contractor shall cooperate fully with the Owner, the Engineer, and all other Contractors employed on the Work, to effect proper coordination and progress to complete the project on schedule and in proper sequence. Insofar as possible, decisions of all kinds required from the Engineer shall be anticipated by the Contractor to provide ample time for inspection, or the preparation of instructions.
- C. Each Contractor shall assume full responsibility for the correlation of all parts of his work with that of other Contractors. Each Contractor's superintendent shall correlate all work with other Contractors in the laying out of work. Each Contractor shall lay out his own work in accordance with the Drawings, Specifications, and instructions of latest issue and with due regard to the work of other Contractors.
- D. Monthly general progress coordination meetings will be held at regularly scheduled times convenient for all parties involved. These meetings are in addition to specific meetings held for other purposes, such as special pre-installation meetings. Representation at each meeting by every part currently involved in coordination or planning for the work of the entire project is requested. Meetings shall be conducted in a manner that will resolve coordination problems. Results of the meetings shall be recorded and copies distributed to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.02 COORDINATION OF CRAFTS, TRADES, AND SUBCONTRACTORS

- A. The Contractor shall coordinate the work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility as regards the schedule, workmanship and completeness of each and all parts of the work.
- B. Each Subcontractor is expected to be familiar with the General requirements and all sections of the detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between trades will be effected. Consult the Engineer if conflicts exist on the Drawings.
- C. Contractor's Superintendent, or his designee who is employed by Contractor, must be on site at all times when work is being performed, except for periods which will not exceed 1 hour.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRECONSTRUCTION MEETING

- A. A preconstruction meeting will be held after Award of Contract, but prior to starting work at the site. Contractor's Project Manager and Site Superintendent are required to attend, as are representatives of all major subcontractors. Progress schedule update shall be submitted in advance of each meeting.

1.02 PROGRESS MEETINGS

- A. Progress meetings will be held monthly at the Division of Water Quality offices during the performance of the Work. Additional progress meetings may be called as progress of work dictates. Prior to each progress meeting, Contractor shall submit a progress report summarizing the work completed over the past month and providing a look ahead at the work to be done over the next month.
- B. Minimum Agenda for meeting shall include:
 - 1. Review and approve minutes of previous meetings.
 - 2. Review progress of Work since last meeting.
 - 3. Review proposed 30 day construction schedule.
 - 4. Note and identify problems which impede planned progress.
 - 5. Develop corrective measures and procedures to regain planned schedule.
 - 6. Revise construction schedule as indicated and plan progress during next work period.
 - 7. Maintaining of quality and work standards.
 - 8. Complete other current business.
 - 9. Schedule next progress meeting.

1.03 SPECIAL MEETINGS

- A. Owner or Engineer may schedule special meetings at the site or at Division of Water Quality offices to resolve construction issues. Contractor and when appropriate, subcontractors, shall attend upon request. No additional compensation shall be paid for meeting attendance.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01210 - ALLOWANCES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section includes administrative and procedural requirements governing allowances. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Defined allowances. Defined allowances include equipment, systems, or services that have been selected by the Owner from a designated supplier. These will be handled in accordance with paragraph 1.06 of this specification.
 - 2. Undefined allowances. Undefined allowances are intended for work which has an unknown scope at the time of bidding. These will be handled in accordance with paragraph 1.07 of this specification.
- C. The following allowances shall be included in the Contractor's bid:
 - 1. Electrical Services (defined allowance) - \$40,000 has been established for payment to Kentucky Utilities for work performed for new electrical service. Contractor shall provide final invoices by the power company to the Owner for adjustment of the bid allowance (up or down) after work is completed.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.03 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, Contractor shall advise Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Engineer's request, obtain proposals for each allowance for use in making final selections and include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Engineer from the designated supplier.

1.04 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.05 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.06 DEFINED ALLOWANCES

- A. Defined allowances shall include cost to Contractor of specific products and materials ordered by Kentucky Utilities under allowance and shall include taxes, freight, and delivery to the project site. Defined allowances are the same as Cash Allowances as defined in Article 11.02 of the General Conditions.
- B. Contractor's costs at the Project site for labor, installation, overhead and profit, and similar costs related to the equipment ordered under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Contractor shall not be allowed any markup of subcontractors work or materials under the allowances. Markup shall be included as part of the Contract sum and not part of the allowance.

1.07 UNDEFINED ALLOWANCES

- A. Undefined allowances shall include work for which the scope is not yet determined. The allowance amount is not guaranteed and is solely for the purpose of determining an initial Contract Price. Undefined allowances are the same as Contingency Allowances as defined in Article 11.02 of the General Conditions.
- B. Once the scope of work is defined, the Contractor shall present cost and schedule as listed in 1.04.A above.

1.08 UNUSED MATERIALS

- A. Contractor shall be responsible for returning unused materials purchased under an allowance to the manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
- B. When it is not economically practical to return material for credit, Contractor shall be responsible for preparing and delivering unused material to Owner's designated storage location. Otherwise, disposal of unused material shall be Contractor's responsibility.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Progress Schedule

1. Within thirty (30) days after execution of the Agreement, but at least 20 days prior to submitting the first application for a progress payment, the Contractor shall prepare and submit three (3) copies of his proposed progress schedule to the Engineer for review and approval.
2. If so required, the schedule shall be revised until it is approved by the Engineer.
3. The schedule shall be updated monthly, depicting progress to the last day of the month and three (3) copies submitted to the Engineer not later than the fifth day of the month with the application for progress payment.
4. The schedule shall be prepared in the form of a horizontal bar chart showing in detail the proposed sequence of the work and identifying construction activities for each structure and for each portion of work.
5. The schedule shall be time scaled, identifying the first day of each week. The Schedule shall be provided with estimated dates for Early Start, Early Finish, Late Start and Late Finish as applicable. The work shall be scheduled to complete the Project within the Contract time. The Late Finish date shall equal the Contract Completion Date.
6. The schedule shall show duration (number of days) and float for each activity. Float shall be defined as the measure of leeway in starting or completing a scheduled activity without adversely affecting the project completion date established by the Contract Documents.
7. The updated schedule shall show all changes since the previous submittal.
8. All revisions to the schedule must have the prior approval of the Engineer.

B. Equipment and Material Orders Schedule

1. Contractor shall prepare and submit three (3) copies of his schedule of principal items of equipment and materials to be purchased to the Engineer for review and approval.
2. If so required, the schedule shall be revised until it is approved by the Engineer.
3. The schedule shall be updated monthly and three (3) copies submitted to the Engineer not later than the fifth day of every month with the application for progress payment.
4. The updated schedule shall be based on the Progress Schedule developed under the requirements of Paragraph 1.01(A) of this Section.
5. The schedule shall be in tabular form with appropriate spaces to insert the following information for principal items of equipment and materials:
 - a. Dates on which Shop Drawings are requested and received from the manufacturer.
 - b. Dates on which certification is received from the manufacturer and transmitted to the Engineer.

- c. Dates on which Shop Drawings are submitted to the Engineer and returned by the Engineer for revision.
- d. Dates on which Shop Drawings are revised by manufacturer and resubmitted to the Engineer.
- e. Date on which Shop Drawings are returned by Engineer annotated either "Furnish as Submitted" or "Furnish as Corrected".
- f. Date on which accepted Shop Drawings are transmitted to manufacturer.
- g. Date of manufacturer's scheduled delivery.
- h. Date on which delivery is actually made.

C. Working Drawings

1. Within thirty (30) days after the Notice to Proceed, each prime Contractor shall prepare and submit three (3) copies of his preliminary schedule of Working Drawing submittals to the Engineer for review and approval. If so required, the schedule shall be revised until it is approved by the Engineer.
2. Working Drawings include, but are not limited to, Shop Drawings, layout drawings in plan and elevation, installation drawings, etc. Contractor shall be responsible for securing all of the information, details, dimensions, Drawings, etc., necessary to prepare the Working Drawings required and necessary under this Contract and to fulfill all other requirements of his Contract. Contractor shall secure such information, details, Drawings, etc., from all possible sources including the Drawings, Working Drawings prepared by subcontractors, Engineers, suppliers, etc.
3. In the event that the Engineer is required to provide additional engineering services as a result of a substitution of materials or equipment by the Contractor, the additional services will be provided in accordance with Section 01010 - Summary of Work, and will be covered in supplementary or revised Drawings which will be issued to the Contractor. All changes indicated that are necessary to accommodate the equipment and appurtenances shall be incorporated into the Working Drawings submitted to the Engineer.
4. Shop Drawings
 - a. Contractor shall submit for review by the Engineer Shop Drawings for all fabricated work and for all manufactured items required to be furnished by the Contract Documents.
 - b. Structural and all other layout Drawings prepared specifically for the Project shall have a plan scale of not less than 1/4-inch = 1 foot.
 - c. The submitted documents shall provide information indicating that the materials are in conformance with the Technical Specifications and Contract Documents.
 - d. Where manufacturer's publications in the form of catalogs, brochures, illustrations or other data sheets are submitted in lieu of prepared Shop Drawings, such submittals shall specifically indicate the item for which approval is requested. Identification of items shall be made in ink, and submittals showing only general information are not acceptable.

5. Contractor Responsibilities

- a. All submittals from subcontractors, manufacturers or suppliers shall be sent directly to the Contractor for checking. Contractor shall thoroughly check all Drawings for accuracy and conformance to the intent of the Contract Documents. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors, manufacturers, or suppliers by the Contractor for correction before submitting them to the Engineer.
- b. All submittals shall be bound, dated, properly labeled and consecutively numbered. Information on the label shall indicate Specification Section, Drawing number, subcontractors', manufacturer's or supplier's name and the name or type of item the submittal covers. Each part of a submittal shall be marked and tabulated.
- c. Working Drawings shall be submitted as a single complete package including all associated drawings relating to a complete assembly of the various parts necessary for a complete unit or system.
- d. Shop Drawings shall be submitted as a single complete package for any operating system and shall include all items of equipment and any mechanical units involved or necessary for the functioning of such system.
- e. ALL SUBMITTALS SHALL BE THOROUGHLY CHECKED BY THE CONTRACTOR FOR ACCURACY AND CONFORMANCE TO THE INTENT OF THE CONTRACT DOCUMENTS BEFORE BEING SUBMITTED TO THE ENGINEER AND SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL CERTIFYING THAT THEY HAVE BEEN SO CHECKED. SUBMITTALS WITHOUT THE CONTRACTOR'S STAMP OF APPROVAL WILL NOT BE REVIEWED BY THE ENGINEER AND WILL BE RETURNED TO THE CONTRACTOR. Any comments added to the drawings by the Contractor shall be done in green ink so as to denote any Contractor notes.
- f. If the submittals contain any departures from the Contract Documents, specific mention thereof shall be made in the Contractor's letter of transmittal. Otherwise, the review of such submittals shall not constitute approval of the departure.
- g. No materials shall be ordered, fabricated or shipped or any work performed until the Engineer returns to the Contractor the submittals, herein required, annotated either "Furnish as Submitted" or "Furnish as Corrected".
- h. Where errors, deviations, and/or omissions are discovered at a later date in any of the submittals, the Engineer's prior review of the submittals does not relieve the Contractor of the responsibility for correcting all errors, deviations, and/or omissions.

6. Procedure for Review

- a. Submittals shall be transmitted in sufficient time to allow the Engineer at least thirty (30) working days for review and processing.
- b. Contractor shall transmit two (2) prints of each submittal to the Engineer for review for all Drawings greater than 11-inches by 17-inches in size, as well as six (6) copies of all other material. If electronic submittals are used, the Contractor shall transmit two (2) hardcopies of each submittal to the Engineer once the submittal has been reviewed.
- c. Submittal shall be accompanied by a letter of transmittal, in duplicate, containing date, project title, Contractor's name, number and titles of submittals, notification of departures and any other pertinent data to facilitate review.

- d. Submittals will be annotated by the Engineer in one of the following ways:
- "Furnish as Submitted" - no exceptions are taken.
 - "Furnish as Corrected" - minor corrections are noted and shall be made.
 - "Revise and Resubmit" - major corrections are noted and a resubmittal is required.
 - "Rejected" - Based on the information submitted, the submission is not in conformance with the Contract Documents. The deviations from the Contract Documents are too numerous to list and a completely revised submission of the proposed equipment or a submission of other equipment is required.
- e. If a submittal is satisfactory to the Engineer, the Engineer will annotate the submittal "Furnish as Submitted" or "Furnish as Corrected", retain four (4) copies and return remaining copies to the Contractor.
- f. If a resubmittal is required, the Engineer will annotate the submittal "Revise and Resubmit" and transmit five (5) copies to the Contractor for appropriate action.
- g. Contractor shall revise and resubmit submittals as required by the Engineer until submittals are acceptable to the Engineer. It is understood by the Contractor that Owner may charge the Contractor the Engineer's charges for review in the event a submittal is not approved (either "Furnish as Submitted" or "Furnish as Corrected") by the third submittal for a system or piece of equipment. These charges shall be for all costs associated with engineering review, meetings with the Contractor or manufacturer, etc., commencing with the fourth submittal of a system or type of equipment submitted for a particular Specification Section.
- h. Acceptance of a Working Drawing by the Engineer will constitute acceptance of the subject matter for which the Drawing was submitted and not for any other structure, material, equipment or appurtenances indicated or shown.

7. Engineer's Review

- a. Engineer's review of the Contractor's submittals shall in no way relieve the Contractor of any of his responsibilities under the Contract. An acceptance of a submittal shall be interpreted to mean that the Engineer has no specific objections to the submitted material, subject to conformance with the Contract Drawings and Specifications. The Engineer will denote any notes in red ink so as to record his comments.
- b. Engineer's review will be confined to general arrangement and compliance with the Contract Drawings and Specifications only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, tolerances, interferences, coordination of trades, etc.

8. Record Working Drawings

- a. Prior to final payment, the Contractor shall furnish the Engineer one complete set of all accepted Working Drawings, including Shop Drawings, for equipment, piping, electrical work, heating system, ventilating system, air conditioning system, instrumentation system, plumbing system, structural, interconnection wiring diagrams, etc.
- b. Manufacturer's publications, submitted in lieu of prepared Shop Drawings, will not be required in reproducible form. However, three (3) sets of such material shall be furnished by the Contractor to the Engineer.

- c. Working Drawings furnished shall be corrected to include any departures from previously accepted Drawings.

D. Construction Photographs

1. The General Contractor shall take photographs at the locations and at such stages of the construction as directed by the Engineer. Digital format shall be used. Provide all pictures for a given period on a CD or DVD.
2. Provide the equivalent of 36 different exposures per month for the duration of the Contract time. When directed by the Engineer, frequency of photographs may be increased to weekly sessions provided that the equivalent number of exposures is not exceeded. Engineer may waive requirements for photographs during inactive construction periods in favor of increased photographs during active construction sequences.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01320 - PROGRESS SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Scheduling Responsibilities:

1. In order to provide a definitive basis for determining job progress, a construction schedule of a type approved by the Owner will be used to monitor the project.
2. Each week the Contractor shall be responsible for preparing the schedule and updating it based on a tentative two-week basis. It shall at all times remain the Contractor's responsibility to schedule and direct his forces in a manner that will allow for the completion of the work within the contractual period.

B. Construction Hours: see Section 01010 – Summary of Work – for construction working hours requirements.

C. Progress of the Work:

1. The work shall be started within ten (10) days following the Notice to Proceed and shall be executed with such progress as may be required to prevent delay to other Contractors or to the general completion of the project. The work shall be executed at such times and in or on such parts of the project, and with such forces, material and equipment, to assure completion of the work in the time established by the Contract.
2. The Contractor agrees that whenever it becomes apparent from the current monthly schedule update that delays have resulted and, hence, that the Contract completion date will not be met or when so directed by the Owner, he will take some or all of the following actions at no additional cost to the Owner:
 - a. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
 - b. Increase the number of working hours per shift, shifts per working day or days per week, the amount of construction equipment, or any combination of the foregoing to substantially eliminate the backlog of work.
 - c. Reschedule activities to achieve maximum practical concurrency of accomplishment of activities, and comply with the revised schedule.
 - d. The Contractor shall submit to the Owner or the Owner's representative for review a written statement of the steps he intends to take to remove or arrest the delay to the critical path in the accepted schedule.

1.02 CONSTRUCTION SCHEDULE

- A. Within ten (10) calendar days of the Notice to Proceed, the Contractor shall submit to the Engineer five (5) copies of his proposed schedule. The schedule will be the subject of a schedule review meeting with the Contractor, the Engineer and the Owner or the Owner's representative within one (1) week of its submission. The Contractor will revise and resubmit the schedule until it is acceptable and accepted by the Owner or the Owner's representative.

1.03 CONTRACT COMPLETION TIME

A. Causes for Extensions:

The Contract completion time will be adjusted only for causes specified in this Contract. In the event the Contractor requests an extension of any Contract completion date, he shall furnish such justification and supporting evidence as the Owner or the Owner's representative may deem necessary for a determination as to whether the Contractor is entitled to an extension of time under the provisions of this Contract. The Owner, with the assistance of the Engineer, will, after receipt of such justification and supporting evidence, make findings of fact and will advise the Contractor in writing thereof.

B. Requests for Time Extension:

Each request for change in any Contract completion date shall be initially submitted to the Owner within the time frame stated in the General Conditions. All information known to the Contractor at that time concerning the nature and extent of the delay shall be transmitted to the Owner at that time. Within the time frame stated in the General Conditions but before the date of final payment under this Contract, all information as required above concerning the delay must be submitted to the Owner. No time extension will be granted for requests which are not submitted within the foregoing time limits.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Testing Laboratory Services

1. Laboratory testing and checking required by the Specifications, including the cost of transporting all samples and test specimens, shall be provided and paid for by the Owner unless otherwise indicated in the Specifications.
2. Materials to be tested include, but are not necessarily limited to the following: cement, concrete aggregate, concrete, and reinforcing steel.
3. Tests required by the Owner shall not relieve the Contractor from the responsibility of supplying test results and certificates from manufacturers or suppliers to demonstrate conformance with the Specifications.
4. In place testing of compacted materials will be conducted as specified or recommended by Engineer.
5. Procedure
 - a. The Contractor shall plan and conduct his operations to permit taking of field samples and test specimens, as required, and to allow adequate time for laboratory tests.
 - b. The collection, field preparation and storage of field samples and test specimens shall be as directed by the Engineer with the cooperation of the Contractor.
6. Significance of Tests
 - a. Test results shall be binding on both the Contractor and the Owner, and shall be considered irrefutable evidence of compliance or noncompliance with the Specification requirements, unless supplementary testing shall prove, to the satisfaction of the Owner, that the initial samples were not representative of actual conditions.
7. Supplementary and Other Testing
 - a. Nothing shall restrict the Contractor from conducting tests he may require. Should the Contractor at any time request the Owner to consider such test results, the test reports shall be certified by an independent testing laboratory acceptable to the Owner. Testing of this nature shall be conducted at the Contractor's expense.

1.02 IMPERFECT WORK OR MATERIALS

- A. Any defective or imperfect work or materials furnished by the Contractor which is discovered before the final acceptance of the work, as established by the Certificate of Substantial Completion, or during the subsequent guarantee period, shall be removed immediately even though it may have been overlooked by the Engineer and estimated for payment. Any materials condemned or rejected by the Engineer shall be tagged as such and shall be immediately removed from the site. Satisfactory work or materials shall be substituted for that rejected.
- B. The Engineer may order tests of imperfect or damaged work or materials to determine the required functional capability for possible acceptance, if there is no other reason for rejection.

The cost of such tests shall be borne by the Contractor; and the nature, tester, extent and supervision of the tests will be as determined by the Engineer. If the results of the tests indicate that the required functional capability of the work or material was not impaired, consistent with the final general appearance of same, the work or materials may be deemed acceptable. If the results of such tests reveal that the required functional capability of the questionable work or materials has been impaired, then such work or materials shall be deemed imperfect and shall be replaced. The Contractor may elect to replace the imperfect work or material in lieu of performing the tests.

1.03 INSPECTION AND TESTS

- A. The Contractor shall allow the Engineer ample time and opportunity for testing materials to be used in the work. He shall advise the Engineer promptly upon placing orders for material so that arrangements may be made, if desired, for inspection before shipment from the place of manufacture. The Contractor shall at all times furnish the Engineer and his representatives, facilities including labor, and allow proper time for inspecting and testing materials and workmanship. The Contractor must anticipate possible delays that may be caused in the execution of his work due to the necessity of materials being inspected and accepted for use. The Contractor shall furnish, at his own expense, all samples of materials required by the Engineer for testing, and shall make his own arrangements for providing water, electric power, or fuel for the various inspections and tests of structures and material.
- B. Where other tests or analyses are specifically required in other Sections of these Specifications, the cost thereof shall be borne by the party (Owner or Contractor) so designated in such Sections. The Owner will bear the cost of all tests, inspections, or investigations undertaken by the order of the Engineer for the purpose of determining conformance with the Contract Documents if such tests, inspection, or investigations are not specifically required by the Contract Documents, and if conformance is ascertained thereby. Whenever nonconformance is determined by the Engineer as a result of such tests, inspections, or investigations, the Contractor shall bear the full cost thereof or shall reimburse the Owner for said cost. In this connection, the cost of any additional tests and investigations, which are ordered by the Engineer to ascertain subsequent conformance with the Contract Documents, shall be borne by the Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01510 - TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. The General Contractor shall provide temporary sanitary facilities for the construction operations of this Contract. The temporary services shall be provided for use throughout the construction period.

B. Temporary Sanitary Service

Sanitary conveniences, in sufficient numbers, for the use of all persons employed on the work and properly screened from public observation, shall be provided and maintained at suitable locations by the General Contractor, all as prescribed by State Labor Regulations and local ordinances. The contents of same shall be removed and disposed of in a manner consistent with local and state regulations, as the occasion requires. Sanitary facilities shall be removed from the site when no longer required.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01520 - MAINTENANCE OF UTILITY OPERATIONS DURING CONSTRUCTION

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The sanitary sewer system shall be maintained in continuous operation during the entire construction period of all Contracts as hereinafter specified. The intent of this section is to outline the minimum requirements necessary to provide continuous transference of wastewater throughout the construction period.
- B. Work under each Contract shall be scheduled and conducted by each Contractor so as to not reduce the quality of near-by water streams or cause odor or other nuisance except as explicitly permitted hereinafter. In performing the work shown and specified, the Contractor shall plan and schedule his work to meet the plant and collection system operating requirements, and the constraints and construction requirements as outlined in this Section. No discharge of raw or inadequately treated wastewater shall be allowed. The Contractor shall pay all civil penalties, costs, and assessments associated with any discharge of raw or inadequately treated wastewater associated with the Contractor's work.
- C. The General Contractor shall be responsible for coordinating the general construction and for ensuring that permanent or temporary power is available for all existing, proposed, and temporary facilities that are required to be on line at any given time.
- D. The Contractor has the option of providing additional temporary facilities that can eliminate a constraint, provided it is done without cost to the Owner and provided that all requirements of these Specifications are fulfilled and approved by the Engineer.

1.02 TEMPORARY BYPASS PUMPING

- A. Requirements for this section shall apply to all pumping required for Contractor to perform tie-ins, shutdowns, etc. for construction of the work. Temporary bypass pumping shall be performed in accordance with this section unless noted otherwise herein. Temporary pumping system design calculations and equipment information shall be submitted for review by Engineer per Section 01300. Calculations shall be stamped by a professional engineer registered in the Commonwealth of Kentucky.
- B. Contractor shall furnish, install, maintain, and operate temporary bypass pumping facilities as required to complete the Work. Contractor shall be responsible for all construction necessary to accommodate pumps and piping including but not limited to structure modifications, pump base construction, pipe supports, etc.
- C. The Contractor shall perform a test run of the bypass pumping set-up before being allowed to continue with the full scale bypass pumping.
- D. Contractor shall design the temporary bypass pumping facilities to convey flows from the upstream manholes where existing manhole or sewer tie-ins, replacement, or modifications will be conducted in a manner that will prevent backup of the existing system.
- E. All tie-ins, replacement, or modifications shall be performed during low flow conditions.
- F. All tie-ins, replacement, or modifications Work shall be accomplished as quickly as possible. If Work required extends beyond 8-hours or weather causes higher flows in the existing system during the Work, the new Work shall be stopped and the existing system shall be placed back into service. The new Work shall be properly protected from damage. Any damage to the new Work or damage to surrounding areas caused by the new Work shall be

- repaired or replaced at the Owner's decision by the Contractor at the Contractor's sole expense.
- G. Contractor shall provide all power, fuel, maintenance materials, parts, and other expendables in order to maintain temporary pumping through the duration of the Work.
 - H. Contractor shall provide one standby pump equal in capacity to the largest pump installed. If temporary pumping requires non-identical pumps in series, a standby pump of each type shall be provided. Temporary control system shall start standby pump on high level and dial-out to local contact who will respond and be on-site within an hour to check and address problem. High-high level shall also alarm and dial-out indicating that standby pump is not maintaining level. Temporary pumping system shall be provided by company that has spare pumps ready to be delivered and installed locally if problems occur.
 - I. Contractor shall provide standby power or 48-hour on-site fuel storage capacity for diesel engine type pumps to ensure continuous operation at all times.
 - J. Contractor shall provide sound attenuation for temporary pumping facilities to limit noise levels to no more than 85 dBA at a distance of 21 feet from the noise source.
 - K. Temporary pumping system shall remain fully operational until all modifications are complete and approved by Owner or Engineer.
 - L. Following successful completion of the new Work, Contractor shall remove all temporary pumps, piping and appurtenances and restore area and/or structures to original condition prior to start of work.
 - M. Contractor shall prepare Temporary Bypass Plan and submit to Owner and Engineer at pre-construction conference for review and approval.
 - N. Contractor shall reconnect to existing gravity sewer at the end of each day, weather delay, or completion of Work so that bypass pumping does not occur when not on jobsite. Overnight bypass pumping will only be allowed when directed by Engineer and Owner.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01530 - PROTECTION OF EXISTING FACILITIES

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. Contractor shall be responsible for the preservation and protection of property adjacent to the work site against damage or injury as a result of his operations under this Contract. Any damage or injury occurring on account of any act, omission or neglect on the part of the Contractor shall be restored in a proper and satisfactory manner or replaced by and at the expense of the Contractor to an equal or superior condition than previously existed.
- B. Contractor shall comply promptly with such safety regulations as may be prescribed by the Owner or the local authorities having jurisdiction and shall, when so directed, properly correct any unsafe conditions created by, or unsafe practices on the part of, his employees. In the event of the Contractor's failure to comply, the Owner may take the necessary measures to correct the conditions or practices complained of, and all costs thereof will be deducted from any monies due the Contractor. Failure of the Engineer to direct the correction of unsafe conditions or practices shall not relieve the Contractor of his responsibility hereunder.
- C. In the event of any claims for damage or alleged damage to property as a result of work under this Contract, the Contractor shall be responsible for all costs in connection with the settlement of or defense against such claims. Prior to commencement of work in the vicinity of property adjacent to the work site, the Contractor, at his own expense, shall take such surveys as may be necessary to establish the existing condition of the property. Before final payment can be made, the Contractor shall furnish satisfactory evidence that all claims for damage have been legally settled or sufficient funds to cover such claims have been placed in escrow, or that an adequate bond to cover such claims has been obtained.

1.02 PROTECTION OF WORK AND MATERIAL

- A. During the progress of the work and up to the date of final payment, the Contractor shall be solely responsible for the care and protection of all work and materials covered by the Contract.
- B. All work and materials shall be protected against damage, injury or loss from any cause whatsoever, and the Contractor shall make good any such damage or loss at his own expense. Protection measures shall be subject to the approval of the Engineer.

1.03 EXISTING UTILITIES AND APPURTENANT STRUCTURES

- A. The term existing utilities shall be deemed to refer to both publicly-owned and privately-owned utilities such as electric power and lighting, telephone, water, gas, storm drains, sanitary sewers and all appurtenant structures.
- B. Where existing utilities and structures are indicated on the Drawings, it shall be understood that all of the existing utilities and structures affecting the work may not be shown and that the locations of those shown are approximate only. It shall be the responsibility of the Contractor to ascertain the actual extent and exact location of existing utilities and structures. In every instance, the Contractor shall notify the proper authority having jurisdiction and obtain all necessary directions and approvals before performing any work in the vicinity of existing utilities.
- C. Prior to beginning any excavation work, the Contractor shall, through field investigations, determine any conflicts or interferences between existing utilities and new utilities to be constructed under this project. This determination shall be based on the actual locations,

elevations, slopes, etc., of existing utilities as determined in the field investigations, and locations, elevation, slope, or other information of new utilities as shown on the Drawings. If an interference exists, the Contractor shall bring it to the attention of the Engineer as soon as possible. If the Engineer agrees that an interference exists, he shall develop a plan to address the interference as required, and obtain the Owner's approval. Additional costs to the Contractor for this change shall be processed through a Change Order as detailed elsewhere in these Contract Documents. In the event the Contractor fails to bring a potential conflict or interference to the attention of the Engineer prior to beginning excavation work, any actual conflict or interference which does arise during the Project shall be corrected by the Contractor, as directed by the Engineer, at no additional expense to the Owner.

- D. The work shall be carried out in a manner to prevent disruption of existing services and to avoid damage to the existing utilities. Temporary connections shall be provided, as required, to insure uninterrupted of existing services. Any damage resulting from the work of this Contract shall be promptly repaired by the Contractor at his own expense in a manner approved by the Engineer and further subject to the requirements of any authority having jurisdiction. Where it is required by the authority having jurisdiction that they perform their own repairs or have them done by others, the Contractor shall be responsible for all costs thereof.
- E. Where excavations by the Contractor require any utility lines or appurtenant structures to be temporarily supported and otherwise protected during the construction work, such support and protection shall be provided by the Contractor. All such work shall be performed in a manner satisfactory to the Engineer and the respective authority having jurisdiction over such work. In the event the Contractor fails to provide proper support or protection to any existing utility, the Engineer may, at his discretion, have the respective authority to provide such support or protection as may be necessary to ensure the safety of such utility, and the costs of such measures shall be paid by the Contractor. This is not a pay item.

1.04 DOCUMENTATION OF EXISTING STRUCTURES

- A. The term existing structures shall be deemed to refer to both publicly-owned and privately-owned buildings, structures, and other facilities on the ground surface and any foundations or extensions below the ground surface.
- B. Prior to beginning any excavation work in close proximity to existing structures, the Contractor shall complete a Pre-Construction Survey to assess the condition of existing structures surrounding the work site. The survey must be performed a maximum of 7 days prior to excavation and submitted to the Engineer.
- C. Documentation for the Pre-Construction Survey shall be provided as photographs, videos, and report forms to document each structure. Prior to the Pre-Construction Survey, the construction limits must be flagged. Take photographs and video to show existing conditions adjacent to property and to show existing buildings either on or adjoining property to accurately record physical conditions. Include video and photographs of the visible foundation and wall of the buildings, both inside and outside of each structure. Any existing deformities or cracks must be clearly documented in the video and photographs, and shall be documented from different vantage points.
- E. All photographs and videos shall be digital and provided on compact disc (CD) or digital video disc (DVD). Digital photographs and videos shall be time and date stamped. See Section 01010 for additional video requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01531 – TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall be responsible for the protection of existing trees, shrubs, and plants on or adjacent to the work site that are shown or designated to remain in place by the Owner against unnecessary cutting, breaking, or skinning of trunk, branches, bark, or roots. Any damaged trees and plants that die or suffer permanent injury on account of any act, omission, or neglect on the part of the Contractor shall be removed when ordered by the Engineer and replaced by a specimen of equal or better quality at the expense of the Contractor.

1.02 PROTECTION OF TREES AND PLANTS

- A. The term DBH (Diameter at Breast Height) shall be deemed to refer to the total cross-sectional diameter in inches of a tree measured at a height of four and one-half (4 ½) feet.
- B. The term Tree Protection Area (TPA) shall be deemed to refer to the circular area surrounding a tree of which the center is the center of the bole of the tree and the radial measurement is one (1) foot per inch up to twenty-four (24) inches DBH and 1.5 feet per inch DBH or trees over twenty-four (24) inches DBH or a lesser distance provided it will not adversely affect the health of protected tree(s).
- C. All areas designated for existing tree preservation by the Engineer shall be protected during construction activity. The TPA shall be surrounded by orange plastic fencing at least four (4) feet tall and clearly visible, with signage every twenty-five (25) feet clearly identifying the TPA.
- D. No vehicles, construction materials, equipment, fuel, or temporary or permanent earth fill shall be placed within a TPA. There shall not be any movement of any vehicles into nor within a TPA. No nails, rope, cable, signs, or fencing is to be attached to a tree within a TPA.
- E. Fires shall not be permitted under or adjacent to trees and plants.
- F. The Contractor shall contact the Division of Environmental Services 2 weeks prior to needing their root protection services. (See Site Specific Notes) All exposed roots shall be covered with earth as soon as possible. The Contractor shall protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, it is the responsibility of the Contractor to prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use in a manner approved by the Engineer.

PART 2 – PRODUCT (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01540 - DEMOLITION AND REMOVAL OF EXISTING STRUCTURES AND EQUIPMENT

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. This Section covers the demolition, removal, and disposal of structures, pavement, curbs, sidewalk, and any existing equipment. The Contractor shall furnish all labor, materials and equipment to demolish and remove structures and equipment designated to be removed on Drawings.

1.02 TITLE TO EQUIPMENT AND MATERIALS

- A. Contractor shall have no right or title to any of the equipment, materials or other items to be removed from the existing structures unless authorized by Owner.

1.03 CONDITION OF STRUCTURES AND EQUIPMENT

- A. The Owner does not assume responsibility for the actual condition of structures and equipment to be demolished and removed.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DEMOLITION AND REMOVALS

- A. The removal of all equipment and piping, and all materials from the demolition of structures shall, when released by the Owner and Engineer, be done by the Contractor and become the Contractor's property, unless otherwise noted, for disposition in any manner not contrary to the Contract requirements and shall be removed from the site to the Contractor's own place of disposal.
- B. Any equipment piping and appurtenances removed without proper authorization, which are necessary for the operation of the existing facilities shall be replaced to the satisfaction of the Engineer at no cost to the Owner.
- C. Excavation caused by demolitions shall be backfilled with fill free from rubbish and debris.
- D. All materials removed by demolition or excavation shall be lawfully and properly handled and disposed according to applicable local, state, and federal laws. Where materials shall be disposed at landfill, manifests and documentation shall be provided to Owner showing / documenting that materials have been properly handled and disposed.
- E. Manhole frames and covers that have been removed shall become the property of the Contractor and shall be disposed on in a legal manner.

END OF SECTION

SECTION 01550 - SITE ACCESS AND STORAGE

PART 1 - GENERAL

1.01 THE REQUIREMENT

A. Access Roads

1. The General Contractor shall construct and maintain such temporary access roads as required to perform the work of this Contract.
2. Access roads shall be located within the property lines of the Owner unless the Contractor independently secures easements for his use and convenience. Contractor shall submit written documentation to the Engineer for any Contractor secured easements across privately held property. Easement agreement shall specify terms and conditions of use and provisions for site restoration. A written release from the property owner certifying that all terms of the easement agreement have been complied by the Contractor shall be furnished to the Engineer prior to final payment.
3. Existing access roads used by the Contractor shall be suitably maintained by the Contractor at his expense during construction. Contractor shall not be permitted to restrict Owner access to existing facilities. Engineer may direct Contractor to perform maintenance of existing access roads when Engineer determines that such work is required to insure all weather access by the Owner.
4. The Contractor will maintain the primary roads to be free of mud and dirt. All mud and dirt carried from the access roads to the primary roads shall be washed and cleaned.
5. The Contractor shall obtain and pay all cost associated with any bonds required by the Kentucky Department of Transportation for the use of State maintained roads.

B. Parking Areas

1. Each Contractor shall construct and maintain suitable parking areas for his construction personnel on the project site where approved by the Engineer and the Owner.

C. Restoration

1. At the completion of the Work, the surfaces of land used for access roads and parking areas shall be restored by the Contractor to its original condition and to the satisfaction of the Engineer.

D. Traffic Regulations

1. Contractor shall obey all traffic laws and comply with all the requirements, rules and regulations of the Kentucky Transportation Cabinet, LFUCG, and other local authorities having jurisdiction to maintain adequate warning signs, lights, barriers, etc., for the protection of traffic on public roadways.

E. Storage of Equipment and Materials

1. Contractor shall store his equipment and materials at the job site in accordance with the requirements of the Contract Documents, and as hereinafter specified. All equipment and materials shall be stored in accordance with manufacturer's recommendations and as directed by the Owner or Engineer, and in conformity to applicable statutes, ordinances, regulations and rulings of the public authority having jurisdiction.

2. Contractor shall secure a site for staging area and material storage, including portable restroom facilities. Contractor shall not store materials or encroach upon private property without the written consent of the owners of such private property. Use of public lands must be with the written approval of the Owner.
3. Contractor shall not store unnecessary materials or equipment on the job site, and shall take care to prevent any structure from being loaded with a weight which will endanger its security or the safety of persons.
4. Materials shall not be placed within ten (10) feet of fire hydrants. Gutters, drainage channels and inlets shall be kept unobstructed at all times.
5. Contractor shall provide adequate temporary storage buildings/facilities, if required, to protect materials or equipment on the job site.
6. Contractor shall provide Engineer with copy of agreement with property owner of staging area. Contractor will be responsible for all restoration. Agreement between Contractor and property owner shall include language holding the Owner harmless from responsibility and liability.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01560 - TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.01 GENERAL

- A. Provide and maintain equipment and temporary construction, as necessary to provide controls over environmental and safety conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of Work.
- B. Prohibited Construction Activities:
1. Disposing of excess or unsuitable excavated material in wetlands or floodplains, even with the permission of the property owner.
 2. Locating stockpile storage areas in environmentally sensitive areas.
 3. Indiscriminate, arbitrary, or capricious operation of equipment in any stream corridors, any wetlands, any surface waters, or outside the construction limits.
 4. Pumping of sediment-laden water from trenches or other excavations directly into any surface waters, any stream corridors, any wetlands, or storm sewers; all such water will be properly filtered or settled to remove silt prior to release.
 5. Discharging pollutants such as chemicals, fuels, lubricants, bituminous materials, raw sewage and other harmful waste into or alongside of rivers, streams, impoundments, or into natural or manmade channels leading thereto.
 6. Permanent or unspecified alteration of the flow line of any stream.
 7. Damaging vegetation outside of the construction area.
 8. Disposal of trees, brush, and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations.
 9. Open burning of project debris without a permit.
 10. Discharging injurious silica dust concentrations into the atmosphere resulting from breaking, cutting, chipping, drilling, buffing, grinding, polishing, shaping or surfacing closer than 200 feet to places of residences or commercial, professional, quasi-public or public places of human occupation.
 11. Storing construction equipment and vehicles and/or stockpiling construction materials on property, public or private, not previously authorized for such purposes as noted in Section 01550.
 12. Running well point or pump discharge lines through private property or public property and rights-of-way without an easement or the written permission of the property owner and the consent of the ENGINEER.
 13. Non-compliance with the Contractor's, OSHA's, or the Owner's safety requirements.
 14. Operations entailing the use of vibratory hammers or compactors outside the hours listed in Section 01010 - Summary of Work, or outside the hours allowed for construction by local ordinances or regulations.

1.02 SAFETY ADVISORY

- A. Scope: Sewer Installation
 - 1. Maintaining jobsite safety
 - 2. Maintaining traffic safety
- B. LFUCG-funded projects have a contractual and legal obligation for performance and breach of contract in regard to the safety of all exposed personnel. Reference the Occupational Safety Health Administration (OSHA) Multi Employer Citation Policy: Multi-employer Worksites, The Creating Employer, The Exposing Employer, The Correcting Employer, The Controlling Employer, Multiple Roles.
- C. The Contractor shall at all times conduct the work safely in order to assure a safe work site. The Contractor shall be responsible for the safety of the Contractor's employees, agents and subcontractors, Owner's personnel and all other personnel or persons at the work site. The Contractor shall be responsible for the adequacy and safety of all construction methods or procedures and the safe prosecution of the work.
- D. The Contractor shall be responsible at all times to conduct the work and keep the work site in compliance with federal, state, and local safety Laws and Regulations, including but not limited to Occupational Safety and Health (OSHA) requirements. This includes shaft drilling operations, concrete moving and placement, confined space entry requirements for trench construction, including use of a trench box or other shoring to support trench walls and proper means of exit from an excavation.
- E. The Contractor shall have an authorized and competent safety representative as defined above on the work site at frequent and regular intervals, or more often, as conditions require. Failure to have such a person at the site as specified herein constitutes an unsafe practice.
- F. The Contractor shall be responsible to suspend Work whenever a Work method or procedure or condition at work site is unsafe.
- G. The Contractor shall submit a written notification to the Owner of any accident or injury. Such notification shall include the Contractor's investigation and what measures are appropriate to avoid such accidents. Payment applications will not be authorized until such notice is provided.
- H. Failure of the Contractor to comply with any provision of this Specification section or the Owner's safety requirements or any federal, state or local safety Laws and Regulations constitute just cause for the Owner to order suspension of Work.
- I. None of the provisions of the section are intended to, nor shall be construed to, create any duty or responsibility on the Owner or Engineer to provide or enforce safety requirements of the Contractor. The duty, responsibility, and liability for safety shall remain with the Contractor.

1.03 AIR POLLUTION AND NOISE CONTROL

- A. Contractor's vehicles and equipment shall be such as to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and in no case will noise levels be permitted which interfere with the work of the Owner or others.
 - 1. Construction activities will be limited to hours specified in Section 01010 – Summary of Work.
 - 2. Construction equipment will be provided with intake silencers and mufflers, as required by safety standards.

3. All construction vehicles should be equipped with proper emissions control equipment.
4. Periodically check equipment and machinery for proper tuning to minimize exhaust emissions and noise.

1.04 DUST CONTROL

- A. Contractor shall be responsible for controlling objectionable dust caused by his operation of vehicles and equipment, clearing or for any reason whatever. Contractor shall apply water or use other methods subject to the Engineer's approval which will keep dust in the air to a minimum. Dust control measures shall be implemented multiple times throughout each working day if necessary.

1.05 PEST AND RODENT CONTROL

- A. Provide rodent and pest control as necessary to prevent infestation of construction or storage area.
 1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

1.06 WATER CONTROL

- A. Contractor shall comply with the Storm Water Pollution Prevention Plan (SWPPP) approved by LFUCG.
- B. Provide methods to control surface water and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties.
- C. Provide, operate and maintain equipment and facilities of adequate size to control surface water.
- D. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

1.07 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
 1. Excavate and dispose of any contaminated earth offsite, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.
- D. Provide systems for control of atmospheric pollutants.

1. Prevent toxic concentrations of chemicals.
 2. Prevent harmful dispersal of pollutants into the atmosphere.
- E. All Contractor's equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.08 EROSION AND SEDIMENT CONTROL

- A. See Section 02372 for erosion and sediment control requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01580 – PROJECT IDENTIFICATION AND SIGNS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall provide signs near the site of the Work. The sign shall set forth the description of the Work and the names of the Owner, Engineer, and Contractor.

PART 2 - PRODUCTS

2.01 IDENTIFICATION SIGN

- A. Basic design shall be as shown in the sample on page 01580-2 below, and shall include at a minimum the names of the Project, the Owner, the Contractor, and the Engineer. This sign shall be 3' x 6' and provided and installed by the Contractor.
- B. "Working Hard" sign (as shown on page 01580-3) shall be provided by the Owner and mounted and installed by the Contractor. Contractor shall provide posts and backing.
- C. Colors shall be as selected by the Engineer.
- D. Number Required: One.

PART 3 - EXECUTION

3.01 INSTALLATIONS

- A. Signs shall be installed at locations specified by the Engineer and installed in accordance with the detail below.

3.02 MAINTENANCE

- A. The signs shall be maintained in good condition until the completion of the Project and then removed by the Contractor.

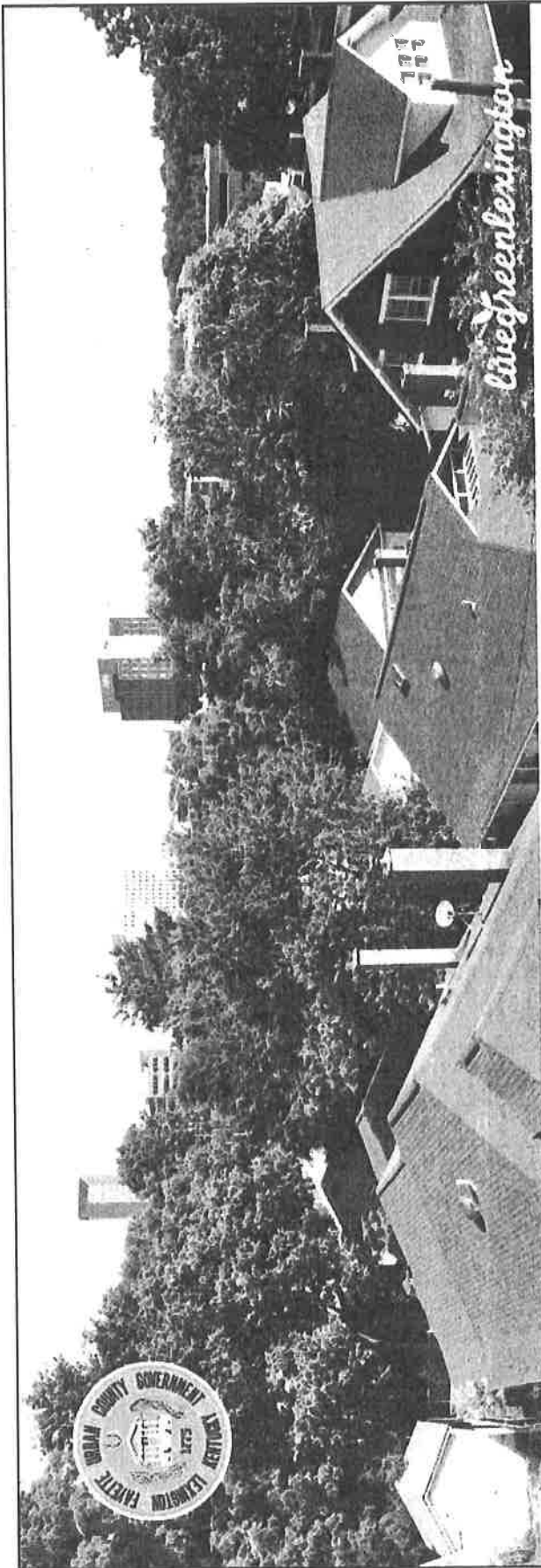


NOTES:

THIS SIGN SHALL BE:

1. FURNISHED AND ERECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, IN ADDITION TO THE NORMAL WARNING AND REGULATORY SIGNS.
2. OF GOOD QUALITY EXTERIOR PLYWOOD OR OTHER APPROVED MATERIAL.
3. PAINTED WITH SOLID BLUE LETTERS ON A WHITE BACKGROUND.
4. UPDATED AS NEEDED TO INDICATE THE APPROPRIATE MAYOR'S NAME.
5. FRAMED AND BRACED SO AS TO REMAIN VERTICAL AND PLAINLY VISIBLE TO THE TRAVELING PUBLIC.
6. ERECTED PRIOR TO STARTING CONSTRUCTION WORK.
7. ERECTED AT EACH END OF THE PROJECT AT LOCATIONS DIRECTED BY THE ENGINEER AND AT OTHER LOCATIONS SPECIFIED ON THE PLANS OR BY THE PROPOSAL.
8. KEPT CLEAR AND IN GOOD CONDITION FOR THE DURATION OF THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
9. THE COST SHOWN APPLIES ONLY TO THE PORTION OF PROJECT UNDER CONSTRUCTION IN A CONTINUOUS SECTION. IN THE EVENT THE PROJECT CONSISTS OF MORE THAN ONE CONTINUOUS SECTION THE COST SHOWN SHALL BE FOR THE PARTICULAR SECTION WHERE WORK IS IN PROGRESS.
10. NOT TO BE USED ON FEDERAL AID TRANSPORTATION PROJECTS

NO.	DATE	REVISION DESCRIPTION	BY
DIVISION OF ENGINEERING			
PUBLIC IMPROVEMENT SIGN			



lexingtonky.gov

WORKING HARD
TO IMPROVE YOUR NEIGHBORHOOD
Your Sanitary Sewer Fees Are Making Lexington A Better Place To Live

END OF SECTION

SECTION 01631 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. General: Substitution of materials and/or equipment is defined in the General Conditions and more fully hereinafter.
- B. Substitutions: The Contractor's requests for changes in the products, materials, equipment and methods of construction required by the Contract Documents are considered requests for "substitutions", and are subject to the requirements specified herein. The following are not considered as substitutions:
 - 1. Revisions to the Contract Documents, where requested by the Owner and Engineer are considered as "changes" not substitutions.
 - 2. Substitutions requested during the bidding period, which have been accepted prior to the Contract Date, are included in the Contract Documents and are not subject to the requirements for substitutions as herein specified.
 - 3. Specified Contractor options on products and construction methods included in the Contract Documents are choices available to the Contractor and are not subject to the requirements for substitutions as herein specified.
 - 4. Except as otherwise provided in the Contract Documents, the Contractor's determination of and compliance with governing regulations and orders as issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders.

1.02 SUBMITTALS

- A. The information required to be furnished for evaluation of product substitution will be as follows:
 - 1. Performance capabilities, and materials and construction details will be evaluated based upon conformance with the Specifications. Products that do not conform with the Specification shall not be accepted.
 - 2. Manufacturer's production and service capabilities, and evidence of proven reliability will be acceptable if the following is furnished.
 - a. Written evidence that the manufacturer has not less than (3) years' experience in the design and manufacture of the substitute product.
 - b. Written evidence of at least one application, of a type and size similar to the proposed substitute product, in successful operation in a wastewater treatment plant or collection system for a period of at least one year.
 - c. In lieu of furnishing evidence of a manufacturer's Experience and successful operation of an application of the product to be substituted, the Contractor has the option of furnishing a cash deposit or bond which will guarantee replacement if the product the furnished does not satisfy the other requirements specified in this section. The amount of each deposit or bond will be subject to the approval.
 - 3. Specific reference to characteristics either superior or inferior to specified requirements will be evaluated based on their net effect on the project. Products with any

characteristics inferior to those specified will not be acceptable unless offset by characteristics that, in the opinion of the Engineer, will cause the overall effect of the product on the project to be at least equal to that of those specified.

1.03 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work.
- B. Compatibility of Options: Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract Documents, but must be provided by the Contractor.
- C. The detailed estimate of operating and maintenance costs will be evaluated based on comparison with similar data on the specified products. Proposed substitute products which have an operating and maintenance cost that, in the opinion of the Engineer, exceeds that of the specified products will not be considered equal and will not be acceptable.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. General: Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft. Control delivery schedules to minimize long-term storage at the site and to prevent overcrowding of construction spaces. In particular coordinate delivery and installation to ensure minimum holding or storage times for items known or recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.
 - 1. Deliver products to the site in the manufacturer's sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
 - 2. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
 - 3. Store heavy materials away from the project construction in a manner that will not endanger the supporting construction.

PART 2 - PRODUCTS

2.01 GENERAL PRODUCT COMPLIANCE

- A. General: Requirements for individual products are indicated in the Contract Documents; compliance with these requirements is in itself a Contract Requirement. These requirements may be specified in any one of several different specifying methods, or in any combination of these methods. These methods include the following:
 - 1. Proprietary
 - 2. Descriptive
 - 3. Performance
 - 4. Compliance with Reference Standards

Compliance with codes, compliance with graphic details and similar provisions of the Contract Documents also have a bearing on the review and approval outcome.

- B. Procedures for Selecting Products: Contractor's options in selecting products are limited by requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects.

2.02 SUBSTITUTIONS

- A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to the Contract Documents are not required, when the proposed changes are in keeping with the general intent of the Contract Documents, when the request is timely, fully documented and properly submitted, and when one or more of the following conditions is satisfied, all as judged by the Engineer; otherwise the requests will be returned without action except to record non-compliance with these requirements.
1. The Engineer will consider a request for substitution where the request is directly related to an "or equal" clause or similar language in the Contract Documents.
 2. The Engineer will consider a request for substitution where the specified product or method cannot be provided within the Contract Time. However, the request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or to coordinate the various activities properly.
 3. The Engineer will consider a request for substitution where the specified product or method cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 4. The Engineer will consider a request for a substitution where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Engineer for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
 5. The Engineer will consider a request for substitution when the specified product or method cannot be provided in a manner which is compatible with other materials of the work, and where the Contractor certifies that the substitution will overcome the incompatibility.
 6. The Engineer will consider a request for substitution when the specified product or method cannot be properly coordinated with other materials in the work, and where the Contractor certifies that the proposed substitution can be properly coordinated.
 7. The Engineer will consider a request for substitution when the specified product or method cannot receive a warranty as required by the Contract Documents and where the Contractor certifies that the proposed substitution receive the required warranty.
 8. The Contractor shall reimburse the Owner any costs for review by the Engineer of proposed product substitutions which require major design changes, as determined by the Owner, to related or adjacent work made necessary by the proposed substitutions.
- B. Work-Related Submittals: Contractor's submittal of and the Engineer's acceptance of shop drawings, product data or samples which relate to work not complying with requirements of the Contract Documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

2.03 GENERAL PRODUCT REQUIREMENTS

- A. General: Provide products that comply with the requirements of the Contract Documents and that are undamaged and, unless otherwise indicated, unused at the time of installation. Provide products that are complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
1. Standard Products: Where they are available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 2. Continued Availability: Where, because of the nature of its application, the Owner is likely to need replacement parts or additional amounts of a product at a later date, either for maintenance and repair or replacement, provide standard, domestically produced products for which the manufacturer has published assurances that the products and its parts are likely to be available to the Owner at a later date.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS

- A. General: Except as otherwise indicated in individual sections of these Specifications, comply with the manufacturer's instructions and recommendations for installation of the products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at Time of Acceptance.

END OF SECTION

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the work or to make its parts fit together properly.
- C. The Contractor shall not damage or endanger any portion of the Work or the Work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation.
- D. Any cutting of existing structures or facilities shall be approved in advance by Owner or Engineer. Approval shall not impact Contractor's full liability for any damage caused.

1.02 QUALITY ASSURANCE

- A. Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.

1.03 WARRANTY

- A. Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials, to the extent practicable.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the functional performance of existing materials.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.

- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

3.03 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION

SECTION 01740 - CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Maintain premises free from accumulations of waste, debris, and rubbish.
- B. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces. Leave project clean and ready for occupancy.

1.02 RELATED DOCUMENTS

- A. Cutting and Patching: Section 01731.
- B. Project Closeout: Section 01770.
- C. Cleaning for Specific Products of Work: Specification Section for that work.

1.03 SAFETY REQUIREMENTS

- A. Hazards Control:
 - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

- 3) Owner
3. Owner occupancy of Project or Designated Portion of Project:
 - a. Contractor shall:
 - 1) Obtain certificate of occupancy.
 - 2) Perform final cleaning in accordance with Section 01740.
 - b. Owner will occupy Project, under provisions stated in Certificates of Substantial Completion.
4. Contractor: Complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not Substantially Complete:
 1. Engineer shall immediately notify Contractor, in writing, stating reasons.
 2. Contractor: Complete work, and send second written certification to Engineer, certifying that Project or designated portion of Project is substantially complete.
 3. Engineer will reinspect work.
- E. Should Engineer consider that work is still not finally complete:
 1. Engineer shall notify Contractor, in writing, stating reasons.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send third written notice to the Engineer certifying that the work is complete.
 3. Engineer and Owner will reinspect work at Contractor's expense.

1.03 FINAL INSPECTION

- A. Contractor shall submit written certification that:
 1. Contract Documents have been reviewed.
 2. Project has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in presence of Owner's Representative and are operational.
 5. Project is completed, and ready for final inspection.
- B. Engineer will make final inspection within seven (7) days after receipt of certification.
- C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.
- D. Should Engineer consider that work is not finally complete:
 1. Engineer shall notify Contractor in writing, stating reasons.

2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
3. Engineer will reinspect work.

1.04 CLOSEOUT SUBMITTALS

- A. Project Record Documents: To requirements of Section 01785.
- B. Guarantees, Warranties and Bonds: To requirements of particular technical Specifications and Section 01782.
- C. Project Closeout Checklist: Contractor shall submit all required items to the Engineer and/or Owner with their responsibility identified. See Project Closeout Checklist included in this section.

1.05 INSTRUCTION

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.06 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final applications in accordance with requirements of General Conditions.

1.07 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of general conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-Final Certificate for Payment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PROJECT CLOSEOUT CHECKLIST

- A. See attached Project Closeout Checklist.



RMP Project Closeout Checklist

EOR
 Contractor
 DWQ PM
 RMP PM

DWG Project Manager (DWQ PM): Bob Peterson, PE

RMP Project Manager (RMP PM):

Engineer of Record (EOR):

Contractor:

File Manager: Dawn Williams

Project Name:

Task	From	To	CC	Completed/Submitted	Approved	Closeout Requirement	Notes
Contract Administration Closeout Checklist							
1	EOR	DWQ PM				Copy of plan to file (plan will include description of facility, how it was design to work, and DWQ PM will provide copy to Pump Station Manager or Plant Staff)	
2	EOR	DWQ PM				Letter or email from EOR with address to file	
3	Contractor	LFUGG Staff				Letter or email from EOR with address to file	
4	Contractor	EOR/DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
5	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
6	Contractor	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
7	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
8	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
9	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
10	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
11	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
12	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
13	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
14	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
15	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
16	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
17	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
18	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
19	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
20	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
21	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
22	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
23	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	
24	EOR	DWQ PM				Letter or email from EOR with date of startup, and attachments to file	

END OF SECTION

SECTION 01780 – OPERATIONS AND MAINTENANCE MANUALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under the Contract. Prepare operating and maintenance data as specified.
- B. In addition to maintenance and operations data, the manufacturer's printed recommended installation practice shall also be included. If not part of the operations and maintenance manual, separate written installation instructions shall be provided, serving to assist the Contractor in equipment installation.
- C. Related requirements specified elsewhere:
 - 1. Submittals: Section 01300.
 - 2. Project Closeout: Section 01770.
 - 3. Project Record Documents: Section 01785.
 - 4. Warranties and Bonds: Section 01782.

1.02 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual for use by Owner's personnel.
- B. Format:
 - 1. Size: 8-1/2 in. x 11 in.
 - 2. Paper: 20 pound minimum, white.
 - 3. Text: Manufacturer's printed data.
 - 4. Photo copies must be clear and legible.
 - 5. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Fold large drawings to the size of the text pages where feasible.
 - c. For flow or piping diagrams that cannot be detailed on the standard size drawings, a larger, appropriate size drawing may be submitted and supplied in a properly marked map packet.
 - 6. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of product, and major component parts of equipment.
 - b. Provide indexed tabs.
 - 7. Cover: Identify each volume with types or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:

- a. Title of Project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
- 1. Commercial quality, durable and cleanable, 3-hole, 3" or 4" D-ring binders, with oil and moisture resistant hard covers.
 - 2. When multiple binders are used, correlate the data into related consistent grouping.
 - 3. Imprinted on the front cover and side of each binder shall be the name of the Plant, the Contract Number and Volume Number.
 - 4. Binders shall be new and not recycled from a prior data manual.

1.03 SUBMITTAL SCHEDULE

- A. Submit one (1) copy of preliminary draft of proposed formats and outlines of contents prior to operation of equipment. Engineer will review draft and return with comments.
- B. Submit one (1) copy of completed data for final review prior to the completion of the Contract and before payment in excess of 90% of the total Contract amount is authorized.
- C. Provide two (2) copies plus pdf on CD of approved completed O & M Manual in final form ten (10) days prior to final inspection or acceptance to the Owner. Final version of each manual shall reflect any changes made during testing and start-up of equipment.

1.04 QUALITY ASSURANCE

- A. Preparation of data shall be done by personnel:
 - 1. Trained and experienced in maintenance and operation of the described products.
 - 2. Completely familiar with requirements of this Section.
 - 3. Skilled as a technical writer to the extent required to communicate essential data.
 - 4. Skilled as a draftsman competent to prepare required drawings.

1.05 CONTENTS OF MANUAL

- A. Each item of equipment shall be placed in a logical sequential order, as listed or ordered in the Contract Documents.
- B. Content, for each unit of equipment and system, as appropriate:
 - 1. Detailed description of the process and operation procedures as applicable.
 - 2. Instructions for all components of the equipment whether manufactured by the supplier or not, including valves, controllers and other miscellaneous components.
 - 3. Description of unit and component parts.

- a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of all replaceable parts.
 - d. Exploded and/or sectional drawing views.
 - e. Equipment model number.
4. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shutdown and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
5. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Alignment, adjusting and checking.
 - e. Preventative maintenance schedule.
 - f. Recommended spare parts list and quantities.
 - g. Equipment parts list.
 - h. Local service center.
6. Servicing and Lubrication schedule.
 - a. List of lubricants required.
 - b. Lubrication procedures.
 - c. Lubrication schedule.
7. Internal and external wiring and piping diagrams numbered to correspond to the installation.
 8. Description of sequence of operation by control supplier.
 9. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.
10. As-installed control diagrams by controls supplier.

11. Each Contractor's coordination drawings.
 - a. As-installed color coded piping diagrams.
 12. Charts of valve tag numbers, with the location and function of each valve.
 13. Other data as required under pertinent sections of Specifications.
- C. Content, for each electrical system, as appropriate:
1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replacement parts.
 2. Circuit directories of panel boards.
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
 3. As-installed color-coded wiring diagrams.
 4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Adjustment and checking.
 6. Manufacturer's printed operating and maintenance instructions.
 7. List of original manufacturer's recommended spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 8. Other data as required under pertinent sections of Specifications.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: The respective section of Specifications.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01782 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Engineer for review and transmittal to Owner.

1.02 RELATED DOCUMENTS

- A. Bid Bond: Instructions to Bidders.
- B. Performance and Payment Bonds: General Conditions and Supplemental General Conditions.
- C. Guaranty: General Conditions and Supplemental General Conditions.
- D. General Warranty of Construction: General Conditions.
- E. Project Closeout: Section 01770.
- F. Warranties and Bonds required for specific products: As listed herein.
- G. Provisions of Warranties and Bonds, Duration: Respective specification sections for particular products.

1.03 SUBMITTALS REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Furnish two (2) original signed copies.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product, equipment or work item.
 - 2. Firm name, address and telephone number.
 - 3. Scope
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service and maintenance contract.
 - 6. Provide information for Owner's personnel:

- a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
7. Contractor name, address and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8-1/2 in. x 11 in., punch sheets for 3-ring binder.
 - a. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS."
List:
 - a. Title of Project
 - b. Name of Contractor
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.05 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during progress of construction:
 - 1. Submit documents within 10 days after inspection and acceptance.
- B. Otherwise make submittals within 10 days after date of substantial completion, prior to final request for payment.
- C. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing the date of acceptance as the start of the warranty period.

1.06 SUBMITTALS REQUIRED

- A. Submit warranties, bonds (see section 00600), service and maintenance contracts as specified in the respective sections of the Specifications.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01785 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
 - 1. Contract Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Reviewed Shop Drawings
 - 5. Change Orders
 - 6. Other Modifications to Contract
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals: Section 01300.

1.03 MARKING DEVICES

- A. Provide colored pencil or felt-tip marking pen for all marking.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in 2-inch high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:
 - 1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 3. Field changes of dimension and detail.

4. Changes made by Change Order or Field Order.
 5. Details not on original Contract Drawings.
- E. Specifications and Addenda: Legibly mark up each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate shop drawings to record changes made after review.

1.05 SUBMITTALS

- A. At completion of project, deliver two hard copies and one CD with pdf of all record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
1. Date.
 2. Project Title and Number.
 3. Contractor's Name and Address.
 4. Title and Number of each Record Document.
 5. Certification that each Document as Submitted is Complete and Accurate.
 6. Signature of Contractor, or His Authorized Representative.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 02225 - EXCAVATING, BACKFILLING, AND COMPACTING FOR SEWERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Excavating of trenches.
- B. Bedding of pipe.
- C. Backfilling trenches.
- D. Installing identification tape.

PART 2 - PRODUCTS

2.01 BEDDING AND BACKFILLING STONE

- A. Crushed Stone material shall conform to the Kentucky Transportation Cabinet's Standard Specifications for Road and Bridge Construction, Current Edition, latest revision.
- B. Bedding Stone: No. 9 Crushed Limestone
- C. Backfill Stone: No. 9 Crushed Limestone or No. 57 Crushed Stone

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Trenching may be accomplished by means of a backhoe, trenching machine, hydro-excavation or by hand depending on the construction area. At the Contractor's option, trenching by a trenching machine or by backhoe is acceptable.
- B. Clearing - All trees, stumps, bushes, shrubbery, and abandoned concrete or masonry structures within the limits of the trench shall be removed by the Contractor and disposed of in a manner in accordance with federal, state and local regulations. All clearing work shall be considered as incidental to the cost of laying pipe.
- C. Bracing and Sheet piling - Bracing and sheet piling shall be provided to adequately protect the workers during pipe line installation.
 - 1. All requirements of the Occupational Safety and Health Act (OSHA) shall be met during trenching and backfill operations.
 - 2. As backfill is placed, the sheet piling shall be withdrawn in increments not exceeding one (1) foot and the void left by the withdrawn sheet piling shall be filled and with #9 stone.
 - 3. The Engineer will not be responsible for determining requirements for bracing or sheet piling.

3.02 TRENCHING

A. General:

1. The Contractor shall perform all excavation of every description and of whatever substances encountered, including clearing over the pipeline route. All excavations for the pipeline shall be open cut except where noted for bore and jack.

B. Trench Width:

1. Trench widths shall be in accordance with LFUCG Standard Drawings.
2. **Contractor shall submit a shop drawing that includes a certification from the pipe manufacturer stating the recommended trench width for each pipe size and material being used.**

C. Trench Depth:

1. The trench shall be excavated to a minimum of six (6) inches below pipe grade as noted on LFUCG Standard Drawings.

3.03 BLASTING AND EXPLOSIVES

A. If rock removal by blasting methods is used, blasting must comply with Federal, State, and Local Regulations and National Codes on the purchase, transportation, storage, and use of explosive material. Codes include, but are not limited to the following:

1. Storage, security, and accountability: Bureau of Alcohol, Tobacco, and Firearms (BATF): 27 CFR Part 181.
2. Shipment: DOT, 49 CFR Parts 171-179, 390-397.
3. Safety and Health: OSHA 29 CFR Part 1926, Subpart U.
4. Transportation and Storage: NFPA 495, Chapters 3 through 6.
5. Kentucky Department of Mines and Minerals code for explosive disintegration of rock.

B. The Contractor must complete the following before explosives are brought to site:

1. Obtain all required permits from authorities having jurisdiction, with copies to Owner.
2. Obtain Blasting and Liability insurance in accordance with Kentucky Department of Highway requirements. A copy of the Declaration of Insurance shall be provided to the Owner.
3. Complete preblast survey with signed copy to Owner.

C. Preblast survey

1. A preblast survey is to be of such quality to determine whether blasting operations damaged structures. Preblast survey shall utilize video, still images and report forms to document each structure. Video with audible description of observations shall be used to observe general conditions of each structure and to note specific damage that exists to structure prior to blasting. Still images shall be utilized to supplement video as needed to document specific conditions of each structure. Report form shall document date of survey, and who was present during survey. Forms shall also be utilized to supplement video as to the conditions of structures. Existing damage such as cracked foundations, brick facade, and etc. shall have reference object such as a scale in image or video.

Audio commentary of cracked foundations, brick facades, etc. shall denote width of cracks. The Contractor shall submit three copies of video, still images, and pdf copies of report forms on CD's.

2. A preblast survey is required for all structures and utilities within a 500-foot radius of the blasting area.
3. At least thirty (30) days before initiation of blasting, the Contractor shall notify, in writing, all residents or owners of dwellings or other structures located within 500 feet of the blasting area advising that they will have a preblast survey performed. Contractor to maintain records of notifications and responses to be submitted to the Engineer.

3.04 FORCE MAIN BEDDING

- A. Refer to LFUCG Standard Drawings.
- B. The trench shall be excavated to a depth to allow a minimum of 36 inches cover over the top of the pipe.

3.05 FORCE MAIN BACKFILLING

- A. Refer to LFUCG Standard Drawings.

3.06 GRAVITY SEWER PIPE BEDDING

- A. Refer to LFUCG Standard Drawings.

3.07 GRAVITY SEWER PIPE BACKFILLING

- A. Refer to LFUCG Standard Drawings.

3.08 INSTALLING IDENTIFICATION TAPE

- A. Detectable underground marking tape shall be installed over all force mains. Marking tape is not required for gravity sewers. Care shall be taken to ensure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187
- B. The identification tape shall bear the printed identification of the plastic utility line below it, such as "Caution – Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code and shall be two (2) inches in width. Colors are green for sewer and brown for force main.

END OF SECTION

SECTION 02240 - DEWATERING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor and equipment required to dewater all excavations.
- B. Dewatering of all excavations shall be the responsibility of the Contractor, and no additional compensation will be allowed for same.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation.
- B. Dewatering shall include proper removal of any and all liquid, regardless of its source, from the excavation.
- C. The site shall be kept free of surface water at all times. The Contractor shall install drainage ditches, dikes and shall perform all pumping and other work necessary to divert or remove rainfall and all other accumulations of surface water from the excavations. The diversion and removal of surface water shall be performed in a manner that will prevent flooding and/or damage to other locations within the construction area where it may be detrimental.
- D. The Contractor shall provide, install and operate sufficient trenches, sumps, pumps, hose piping, well points, deep wells, etc., necessary to depress and maintain the ground water level below the base of the excavation during all stages of construction operations.
- E. No groundwater from the excavated area shall be discharged into the sanitary sewer system.
- F. Dewatering shall be in accordance with all state and local regulations/permits/plans.
- G. Trench shall be dewatered as required and never shall the trench accumulate groundwater to a depth that will cause pipe to float.

END OF SECTION

SECTION 02370 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, and equipment required for installing, maintaining, amending, and removing temporary soil erosion, sediment, and pollutant controls as shown in the Erosion and Sediment Control Plan or Stormwater Pollution Prevention Plan (hereinafter referred to generally as the SWPPP) and as specified herein and as required by the LFUCG Land Disturbance Permit, Chapter 16-Article X, Division 5 of the LFUCG Code of Ordinances, and the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10).
- B. The Contractor shall take all site management measures necessary to minimize erosion and contain sediment, construction materials (including excavation and backfill), and pollutants (such as chemicals, fuels, lubricants, bitumen, raw sewage, and other harmful waste) on the site, and prevent them from being discharged offsite or into or alongside any body of water or into natural or man-made conveyances leading thereto.
- C. The Contractor shall at all times minimize land disturbance and the period of time that the disturbed area is exposed without stabilization practices. In "critical areas" (within 25 feet of a perennial or intermittent stream, wetland, sinkhole, inlet or other waterbody) erosion prevention measures such as working during dry periods, use of sediment controls, and use of erosion control mats/blankets, mulch, or straw blown in and stabilized with tackifiers or by treading, etc. shall be implemented on disturbed areas within 24 hours or "as soon as practical" after completion of disturbance/grading or following cessation of activities.
- D. Temporary erosion controls include, but are not limited to sodding, mulching, seeding, providing erosion control blankets and turf reinforcement mats on all disturbed surfaces including waste area surfaces and stockpile and borrow area surfaces; covering small disturbed areas with tarps or other materials; scheduling work to minimize erosion; and providing diversion or interceptor ditches to minimize the discharge of sediment.
- E. Temporary sedimentation controls include, but are not limited to, silt fences, rock check dams, berms, traps, barriers, fiber logs, storm drain inlet filters, and appurtenances on sloped surfaces to minimize the discharge of sediment.
- F. Contractor is responsible for providing and maintaining effective temporary erosion and sediment control measures prior to and during construction or until final controls become effective and the site is stabilized in accordance with state and local requirements.
- G. Prior to construction, the Contractor shall obtain an LFUCG Land Disturbance Permit and shall obtain coverage under the KPDES General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) (see Article 3.24 in this Section) if required. The Contractor shall be responsible for placement of pollutant, erosion, and sedimentation controls as shown in the Stormwater Pollution Prevention Plan (SWPPP) prior to excavation, fill, or grade work. If during the course of construction, the state and/or LFUCG determine additional controls are required, the Contractor shall furnish, install, and maintain additional seeding, mulch, blankets, sediment barriers, diversion or other ditches, and/or other controls as necessary to control pollution, erosion, and sedimentation to the satisfaction of the regulatory agency.
- H. The Contractor shall inspect and repair all erosion and sedimentation controls as follows:
 - 1. At least once every seven (7) calendar days, and

2. Within 24 hours after any rainfall event of 0.5 inch or greater (or 4 inches of snow or greater).
- I. Final stabilization practices on those portions of the project where land disturbance activities have permanently ceased shall be initiated within fourteen (14) days of the date of cessation of land disturbance activities. Temporary stabilization for those portions of the project where land disturbance has temporarily ceased (e.g., temporary seeding, mulching, etc.) shall be initiated within fourteen (14) days of the date of cessation of land disturbance activities.
- J. **Erosion and Sediment Control prevention measures shall be installed prior to removal of vegetation, grading, and/or stripping of topsoil.** The Contractor is responsible for preparing and submitting the Kentucky Division of Water Notice of Intent and attachments and obtaining state permit approval, if applicable, prior to the beginning of any construction activities.

1.02 PERMITS AND NOTIFICATION REQUIREMENTS

- A. The Contractor is responsible to submit a Stormwater Pollution Prevention Plan (SWPPP) for inclusion with permit applications. The Contractor may elect one of the following options to meet this requirement:
 1. Utilize the SWPPP (which includes the Erosion and Sediment Control Plan) provided in the Construction Drawings and prepared by the Owner's Engineer as a basis for an updated SWPPP, and take sole responsibility for updating and implementing the SWPPP, or
 2. Provide a SWPPP, including an Erosion and Sediment Control Plan, prepared by a professional engineer licensed in the Commonwealth of Kentucky, meeting all of the requirements of KYR10, Chapter 11 of the LFUCG Stormwater Manual, and Chapter 16-Article X, Division 5 of the LFUCG Code of Ordinances.
- B. If applicable (i.e., for projects with a disturbed area of one acre or more), the Contractor shall submit a KPDES Notice of Intent specifically for Construction Activities (NOI-SWCA) and receive notification of coverage before beginning any site disturbance, and shall implement erosion, sediment, and pollution control measures as may be required by state, local and federal agencies. Contractor shall submit a signed Notice of Intent form and required attachments to the Division of Water at least seven (7) days prior to beginning of construction activity. **See Article 3.24 in this Section for detailed requirements.**
- C. A Land Disturbance Permit shall be obtained from the Lexington-Fayette Urban County Government Division of Engineering. **See Article 3.25 in this Section for detailed requirements.**
- D. The Contractor shall comply with all additional requirements of LFUCG. It is the Contractor's responsibility to provide evidence to the Owner that all permits, including those associated with construction across or along a stream channel, if applicable, have been obtained prior to initiation of construction. Some permits are obtained during the design phase of the project. Typically, they should be included in the contract documents.

1.03 RELATED WORK

- A. Section 02371 – Stormwater Pollution Prevention Plan (SWPPP)
- B. Section 02373 – Stream Restoration

PART 2 – PRODUCTS

2.01 MULCH

- A. Mulch or erosion control blankets / turf reinforcement mats (see Section 2.08) shall be used as a soil stabilization measure for any disturbed area inactive (i.e., not undergoing grading or excavation) for 14 days or longer. Areas requiring stabilization during December through February shall receive only mulch held in place with bituminous material. Mulching, blankets, or mats shall be used whenever permanent or temporary seeding is used. The anchoring of mulch, blankets, and mats shall be in accordance with the Construction Drawings except all mulch placed in December through February shall be anchored with bituminous materials regardless of the slope. Permanent mulches or mats shall be used in conjunction with planting trees, shrubs, and other ground covers that do not provide adequate soil stabilization.
- B. Straw shall come from wheat, rye, or barley and may be spread by hand or machine. Straw shall be anchored. Straw shall be applied at two tons per acre or 90 pounds per 1,000 square feet. Straw shall be free from weeds and coarse matter.
- C. Wood chips are appropriate for areas with less than five percent slopes, and do not require tacking. Wood chips shall be applied at 270 cubic yards per acre or 6 cubic yards per 1,000 square feet and approximately 2 inches deep. Wood chips shall be treated with 20 pounds of nitrogen per acre or shall be treated with 12 pounds slow-release nitrogen per ton to prevent nutrient deficiency in plants.
- D. Bark chips or shredded bark are appropriate for areas with less than five percent slopes, and shall be applied at 70 cubic yards per acre or 1.5 to 2 cubic yards per 1,000 square feet and about one-half inch thick. Bark does not require additional nitrogen fertilizer.
- E. Manufacturer's recommendations shall be followed during application of manufactured wood fiber and recycled paper sold as mulch materials applied in a hydroseeder slurry with binders/tackifiers. Recycled paper (newsprint) or wood fiber shall be mixed at 50 pounds per 100 gallons of water and applied according to manufacturer's recommendations and model of hydroseeder in use.
- F. Liquid mulch binders/tackifiers shall be applied according to manufacturer's recommendations. Chemical soil stabilizers or soil binders/tackifiers/emulsions shall not be used alone. Recommended buffer distances between applied products and waterbodies shall be strictly followed.
- G. Gravel or stone aggregate may be used in relatively small areas when incorporated into an overall landscaping plan. Before the gravel or crushed stone is applied, it shall be washed.

2.02 TEMPORARY SEED

- A. Temporary seeding shall be used for soil stabilization when grades are not ready for permanent seeding, except during December through February. The seed shall be applied within 14 days after grading has stopped. Only rye grain or annual rye grass seed shall be used for temporary seeding.

2.03 PERMANENT SEED

- A. Permanent seeding shall be applied within 14 days after final grade has been reached, except during December through February. Permanent seeding shall also be applied on any areas that will not be disturbed again for a year even if final grades have not been reached. The use of mulch and erosion control blanket or turf reinforcement matting with permanent

seeding shall be in accordance with applicable sections of this Specification. "Seed mats" may be used for permanent seeding in accordance with manufacturers' recommendations.

- B. Permanent seeding shall be used on disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil and on rough graded areas that will not be brought to final grade for one year or more.
- C. The area to be seeded shall be protected from excess run-on and runoff as necessary with diversions, grassed waterways, terraces, or sediment ponds.
- D. Contractor shall use the following Permanent Seed Mix, with the following exceptions:
 - a. If a property owner landscaping agreement differs from this specification, the property owner landscaping agreement shall be followed on that property, or
 - b. The Construction Drawings identify a different seed mix.

The Permanent Seed Mix shall consist of the following mix spread at a rate of 5 pounds/1,000 square feet:

Common Name	%	lbs per 1,000 sq. ft.
Tall Fescue (turf type)	75	3.75
Annual Rye	15	0.75
Bluegrass	10	0.50
TOTAL	100%	5

- E. Vegetative cover alone shall not be used to provide erosion control cover and prevent soil slippage on a soil that is not stable due to its structure, water movement, or excessive slope.
- F. Permanent seeding may be done at any time except December through February.
- G. Soil material shall be capable of supporting permanent vegetation and have at least 25 percent silt and clay to provide an adequate amount of moisture holding capacity. An excessive amount of sand will not consistently provide sufficient moisture for good growth regardless of other soil factors.
- H. Fertilizer shall be applied at a rate determined by a soil test obtained by the Contractor. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Lime shall be applied at a rate of 100 pounds per 1,000 square feet or two tons per acre of agricultural ground limestone, unless soil test results indicate differently.

2.04 SOD

- A. Sod shall be used for disturbed areas that require immediate vegetative cover, e.g., the area surrounding a drop inlet in a grassed waterway, the design flow perimeter of a grassed waterway that will convey flow before vegetation can be established, and the inlet of a culvert. Sod may be installed throughout the year. "Seed mats" and seed with geotextiles may be used in place of sod when done in accordance with manufacturers' recommendations.
- B. Contractor shall use tall fescue sod, unless another species is specified in the Construction Drawings or unless the property owner landscaping agreement differs from this specification.
- C. Sod shall not be used to provide erosion control and prevent soil slippage on a soil that is not stable due to its structure, water movement, or excessive slope.

- D. Sod shall be installed within 48 hours of digging and removal from the field. Sod should not be used on slopes steeper than 2H:1V. If it is to be mowed, installation should be on slopes no greater than 3H:1V.
- E. Soil material shall be capable of supporting permanent vegetation and shall consist of at least 25 percent silt and clay to provide an adequate amount of moisture holding capacity. An excessive amount of sand will not consistently provide sufficient moisture for the sod regardless of other soil factors.
- F. Fertilizer shall be applied at a rate determined by a soil test obtained by the Contractor. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Lime shall be applied at a rate of 100 pounds per 1,000 square feet or two tons per acre of agricultural ground limestone, unless soil test results indicate differently.
- G. The sod shall consist of strips of live, vigorously growing grasses. The sod shall be free of noxious and secondary noxious weeds and shall be obtained from good, solid, thick-growing stands. The sod shall be cut and transferred to the job in the largest continuous pieces that will hold together and are practical to handle.
- H. The sod shall be cut with smooth clean edges and square ends to facilitate laying and fitting. The sod shall be cut to a uniform thickness of not less than three-fourth inch measured from the crown of the plants to the bottom of the sod strips for all grasses except bluegrass. Bluegrass sod shall be cut to a uniform thickness of not less than one and one-half inches.
- I. The sod shall be mowed to a height of not less than two inches and no more than four inches prior to cutting.
- J. The sod shall be kept moist and covered during hauling and preparation for placement on the sod bed.
- K. Sod shall be kept watered after installation until the project is considered substantially complete.

2.05 ROAD/PARKING STABILIZATION

- A. Gravel or paved material shall be used to stabilize permanent roads or parking areas or roads or parking areas used repeatedly by construction traffic. Stabilization shall be accomplished within 14 days of grading or initiation of use for construction traffic. Unstabilized roads are not acceptable except in instances where the road will be used less than one month.
- B. Road/parking stabilization shall be used wherever roads or parking areas are constructed, whether permanent or temporary, for use by construction traffic.
- C. Stabilization shall be accomplished with a minimum depth of six inches of crushed stone. Stabilized construction roadbeds shall be at least 14 feet wide for one-way traffic and at least 20 feet wide for two-way traffic.
- D. Temporary roads shall follow the contour of the natural terrain to the extent possible. Slopes shall not exceed 10 percent.
- E. Temporary parking areas shall be located on naturally flat areas to minimize grading. Grades shall be sufficient to provide drainage but shall not exceed 4 percent.
- F. All cuts and fills shall be 2H:1V or flatter.
- G. Drainage ditches shall be provided as needed.

H. Crushed stone shall be KYTC aggregate No. 2 (1.5 to 3 inches in diameter), or equivalent.

2.06 CONSTRUCTION ENTRANCE

- A. A stabilized construction entrance shall be constructed wherever vehicles are leaving a construction site to enter a public road or at any unpaved entrance/exit location where there is a risk of transporting mud or sediment onto paved roads. A construction entrance shall be constructed at the beginning of the project before construction traffic begins to enter and exit the site.
- B. A stabilized construction entrance shall be constructed of crushed stone a minimum of 6 inches thick laid over geotextile (filter fabric).
- C. The width shall be at least 20 feet. At sites where traffic volume is high, the entrance shall be wide enough for two vehicles to pass safely. The length shall be at least 50 feet, and where practical, shall be extended to 100 feet. The entrance shall be flared where it meets the existing road to provide a turning radius.
- D. Stormwater and wash water runoff from a stabilized construction entrance shall drain to a sediment trap or sediment pond. If conditions on the site are such that the majority of the mud is not removed by the vehicles traveling over the gravel, then the tires of the vehicles shall be washed before entering a public road.
- E. Pipe placed under the entrance to handle runoff shall be protected with a mountable berm.
- F. Dust control shall be provided in accordance with the applicable sections of this Specification.
- G. Crushed stone shall be KYTC aggregate No. 2 (1.5 to 3 inches in diameter), or equivalent.
- H. Geotextile filter fabric shall be KYTC Type III.

2.07 DUST CONTROL

- A. Dust control measures shall be implemented on the site.
- B. Construction activities shall be phased to minimize the total area unstabilized at any given time, thereby reducing erosion due to air and water movement.
- C. Construction roads shall be watered as needed to minimize dust.
- D. Existing trees, shrubs, and ground cover shall be retained as long as possible during the construction. Initial land clearing should be conducted only in those areas to be regraded or where construction is to occur. Areas to be cleared only for new vegetation or landscaping shall be stabilized with seed and mulch immediately following clearing.
- E. Vegetative cover is the most effective means of dust and erosion control, when appropriate. See sections on Temporary Seed, Permanent Seed, Mulch, and Sod of this Specification.
- F. When areas have been regraded and brought to final grade, they shall be stabilized using temporary or permanent seed and mulch or other measures.
- G. Mulch with mulch binders may be used as an interim dust control measure in areas where vegetation may not be appropriate.
- H. See sections on Temporary Seed, Permanent Seed, Sod, Mulch, Road/Parking Stabilization, and Construction Entrance of this Specification.

2.08 EROSION CONTROL BLANKETS AND TURF REINFORCEMENT MATS

- A. Mulch netting, erosion control blankets (ECBs), or turf reinforcement matting (TRM) shall be used on sloping areas as indicated in the Construction Drawings. Mats or nets and permanent seeding may be used as an alternate to sod for culvert entrances and grassed waterways when selected and installed in accordance with manufacturer's recommendations. TRMs shall be used at the water line to control toe erosion along stream banks and wave action in wet ponds. Erosion control blankets may be used to stabilize small ditches and swales and on recently planted slopes to protect seedlings until they become established.
- B. Effective ECB and TRM installation shall require firm, continuous contact between the materials and the soil. If there is no contact, the material will not hold the soil and erosion will occur underneath the material.
- C. ECBs or TRMs shall be used in critical areas such as banks along waterways where concentrated flows are expected. Manufacturer's specifications shall be followed.
- D. ECBs, TRMs, and netting shall be suitable for their intended purpose and shall be used as indicated in the Construction Drawings.
- E. The ECB shall have a minimum useful life span of two (2) years. The material shall consist of interlocking, curled wood fibers and be capable of withstanding shear stresses up to 2.25 pounds per square foot and a velocity of nine (9) feet per second. The acceptable ECB shall be Curlex II as manufactured by American Excelsior Company or approved equal.
- F. Product Documentation

The manufacturer shall provide the Engineer or other designated party with the QA/QC certifications for each shipment of ECB/TRM. The certification shall be signed by a responsible party employed by the manufacturer such as the QA/QC Manager, Production Manager, or Technical Services Manager. The QA/QC certifications shall include:

- a. ECB/TRM lot and roll numbers (with corresponding shipping information)
- b. Manufacturer's test data for raw materials used in the production.
- c. Manufacturer's test data for finished production.

G. Product Labeling

- a. Prior to shipment, the Manufacturer shall affix a label to each roll identifying the following characteristics:
- b. Product identification information (manufacturer name and address, brand name, product code)
- c. Lot number and roll number
- d. Roll length and width
- e. Total roll weight.

H. Packaging

- 1. The ECB/TRM shall be wound around a cardboard core to facilitate handling. The core is not intended to support the roll for lifting but should be sufficiently strong to prevent collapse during transit.
- 2. All rolls shall be labeled and bagged in packaging that is resistant to photodegradation by ultraviolet light.

- I. The Contractor shall furnish the following to the Engineer:
 1. Manufacturer's quality assurance/quality control certifications for each shipment to verify that the materials supplied for the project are in accordance with the requirements of this specification.
 2. Manufacturer's warranty covering materials and workmanship.

2.09 TEMPORARY DIVERSION DITCH

- A. Temporary diversion ditches shall be used to collect sediment-laden runoff from disturbed areas and direct it to a sediment pond where applicable. Temporary ditches are those expected to be in use for less than one year. Temporary diversion and/or other ditches require stabilization, with seed, blankets, mats, or mulch.
- B. Temporary diversion ditches shall have stable outlets. The combination of conditions of site, slopes, and soils should be so that the ditch can be maintained throughout its planned life.
- C. Temporary diversion ditches shall not be constructed below high sediment-producing areas unless land treatment practices or structural measures, designed to prevent damaging accumulations of sediment in the channels, are installed with or before the diversion.
- D. A typical diversion cross section consists of a channel and a supporting ridge. In the case of an excavated-type diversion, the natural ground serves as the diversion ridge. Diversion cross sections shall be adapted to the equipment that will be used for their construction and maintenance.
- E. The channel may be parabolic or trapezoidal in shape. V-shaped ditches shall not be constructed.
- F. Diversions shall be located so that water will empty onto an established area such as a stable watercourse, waterway, or structure.
- G. Any high sediment-producing area above a diversion shall be controlled by good land use management or by structural measures to prevent excessive sediment accumulation in the diversion channel.
- H. Temporary diversions above steep slopes or across graded rights-of-way shall have a berm with a minimum top width of 2 feet, side slopes of 2:1 or flatter and a minimum height of 18 inches measured from the channel bottom.
- I. Diversions installed to intercept flow on graded rights-of-way shall be spaced 200 to 300 feet apart.
- J. A level lip spreader shall be used at diversion outlets discharging onto areas already stabilized by vegetation.

2.10 LEVEL SPREADER

- A. Level spreaders shall be constructed at the outlets of temporary diversion ditches if they discharge to landscaped areas. Level spreaders shall also be constructed at outlets of permanent constructed waterways where they terminate on undisturbed areas.
- B. The length of the level spreader shall be constructed as shown on the Construction Drawings.

2.11 PERMANENT CONSTRUCTED WATERWAY

- A. Permanent constructed waterways shall be used to divert stormwater runoff from upland undisturbed areas around or away from areas to be disturbed during construction. A waterway expected to be in place for at least one year shall be considered permanent. Permanent waterways shall be lined with sod or permanent seeding and nets, ECBs, or TRMs.

2.12 PIPE SLOPE DRAIN

- A. Pipe slope drains shall be used whenever it is necessary to convey water down a steep slope, which is not stabilized or which is prone to erosion, unless a paved ditch (flume) is installed.
- B. Contractor shall use a 10-inch diameter pipe or larger to convey runoff from areas up to one-third acre; 12-inch or larger pipe for up to half-acre drainage areas; and 18-inch pipe for areas up to one acre, unless otherwise specified in the Construction Drawings. Multiple pipes shall be required for large areas, spaced as shown on the Construction Drawings.
- C. The pipe shall be heavy duty flexible tubing designed for this purpose, *e.g.*, non-perforated, corrugated plastic pipe, or specially designed flexible tubing.
- D. A standard flared end section or a standard T-section fitting secured with a watertight fitting shall be used for the inlet.
- E. Extension collars shall be 12-inch long sections of corrugated pipe. All fittings shall be watertight.

2.13 IMPACT STILLING BASIN

- A. Impact stilling basins or armoring shall be used at the outlet of culverts and storm sewers with calculated exit velocities greater than 15 feet per second when flowing full.

2.14 CHECK DAM

- A. Check dams shall be limited to use in small, open channels that drain 10 acres or less.
- B. Check dams shall not be used in streams.
- C. Check dams can be constructed of stones, coir logs, or wood fiber logs.
- D. If used, check dams shall be constructed prior to the establishment of vegetation.
- E. The maximum height at the center of a check dam shall be three feet above the ground on which the rock is placed.
- F. The center of the portion of the check dam above the flat portion of the channel shall be at least 1 foot lower than the outer edges. The outer edges of the check dam shall extend up the side slopes of the channel to a point 3 feet in elevation above the center portion of the check dam or to the top of the side slopes.
- G. The maximum spacing between rock check dams in a ditch should be such that the toe of the upstream dam is at the same elevation as the top of the next downstream dam.

- H. The spacing of coir and wood fiber check dams is one log every 100 feet for velocities of 5 fps, 50 feet for velocities between 5 and 7.5 fps, and 25 feet for velocities greater than 10 fps, unless otherwise shown in the Construction Documents.
- I. Stone check dams shall be constructed of KYTC Class II channel lining.
- J. Coir log or wood fiber log check dams shall be constructed of a single log with a diameter of at least 20 inches.

2.15 SEDIMENT TRAP

- A. Sediment traps shall be installed below all disturbed areas of less than 5 acres that do not drain to a sediment pond.
- B. Erosion control practices such as seeding, mulching, sodding, diversion dikes, etc., shall be used in conjunction with sediment traps to reduce the amount of sediment flowing into the trap. The amount of sediment entering a trap can be reduced by the use of stabilized diversion dikes and ditches.
- C. The trap shall not be located in a stream. It shall be located to trap sediment-laden runoff before it enters the stream.
- D. Trap depth shall be at least 2 feet at the inlet and 4 feet at the outlet. Effective trap width shall be at least 10 feet and trap length shall be at least 30 feet. Containment berms of earth or rock may be used. High velocity areas (e.g., overflows) shall be armored with rock, TRMs, or other suitable material.
- E. The Construction Drawings shall indicate the final disposition of the sediment trap after the upstream drainage area is stabilized. The Construction Drawings shall indicate methods for the removal of excess water lying over the sediment, stabilization of the pond site, and the disposal of any excess material.

2.16 SEDIMENT POND

- A. A sediment pond shall be installed at the outlet of a disturbed area of 5 acres or more. The maximum drainage area for a single pond is 100 acres.
- B. Design and construction shall comply with all federal, state, and local laws, ordinances, rules, and regulations regarding dams.
- C. Erosion control practices such as seeding, mulching, sodding, diversion dikes, etc., shall be used in conjunction with sediment ponds to reduce the amount of sediment flowing into the pond.
- D. The pond shall not be located in a stream. It shall be located to trap sediment-laden runoff before it enters the stream.
- E. Contractor shall construct the sediment pond as shown on the Construction Drawings.
- F. Permanent ponds designed for stormwater detention or water quality treatment may serve as temporary sediment ponds if site conditions make the use of these structures desirable. At the time of conversion from a sediment pond to a permanent stormwater management pond, excess sediment shall be cleaned from the pond. If the pond is converted to a water quality basin, the sand in the sand filter outlet shall be replaced with clean sand unless it is shown to be clean.

- G. The Construction Drawings shall indicate the final disposition of the sediment pond after the upstream drainage area is stabilized. The Construction Drawings shall indicate methods for the removal of excess water lying over the sediment, stabilization of the pond site, and the disposal of any excess material.
- H. Vegetation shall be established upon completion of construction of the embankment, emergency spillway and other areas disturbed by construction.

2.17 SILT FENCE

- A. Silt fence shall be installed down-slope of areas to be disturbed prior to clearing and grading. Silt fence shall be situated such that the total area draining to the fence is not greater than one-fourth acre per 100 feet of fence. Silt fence shall be used for storm drain drop inlet protection and around soil stockpiles.
- B. Under no circumstances shall silt fences be constructed in streams or in swales or ditch lines or any area of concentrated flow.
- C. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, and polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

<u>PHYSICAL PROPERTY</u>	<u>REQUIREMENTS</u>
Filtering Efficiency	80% (minimum)
Tensile Strength at 20%	50 pounds/linear inch (minimum)
Flow Rate	0.3 gallons/square foot/minute (minimum)

- D. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.
- E. Posts for synthetic fabric silt fences shall be either 2-inch by 2-inch wood or 1.33 pounds per linear foot steel with a minimum length of 5 feet. Steel posts shall have projections for fastening wire to them. Posts shall be no more than 6 feet apart.
- F. Wire fence reinforcement for silt fences shall be a minimum of 36 inches in height, a minimum of 14 gauge and shall have a mesh spacing of no greater than 6 inches.

2.18 STORM DRAIN INLET PROTECTION

- A. Storm drain inlet protection shall be utilized on drop inlets and curb inlets that receive sediment-laden runoff from disturbed areas.
- B. Storm drain inlet protection shall only be used around drop inlets when the up-slope area draining to the inlet has no other or inadequate sediment control.
- C. The drainage area shall be no greater than 1 acre.
- D. The inlet protection device shall be constructed in a manner that will facilitate cleanout and disposal of trapped sediment and minimize interference with construction activities.
- E. Inlet protection devices shall be constructed in such a manner that any resultant ponding of stormwater will not cause flooding or excessive inconvenience or damage to adjacent areas, roadways, properties, or structures.

- F. Inlet protection devices are low flow filter devices, and as such shall be constructed in such a manner as to allow for higher flows to bypass into the storm drain system to prevent flooding of the roadway or downstream properties.

2.19 FILTER STRIP

- A. Filter strips shall be used on each side of permanent constructed channels.
- B. Filter strips shall only be used to remove sediment from overland flow. Filter strips are not effective in removing sediment from concentrated flows.
- C. If vegetative filters are proposed as a sediment control device and they do not already exist, they shall be planted and established prior to initiating land disturbing activities.
- D. The minimum filter strip width shall be 50 feet for streams, wetlands, and sinkholes. The minimum filter strip width shall be ten feet for constructed waterways.
- E. Where a post development floodplain or wet weather conveyance is being protected, filter strips shall be provided on each side. When a wetland or sinkhole is being protected, filter strips shall be provided around the perimeter.
- F. Contractor shall construct the filter strips as shown on the Construction Drawings.
- G. Existing grass or grass/legume mixtures used as filter strips shall be dense and well established, with no bare spots. When establishing new seeding, consideration shall be given to wildlife needs and soil conditions on the site. The following chart provides a list of alternative grass and grass/legume mixtures:

SEEDING MIXTURE AND SITE SUITABILITY CHART

Seeding Mixture	Rate lbs/acre	Soil Suitability
Alfalfa <i>Or</i> Red Clover <i>Plus</i> Timothy <i>Or</i> Orchardgrass <i>Or</i> Bromegrass	10 10 4 6 6	Well-Drained
Ladino <i>Plus</i> Timothy <i>Or</i> Orchardgrass <i>Or</i> Bromegrass	0.5 4 6 8	Wet or Well-Drained

Notes:

- 1. All seeding shall be in accordance with the seeding sections of this Specification.

2. Well-drained sites include sites that are drained with tile as well as naturally well-drained and droughty sites. Wet sites include sites that are excessively wet only a portion of the growing season.

2.20 STREAM CROSSING

- A. Stream crossings shall be used in cases where construction traffic, permanent traffic, or utilities must cross existing post development floodplains. If the drainage area exceeds 1 square mile and a structure is necessary, the structure shall be designed by a professional engineer licensed in Kentucky, and shall be considered a permanent structure. Stream crossings shall be as close to perpendicular to the stream flow as possible.
- B. Temporary stream crossings are applicable to flowing streams with drainage areas less than one square mile. Temporary stream crossings shall be planned to be in service for the shortest practical period of time and to be removed as soon as their function is completed.
- C. All such structures, whether temporary or permanent, are subject to the rules and regulations of the U.S. Army Corps of Engineers for in-stream modifications (404 Permitting) and the Kentucky Division of Water (401 Certification). No stream crossing shall be installed without first obtaining all applicable local, state, and federal permits.

Where culverts are to be installed, compacted soil or rock shall be used to form the crossing. The depth of soil or rock cover over the culvert shall be equal to one-half the diameter of the culvert or 12 inches, whichever is greater. The sides of the fill shall be protected from erosion using the mulching and seeding erosion control measures specified in this Specification.

- D. All stream crossings shall be constructed in such a manner as to avoid flooding or excessive inconvenience or damage to adjacent areas, roadways, properties, or structures.
- E. When using a culvert crossing, the top of the compacted earth fill shall be covered with at least six inches of KYTC No. 2 stone.
- F. KYTC No. 2 stone shall also be used for the stone pads forming the crossing approaches.

2.21 PUMP-AROUND FLOW DIVERSION

- A. A pump-around flow diversion shall be used to divert flow around construction activities occurring in a stream when those activities are reasonably expected to cause the erosion of sediment or deposition of sediment in the stream.
- B. Check dams to form the diversion shall span the banks of the stream. Maintain 1-foot freeboard (minimum) on the upstream and downstream checks.
- C. Check dams may be constructed of sandbags or may be a water-filled bladder such as an Aqua-Barrier.
- D. The dewatering flow from the work area shall be treated in a sediment-trapping device prior to discharge to the stream.
- E. Sandbags shall be woven polypropylene bags with approximate dimensions of 18-1/2 inches by 28 inches. Contractor shall tie the ends of filled bags closed using either draw strings or wire ties.

2.22 CONSTRUCTION DEWATERING

- A. Sediment-laden water shall be pumped to a dewatering structure before it is discharged.

PART 3 – EXECUTION

3.01 GENERAL

- A. Erosion and sediment control practices shall be consistent with the requirements of Chapter 11 of the LFUCG Stormwater Manual and other state and local regulatory agencies and in any case shall be adequate to minimize erosion of disturbed and/or regraded areas and discharge of sediment from the site.
- B. Contractor is responsible for notifying and obtaining coverage from the Kentucky Division of Water concerning inclusion under the KPDES General Permit for Stormwater Discharges Associated with Construction Activities.
- C. Gravity sewer lines, force mains, and water lines that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to reentering the stream, or filtered through a sediment removal device. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the line excavation shall not be allowed to enter the flowing portion of the stream. Clean Water Act Section 401 and 402 requirements enforced by the US Army Corps of Engineers and the Kentucky Division of Water and the provisions of this condition shall apply to all types of utility line stream crossings.
- D. Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures shall be employed at all times during the project to prevent degradation of Waters of the Commonwealth. Site regrading and reseeding shall be accomplished with 14 days after disturbance.

3.02 MULCH

- A. Seed shall be applied prior to mulching except where seed is to be applied as part of a hydroseeder slurry containing mulch.
- B. Lime and fertilizer (where needed) shall be incorporated and surface roughening accomplished as needed prior to mulching in accordance with applicable sections of this Specification.
- C. Mulch materials shall be spread uniformly by hand or mechanically so the soil surface is covered. During or immediately following application, the mulch shall be anchored or otherwise secured to the ground according to one of the following methods:
 - 1. Mechanical – Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil.
 - 2. Mulch Tackifiers/Nettings/Emulsions – Use according to the manufacturer's recommendations. This is a superior method in areas of water concentration to hold mulch in place.
 - 3. Wood Fiber – Wood fiber hydroseeder slurries may be used to tack straw mulch. This combination treatment is well suited to steep slopes and critical areas, and severe climate conditions.
- D. Mulch shall be anchored using a mulch anchoring tool, a liquid binder/tackifier, or mulch nettings. Nets and mats shall be installed to obtain firm, continuous contact between the material and the soil. Without such contact, the material is useless and erosion occurs.

- E. A mulch anchoring tool is a tractor-drawn implement that is typically used for anchoring straw and is designed to punch mulch approximately two inches into the soil surface. Machinery shall be operated on the contour and shall not be used on slopes steeper than 3H:1V.
- F. When using liquid mulch binders and tackifiers, application shall be heaviest around edges of areas and at crests of ridges and banks to prevent wind blow. Remainder of area shall have binders/tackifiers spread uniformly in accordance with manufacturer's recommendations.
- G. When using a mulch net, it shall be used in conjunction with an organic mulch and shall be installed immediately after the application and spreading of the mulch
- H. Erosion control blankets and turf reinforcement mats are considered protective mulches and may be used alone on erodible soils and during all times of year. Blankets and mats shall be installed in accordance with manufacturer's recommendations.
- I. Mulched areas shall be inspected at least weekly and after each rainfall of one-half inch or more. When mulch material is found to be loosened or removed, the mulch cover shall be replaced within 48 hours.

3.03 TEMPORARY SEED

- A. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and anchoring.
- B. The needed erosion control practices, such as diversions, temporary waterways for diversion outlets, and sediment ponds, shall be installed prior to seeding.
- C. Prior to seeding, lime and fertilizer (if needed) shall be worked into the soil with a disk harrow, springtooth harrow, or similar tools to a depth of two inches. On sloping areas, the final operation shall be on the contour.
- D. The seed shall be applied uniformly with a cyclone seeder, drill, cultipacker, seeder, or hydroseeder (slurry may include seed and fertilizer) preferably on a firm, moist seedbed. Seed shall be sown no deeper than one-fourth inch to one-half inch.
- E. The seedbed shall be firmed following seeding operations with a cultipacker, roller, or light drag.
- F. On sloping land, seeding operations shall be on the contour wherever possible.
- G. Mulch shall be applied, in the amounts described in the mulch section of this Specification, to protect the soil and provide a better environment for plant growth.
- H. New seed shall have adequate water for growth, through either natural means or irrigation, until plants are firmly established.
- I. Seeded areas shall be inspected at least weekly after planting and after each rainfall of one-half inch or more. Areas requiring additional seed and mulch shall be repaired within 48 hours.
- J. If vegetative cover is not established within 21 days, the area shall be reseeded.

3.04 PERMANENT SEED

- A. During site preparation, topsoil shall be stockpiled for use in establishing permanent vegetation.

- B. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and anchoring.
- C. The needed erosion control practices, such as diversions, temporary waterways for diversion outlets, and sediment ponds, shall be installed prior to seeding.
- D. Prior to seeding, lime and fertilizer shall be worked into the soil with a disk harrow, springtooth harrow, or similar tools to a depth of four inches. On sloping areas, the final operation shall be on the contour.
- E. Where compacted soils occur, they shall be broken up sufficiently to create a favorable rooting depth of six to eight inches.
- F. The seed shall be applied uniformly with a cyclone seeder, drill, cultipacker, seeder, or hydroseeder (slurry may include seed and fertilizer) preferably on a firm, moist seedbed. Seed shall be sown no deeper than one-fourth inch to one-half inch.
- G. The seedbed shall be firmed following seeding operations with a cultipacker, roller, or light drag.
- H. On sloping land, seeding operations shall be on the contour wherever possible.
- I. Mulch shall be applied, in the amounts described in the mulch section of this Specification, to protect the soil and provide a better environment for plant growth.
- J. New seed shall have adequate water for growth, through either natural means or irrigation, until plants are firmly established.
- K. Seeded areas shall be inspected at least weekly after planting and after each rainfall of 0.5 inches or more. Areas requiring additional seed and mulch shall be repaired within 48 hours.
- L. If vegetative cover is not established (>70%) within 21 days, the area shall be reseeded. If 40 to 70 percent groundcover is established, overseed and fertilize, using half of rates originally applied, and mulch. If less than 40 percent groundcover is established, follow original seedbed preparation methods, seeding and mulching specifications, and apply lime and fertilizer if needed according to soil tests.

3.05 SOD

- A. The area to be sodded shall be protected from excess runoff, as necessary, with appropriate BMPs.
- B. Prior to sodding, the soil surface shall be cleared of all trash, debris, and stones larger than one inch in diameter, and of all roots, brush, wire, and other objects that would interfere with the placing of the sod.
- C. Compacted soils shall be broken up sufficiently to create a favorable rooting depth of six to eight inches.
- D. Lime and fertilizer (if needed) shall be worked into the soil with a disk harrow, springtooth harrow, or other suitable field equipment to a depth of four inches.
- E. After the lime and fertilizer have been applied and just prior to the laying of the sod, the soil in the area to be sodded shall be loosened to a depth of one inch. The soil shall be thoroughly dampened immediately after the sod is laid if it is not already in a moist condition.

- F. No sod shall be placed when the temperature is below 32°F. No frozen sod shall be placed nor shall any sod be placed on frozen soil.
- G. When sod is placed during the periods of June 15 to September 1 or October 15 to March 1, it shall be covered immediately with a uniform layer of straw mulch approximately one-half inch thick or so the green sod is barely visible through the mulch.
- H. Sod shall be carefully placed and pressed together so it will be continuous without any voids between the pieces. Joints between the ends of strips shall be staggered.
- I. On gutter and channel sodding, the sod should be carefully placed on rows or strips at right angles to the centerline of the channel (*i.e.*, at right angles to the direction of flow). The edge of the sod at the outer edges of all gutters shall be sufficiently deep so that surface water will flow over onto the top of the sod.
- J. On steep graded channels, each strip of sod shall be staked with at least two stakes not more than 18 inches apart.
- K. On slopes 3H:1V or steeper, or where drainage into a sod gutter or channel is one-half acre or larger, the sod shall be rolled or tamped and then chicken wire, jute, or other netting shall be pegged over the sod for protection in the critical areas. The netting and sod shall be staked with at least two stakes not more than 18 inches apart. The netting shall be stapled on the side of each stake within two inches of the top of the stake. The stake should then be driven flush with the top of the sod.
- L. When stakes are required, the stakes shall be wood and shall be approximately ½ inch by ¾ inch by 12 inches. They shall be driven flush with the top of the sod with the flat side against the slope and on an angle toward the slope.
- M. Sod shall be tamped or rolled after placing and then watered. Watering shall consist of a thorough soaking of the sod and of the sod bed to a depth of at least 4 inches. The sod should be maintained in a moist condition by watering for a period of 30 days.
- N. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week to maintain moist soil to a depth of 4 inches. Watering shall be done during the heat of the day to prevent wilting. After the first week, sod shall be watered as necessary to maintain adequate moisture content.
- O. The first mowing of sod shall not be attempted until the sod is firmly rooted. No more than one-third of the grass leaf shall be removed by the initial and subsequent cuttings. Grass height shall be maintained between 2 inches and 3 inches.
- P. Where sod does not establish properly, the sod should be replaced immediately. Areas requiring resodding should be prepared in the same manner as the original installation.

3.06 ROAD/PARKING STABILIZATION

- A. The roadbed or parking surface shall be cleared of all vegetation, roots, and other objectionable material.
- B. All roadside ditches, cuts, fills, and disturbed areas adjacent to parking areas and roads shall be stabilized with appropriate temporary or permanent vegetation according to the applicable sections of this Specification.
- C. Geotextile filter fabric shall be applied beneath the stone for additional stability in accordance with fabric manufacturer's specifications.

1. uniformly spread to a depth not exceeding 3 feet and graded to a continuous slope away from the pond.
 2. uniformly placed or shaped reasonably well with side slopes assuming the natural angle of repose for the excavated material behind a berm width not less than 12 feet.
- M. Sediment shall be removed from the pond when the capacity is reduced to one third of the design volume. Contractor shall follow the methods for disposing of sediment removed from the pond as shown in the Construction Drawings.

3.18 SILT FENCE

- A. This Article provides construction specifications for silt fences using synthetic fabric. See the Construction Drawings for additional detail.
- B. Posts shall be spaced a maximum of 6 feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When necessary because of rapid runoff, post spacing shall not exceed 6 feet.
- C. A trench shall be excavated at least 6 inches wide and 6 inches deep along the line of posts and upslope from the barrier.
- D. Where used, the wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of 2 inches and shall not extend more than 36 inches above the original ground surface.
- E. The filter fabric shall be stapled or wired to the fence, and 12 inches of the fabric shall be extended into the trench. The fabric shall not extend more than 30 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
- F. At joints, filter fabric shall be lapped with terminating posts with a minimum overlap of 3 feet.
- G. The trench shall be backfilled and soil compacted over the filter fabric.
- H. Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.
- I. Silt fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Knocked down fences shall be repaired at the end of each day.
- J. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and if the barrier is still necessary, the fabric shall be replaced promptly.
- K. Sediment deposits shall be removed after each storm event or when deposits reach approximately one-third the height of the barrier.
- L. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded.
- M. Silt fences shall be replaced every 6 months.
- N. Silt fence shall terminate in a "J" hook to prevent bypassing at the end of a row.

3.19 STORM DRAIN INLET PROTECTION

- A. All storm drains receiving sediment-laden flows from disturbed areas shall be protected. Approved inlet protection methods include net or sand bags filled 2/3 with rock, geotextile filtration products, and Contractor-fabricated structures.
- B. For a silt fence drop inlet protection structure, the following specifications apply:
1. For stakes, Contractor shall use 2 x 4-inch wood (preferred) or equivalent metal with a minimum length of 3 feet.
 2. Stakes shall be evenly spaced around the perimeter of the inlet a maximum of 3 feet apart and securely driven into the ground, approximately 18 inches deep.
 3. To provide needed stability to the installation, Contractor shall frame with 2 x 4-inch wood strips around the crest of the overflow area at a maximum of 1.5 feet above the drop inlet crest and shall brace diagonally.
 4. Contractor shall place the bottom 12 inches of the fabric in a trench and backfill the trench with at least 4 inches of crushed stone or 12 inches of compacted soil.
 5. Contractor shall fasten fabric securely to the stakes and frame. Joints shall be overlapped to the next stake.
- C. For sod drop inlet protection, sod shall be placed to form a turf mat covering the soil for a distance of 4 feet from each side of the inlet structure. Soil preparation and sod placement shall be in accordance with the section entitled Sod.
- D. For gravel curb inlet protection, the following specifications apply:
1. Wire mesh with ½-inch openings shall be placed over the curb inlet opening so that at least 12 inches of wire extends across the concrete gutter from the inlet opening.
 2. KYTC No. 2 Coarse Aggregate shall be piled against the wire so as to anchor it against the gutter and inlet cover and to cover the inlet opening completely.
 3. This type of device shall never be used where overflow may endanger an exposed fill slope. Consideration shall also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, and adjacent property.
- E. For block and gravel curb inlet protection, the following specifications apply:
1. Two concrete blocks shall be placed on their sides abutting the curb at either side of the inlet opening to act as spacer blocks.
 2. A 2-inch by 4-inch stud shall be cut and placed through the outer holes of each spacer block to help keep the front blocks in place.
 3. Concrete blocks shall be placed on their sides across the front of the inlet and abutting the spacer blocks.
 4. Wire mesh shall be placed over the outside of the concrete blocks to prevent stone from being washed through the holes in the blocks. Wire with ½-inch openings shall be used.
 5. KYTC No. 2 Coarse Aggregate shall be piled against the wire to the top of the barrier.

- F. For stone-filled corrugated pipe curb inlet protection, the following specifications apply:
 - 1. Two concrete "L" blocks shall be placed on their sides, with one leg fitting into the mouth of the curb opening.
 - 2. A 6-inch corrugated pipe shall be filled with stone and covered with a filter sock.
 - 3. The stone-filled pipe will be placed in front of the two concrete "L" blocks, and extend a minimum of the width of the curb inlet opening on either side. The total length of the stone filled pipe shall be three times the width of the curb inlet opening.
- G. The inlet protection structure shall be inspected after each rain, and repairs made as needed.
- H. Sediment shall be removed and the device restored to its original dimensions when sediment has accumulated to one-third the design depth of the filter. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- I. If a stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stone shall be pulled away from the blocks, cleaned, and replaced.
- J. Structures shall be removed after the area draining to the inlet protection structure has been properly stabilized.

3.20 FILTER STRIP

- A. When planting filter strips, Contractor shall prepare seedbed, incorporate fertilizer based on a soil test, and apply mulch consistent with the seeding sections of this Specification. Fertilizer shall not be applied within 50 feet of a stream or other waterbody. Filter strips using areas of existing vegetation shall be over seeded, as necessary, with the specified mixtures to obtain an equivalent density of vegetation. The over seeding shall be accomplished prior to any land disturbing activities.
- B. Filter strips shall be inspected regularly to ensure that a healthy vegetative growth is maintained. Any bare spots or spots where sediment deposition could lead to the destruction of vegetation shall be repaired.
- C. Filter strips shall be fertilized once each year in the fall.
- D. Irrigation shall be used as necessary to maintain the growth of the vegetation in the filter strip.
- E. Sediment shall be removed when it becomes visible in the filter.
- F. Construction traffic shall not be driven on or over filter strips.

3.21 STREAM CROSSING

- A. Clearing and excavation of the streambed and banks shall be kept to a minimum.
- B. The structure shall be removed as soon as it is no longer necessary for project construction.
- C. Upon removal of the structure, the stream shall immediately be reshaped to its original cross section and properly stabilized.
- D. The approaches to the structure shall consist of stone pads with a minimum thickness of 6 inches, a minimum width equal to the width of the structure, and a minimum approach length of 25 feet on each side.

- E. The structure shall be inspected after every rainfall and at least once a week and all damages repaired immediately.

3.22 PUMP-AROUND FLOW DIVERSION

- A. Operations shall be scheduled such that diversion installation, in-stream excavation, in-stream construction, stream restoration, and diversion removal are completed during low-flow conditions and as quickly as possible. Contractor shall not construct in a stream when rainfall is expected during the time excavation will be occurring in the stream.
- B. Check dams shall be installed across the stream during low flow conditions.
- C. Stream flow shall be pumped around the check dams. Outlet protection shall be installed as required at the discharge point.
- D. Contractor shall dewater the work area and pump into a sediment trapping device.
- E. Contractor shall complete construction activities across the stream.
- F. Contractor shall restore the streambed and banks.
- G. Contractor shall remove sandbags and shut down pumping operation. (Salvage sandbags for future use if multiple stream crossings are required on the project.) Contractor shall remove all sandbags from the stream, including damaged and empty bags.
- H. Pumps shall be manned around-the-clock when the pump-around diversion is in the stream.
- I. This control provides short-term diversion of stream flow (typically 1 day to 3 days). Additional sandbags or pumps may be required to maintain 1-foot freeboard on the sandbag checks if flow conditions change.
- J. Contractor shall add sandbags as required to seal leaks in check dams.

3.23 CONSTRUCTION DEWATERING

- A. All dewatering discharges shall pass through a sediment removal device. Contractor shall follow the specifications for sediment traps and basins. The manufacturer's recommendations shall be followed for commercial products.
- B. The dewatering structure shall be inspected frequently to ensure it is functioning properly and not overtopping. Accumulated sediment shall be spread out on site and stabilized or disposed of offsite.

3.24 KPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

- A. The Contractor is responsible for electronically filing the appropriate state Notice of Intent (NOI-SWCA) letter at least seven (7) days prior to start of construction activity. The Notice of Intent (NOI) is a Kentucky Pollution Discharge Elimination System (KPDES) permit application as provided by the Kentucky Revised Statutes, Chapter 224. This application is required to be submitted for construction projects that disturb one or more acres of land.
- B. The NOI requires the inclusion of the descriptions of (but is not limited to) the following items:
 - 1. Names and designated uses of any receiving waters

2. Anticipated number and locations of discharge points
 3. Identification of planned construction in or along a waterbody
- C. A topographic map showing project boundaries, areas to be disturbed, locations of anticipated discharge points and receiving waters is also required to be submitted with the NOI.
- D. If the construction site is near a designated "High Quality/Impaired Waters" or a "Cold Water Aquatic Habitat Waters, Exceptional Waters, Outstanding National/State Resource Waters," additional items and/or individual permits will be required.
- E. The NOI form requires an SIC code. The link to the SIC codes is <http://www.osha.gov/pls/imis/sicsearch.html>. The following are the typical construction SIC codes utilized:
- 1542 – Building Construction, nonresidential, except industrial and warehouses
 - 1623 – Water Main Construction, Sewer Construction
 - 1629 – Water and Wastewater Treatment Plant Construction
 - 1711 – Water Pump Installation
 - 1781 – Drilling Water Wells
- F. The Contractor is responsible for implementing the approved Stormwater Pollution Prevention Plan (SWPPP) prior to commencement of site disturbance. The SWPPP shall include erosion prevention measures and sediment and pollutant control measures which are installed and maintained to minimize discharges of sediments and other pollutants from a 2-year, 24-hour storm event. The SWPPP shall be kept at the site and available for review by LFUCG and state officials.
- G. The Contractor is responsible for the description of procedures to maintain erosion and sediment control measures during the period of construction.
- H. The Contractor is responsible for identifying each Contractor and Subcontractor who will install each SWPPP erosion and sediment control measure.
- I. Each Contractor and Subcontractor shall sign a statement certifying the awareness of the requirements of the SWPPP-related documents. Certification is attached at the end of this section.
- J. The Contractor shall not start land disturbing activities until written permit coverage is obtained from the Kentucky Division of Water.
- K. The inspection by qualified personnel, provided by the Contractor, of the site as follows:
1. at least once every seven (7) calendar days, and
 2. within 24 hours after any storm event of 0.5 inch or greater
- L. The Contractor is responsible for completing and maintaining the required Self-Inspection Forms. A sample is included in this specification Section.
- M. Amendments to the approved SWPPP shall be made and implemented as necessary through the course of the construction project if inspections or investigations by the Contractor's inspector, site staff, or by local, state, or federal officials determine that the existing sediment control measures, erosion control measures, or other site management practices are ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the construction site. All plan amendments shall be noted on the copy of the SWPPP maintained at the project site. Plan amendments that involve engineering design shall be prepared by an engineer licensed in Kentucky.

- N. The Contractor shall submit the Notice of Termination (NOT) form to the Kentucky Division of Water, the LFUCG Division of Water Quality, and the LFUCG Division of Engineering when final stabilization has been achieved on all portions of the site and the erosion/sediment controls have been removed.
- O. All subcontractors shall be required to comply with the requirements of the state permit and the Stormwater Pollution Prevention Plan (SWPPP).
- P. Where to submit:
1. Complete KPDES FORM NOI-SW at the following website:
<https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7>
 2. Do not initiate work until receiving approval from the Kentucky Division of Water.
 3. A complete copy of the NOI submittal shall also be provided to the following for approval/coverage verification:

Division of Water Quality
125 Lisle Industrial Avenue, Suite 180
Lexington, KY 40511

Division of Engineering
Lexington-Fayette Urban County Government
101 E. Vine St.
4th Floor
Lexington, KY 40507

3.25 LFUCG Land Disturbance Permit

- A. The Contractor shall obtain a Land Disturbance Permit from the LFUCG Division of Engineering, after the LFUCG Division of Water Quality inspects the installation of the best management practices as required by the Stormwater Pollution Prevention Plan (SWPPP). The site grading plan shall show the original and finish grade contours. The grading plan shall be in conformance with the SWPPP and shall clearly show the initial phase of best management practices to be installed.
- B. The Land Disturbance Permit checklist appears on the following page. It can be obtained from:
- Division of Engineering
Lexington-Fayette Urban County Government
101 E. Vine St.
4th Floor
Lexington, KY 40507
(859) 258-3410
Attn: Land Disturbance Permit Section
<https://www.lexingtonky.gov/new-development>
- C. All excess earthen/rock materials hauled off the site to a location in Fayette County shall be hauled to a site permitted by the Kentucky Division of Water and the LFUCG. The haul site shall be permitted in accordance with these specifications.

LFUCG Land Disturbance Permit Application & Erosion and Sediment Control Plan Checklist

v23Feb2018

Permittee (Owner or Contractor):	Date:
Contact Person:	Contact Phone:
Site Address:	Zone:
Contractor Name:	Reg #:
Mailing Address:	Contractor Phone:
	Email:

Permitting Information and ESC Plan Narrative	Yes	No	N/A	Page#	Notes
KY DOW Construction NOI / KYR10 Permit					Required for disturbance ≥ 1 acre
US ACE Section 404 Permit					Required for stream crossings, wetland fills
KY DOW Stream Construction Permit / WQ Certif.					Required for stream crossings / encroachment
FEMA LOMR or CLOMR					If applicable
Project description and purpose					Brief summary
Land cover, soils, percent impervious area					Pre and post construction
Land cover / land use of adjacent property					Can designate on plan sheets
Work schedule with start/end dates					Sequencing, clearing, grading, revegetation
Phasing plan for large projects					25 acre limit on total disturbed area
BMP installation schedule					Can be included on plan sheets (see below)
Inspection and BMP maintenance schedule					Every 7 days, or every 14 days and after ½" rain
Material storage, waste & litter pollution prevention					Covered, away from drainage system, etc.
Fueling / vehicle maintenance pollution prevention					Conducted away from drainage system, etc.
Spill prevention, control, and countermeasures					If reportable quantities present at the site
Dust control plan					Consider if neighbors are present
Stabilized site exit inspection plan					For keeping offsite pavement clear of soil/debris
Stabilization plan and schedule for site areas					Seed/mulch/etc. within 14 days of inactivity
ESC Plan Site Map and Drawing Detail (See LFUCG Stormwater Manual for BMP Design and Installation Information)					
Plans stamped by a licensed professional					Required for engineered plan components
Location of the project; property lines					Include small locational map; street address
Limits of construction, disturbed area location/size					Flag off "no disturbance" areas
Topography and drainage patterns (pre and post)					1" = 50 ft; 2 ft contours
Buildings, utilities, paved areas, ditches, culverts					Show stormwater inlets within 100 ft of site
Retention ponds, detention basins, sediment traps					Stabilize immediately after construction
Access and haul roads					Consider dust control where neighbors present
Stabilized exit (50 ft #2 rock pad, shaker rack, etc.)					Must drain to a sediment control BMP
Silt fence or etc. at downslope perimeters					Super silt fence along critical areas
Diversion ditches/berms above disturbed areas					Stabilize immediately after construction
Protection for post-construction BMPs					Keep sediment out of post-construction BMPs
Slope stabilization (seed with mulch/blanket/mat)					See Figure 11-1 in Stormwater Manual
Inlet protection measures					Specify type(s) and location(s)
Outlet erosion protection measures					Specify type(s) and location(s)
Ditch stabilization (sod, or seed with blanket/mat)					Stabilize immediately after construction
Sediment basins (> 5 ac) and traps (< 5 ac)					Stabilize immediately after construction
Dewatering sites and methods					Must use sediment controls
50 ft natural vegetated buffer for all critical areas					Applies to streams, wetlands, sinkholes
Stream crossings					Crossing type, detail; USACE 404 permit req'd
Stockpile areas, equipment storage/fueling areas					Keep away from drainage system if possible
Waste and concrete wash water storage/disposal					Show initial area; can be moved as needed
LFUCG Use Only: Review Date: _____ Status – In Compliance: Yes No Additional Info Needed: Yes No					
Reviewed By: _____				Department: DOE DWQ DES	
Comments / Missing Items: _____					

Kentucky Best Management Practices Plan • Construction Site Inspection Report

Company:	Site:	County:
Site Operator:		Date:
Receiving Water:	Total Site Area (acres):	# Disturbed Acres:
Inspector Name:	Inspector Qualifications:	
Inspection Type: Weekly or ½ Inch Rain	Days Since Last Rainfall ____	# Inches of Last Rainfall: _____

Field Inspection Observations

BMP Category	Compliance			Field Indicators for Compliance
	Yes	No	N/A	
Project Operations				Notice of Intent (KPDES permit) and other local/state permits on file BMP Plan on site and available for review Project timing/schedule and activities following BMP Plan Weekly inspection and rain-event reports on BMPs available for review Diversions, silt checks/traps/basins, and silt fences/barriers installed prior to clearing Grading and clearing conducted in phases to minimize exposed soil areas No vegetation removal or operations in stream or sinkhole buffer area (25-50 ft min) Rock pad in place on all construction site exits leading to paved roads No sediment, mud, or rock on paved public roads in project area Dust control if needed when working in residential areas during dry conditions
Drainage Management				Upland runoff diverted around bare soil areas with vegetated/lined ditches/berms Drainage channels exiting the site are lined with grass/blanket/rock and stabilized Discharges from dewatering operations cleaned in silt fence enclosure or other filter No muddy runoff leaving site after rains up to 1½ inches
Erosion Protection				Exposed soil seeded/mulched after 2 weeks if no work is planned for the next 7 days Soils on steep slopes seeded/mulched/blanketed as needed to prevent rutting
Sediment Barriers				Silt fence, rock filter, or other sediment barrier below all bare soil areas on slopes Barrier installed across slope on the contour, trenched in, posts on downhill side Multiple sediment barriers at least 125 ft apart on unseeded slopes steeper than 4:1 J-hook interceptors along silt fence where heavy muddy flows run along fencing No visible undercutting or bypassing or blowout of sediment barrier Accumulated sediment is less than halfway to the top of sediment barrier
Slope Protection				Slopes tracked, disked, or conditioned after final grade is established Slopes seeded, mulched, or blanketed within 21 days, no unmanaged rills or gulying Heavy downslope flows controlled by lined downdrain channels or slope drain pipes No muddy runoff from slopes into streams, rivers, lakes, or wetlands
Inlet Protection				Inlet dam/device or filtration unit placed at all inlets receiving muddy flows No visible undercutting, bypassing, or blowout of inlet protection dam or device Accumulated sediment is less than halfway to the top of the inlet protection dam/device
Outlet Protection				High flow discharges have rock or other flow dissipaters of adequate sizing at outlet Culvert outlets show no visible signs of erosion/scour, bank failure, or collapse
Ditch and Channel Stabilization				No unmanaged channel bank erosion or bottom scouring visible within or below site Ditches with slopes more than 3% have check dams spaced as needed, if not grassed Ditch check dams tied in to banks, with center 4" lower than sides, and no bypassing Ditches with slopes of up to 5% are thickly seeded with grass (minimum requirement) Ditches 5% to 15% are lined with thick grass and erosion control blankets as needed Ditches 15% to 33% are lined with thick grass and matting or other approved product Ditches exceeding 33% are paved or lined with rock or other approved product

Contractor and Subcontractor Certifications

SWPPP Files, Updates, and Amendments

This SWPPP Plan and related documents (e.g., NOI, inspection reports, US ACE permits, etc.) will be kept on file at the construction site by _____ (name and title). The SWPPP will be updated by the Owner and/or Site Manager to reflect any and all significant changes in site conditions, selection of BMPs, the presence of any unlisted potential pollutants on site, or changes in the Site Manager, contractor, subcontractors, or other key information. Updates and amendments will be made in writing within 7 days and will be appended to the original BMP Plan and available for review.

Stormwater Pollution Prevention Plan Certification

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

Signed: _____

Date: _____

Title: _____

I certify under penalty of law that I understand the terms and conditions of the general KPDES permit that authorizes the storm water discharges associated with the construction site activity identified as part of this certification.

Subcontractor Certification

The subcontractors below certify under penalty of law that they understand the terms and conditions of the general KPDES permit that authorizes the storm water discharges associated with the construction site activity identified as part of this certification.

Signed: _____

Date: _____

Title: _____

Signed: _____

Date: _____

Title: _____

Signed: _____

Date: _____

Title: _____

END OF SECTION

Section 02371
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

PART 1 - GENERAL

- A. The Contract Documents include a SWPPP that has been approved by LFUCG Division of Water Quality. This SWPPP shall be used for establishing quantities and a lump sum price for providing the Erosion and Sediment Control Measures.
- B. The Contractor may use this SWPPP to obtain the required permits, i.e., Land Disturbance Permit. If Contractor chooses to use this SWPPP, the Contractor takes sole responsibility for the content of the SWPPP and the implementation of the SWPPP during construction.
- C. Contractor may also choose to prepare its own SWPPP and submit to LFUCG Division of Water Quality for approval. No additional payment will be allowed for the Erosion and Sediment Control and conformance with SWPPP pay item.

**STORMWATER POLLUTION
PREVENTION PLAN**

For

CONSTRUCTION ACTIVITIES

For

HARTLAND 3 PUMP STATION REPLACEMENT

Prepared for:

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
DIVISION OF WATER QUALITY
125 LISLE INDUSTRIAL AVENUE
SUITE 180
LEXINGTON, KY 405011**

Prepared by:

**BELL Engineering
2480 Fortune Drive
Suite 350
Lexington, KY 40509
Phone: 859-278-5412
Fax: 859-278-2911**

April 2021

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B. Site Map

C. Approved Erosion and Sedimentation Control Plan and Details

D. Signed Commonwealth of Kentucky KPDES Notice of Intent (NOI) and Correspondence with USACE Regarding 404 Permit

E. Confirmation of NOI Delivery

F. Copy of Letter (or other documentation) from the NOI Processing Center Authorizing Permit Coverage

PROJECT NAME AND LOCATION

Hartland 3 Pump Station Replacement
4910 Hartland Parkway
Lexington, Kentucky 40515

A general location map (i.e., USGS quadrangle map) with enough detail to identify the location of the construction site, direction of storm water flow, the receiving waters of the site, location of off-site material, waste, borrow, and equipment storage areas, surface waters and wetlands, storm water discharge locations and other areas as required by the Commonwealth of Kentucky is included in the Design Drawings.

OPERATOR'S NAME AND ADDRESS

Lexington-Fayette Urban County Government
Division of Water Quality
125 Lisle Industrial
Suite 180
Lexington, Kentucky 40511
(859) 425-2400

ENGINEER'S NAME AND ADDRESS

Bell Engineering
David S. Schrader, PE
2480 Fortune Drive, Suite 350
Lexington, Kentucky 40509
(859) 278-5412
dschrader@hkbell.com

CONTRACTOR'S NAME AND ADDRESS

Name: _____
Contact: _____
Address: _____

Phone: _____
Email: _____

PROJECT START AND END DATES

Start: _____
End: _____

ADDITIONAL INFORMATION

The Contractor may use this SWPPP to obtain the required permits, i.e. Land Disturbance Permit. If Contractor chooses to use this SWPPP, the Contractor takes sole responsibility for the content of the SWPPP and the implementation of the SWPPP during construction.

Contractor may also choose to prepare its own SWPPP and submit to LFUCG for approval. No additional payment will be allowed for the Erosion and Sediment Control and conformance with SWPPP pay item.

PROJECT DESCRIPTION

This project will consist of construction activities relating to the demolition of the existing Hartland 3 PS and replacing it with a new station within the existing easement. The new station will include dual wet wells, a single valve vault and new pumps and control panel. Existing pavement will be removed and replaced with new pavement.

SITE AREA AND DISTURBED ACREAGE

The project area consists of approximately 10,200 square feet (0.23 acres).

SEQUENCE OF MAJOR ACTIVITIES

The Contractor will be responsible for implementing the following erosion control and storm water management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows (*refer to the Erosion Control Details on the Erosion Prevention and Sediment Control Plan sheet for details*):

Erosion Control /Construction Phasing

- A. Attend a pre-construction meeting with Owner and Engineer prior to any street disturbance. Contractor shall sign Form A within the SWPPP prior to any street disturbance.
- B. Place stream protection (as needed) and silt fencing at designated areas shown on the Construction Drawings and where deemed necessary by the resident project representative prior to construction commencing.
- C. Remove full depth pavement in designated area. Spoil material to be loaded into trucks and removed from site.
- D. Begin removal of existing structures and pipe. After, begin trench excavation for pipe installation and structure installation. As the trench is excavated, spoil materials to be loaded into trucks and removed from site.
- E. Once pipe and structures are installed, trench shall be backfilled completely with stone and capped per LFUCG Standard Drawings.
- F. File Notice of Termination for KPDES KYR10 with the Kentucky Division of Water once stabilization is complete.

NAME OF RECEIVING WATERS

The no name tributary to the east of the project dumps into East Hickman Creek. The areas to be disturbed enter the tributary via sheet flow.

POTENTIAL SOURCES OF POLLUTANTS

Potential sources of pollutants include sediment from structure and pipe installation, oil/fuel/grease from equipment, and trash/debris. This project will include bypass pumping of sanitary sewer, lending to the potential of contamination.

EROSION AND SEDIMENT CONTROLS

All Erosion and Sediment Control details shall be referenced from Section 02370 – Erosion and Sediment Control of the Technical Specifications and includes the SWPPP technical requirements and specifications.

Stabilization Practices (Permanent)

- A. Land clearing activities shall be done only in areas where removal, demolition, replacement, or installation will be performed and shall be staged to occur as the project progresses.
- B. Restoration of all areas to the prior conditions.
- C. Permanent seeding and mulching of exposed areas as specified on the Construction Drawings.
- D. Vegetation preservation outside the permanent easement.

Stabilization Practices (Temporary) None

Structural Practices (Permanent)

No permanent structural practices will be installed for this project.

Structural Practices (Temporary)

Structural practices for this site include:

Silt Fence

SITE RUNOFF MANAGEMENT

Sediment will be prevented from leaving the site to the maximum extent practicable. Storm water will be treated using the above-described best management practices. Inlet protection shall be installed in accordance with the Construction Drawings. No detention shall be provided due to the nature of the construction.

OTHER CONTROLS

Off-Site Vehicle Tracking

The streets adjacent to the project corridor will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from trenching and sediment removal activities. Dump trucks hauling material from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

Excavation Spoil Materials

Excavation spoil materials are generated during the excavation of the trench. Sediment removal material will be relocated to the designated stockpile area to be graded and permanently reseeded. Any material deemed unsuitable shall be loaded into dump trucks and removed from the site. A

copy of the receiving site's permit must be included in this SWPPP for spoil materials transported off site.

COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The Contractor will obtain copies of any and all local and state regulations which are applicable to storm water management, erosion control, and pollution minimization at this job site and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the KPDES Construction General Permit, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance. The selected contractor will be required to submit the Notice of Intent (NOI) to the Kentucky Division of Water (KDOW) prior to construction. The Contractor shall meet all conditions required by the MS4 Operator.

INSPECTION AND MAINTENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

1. All control measures will be inspected at least every seven (7) calendar days and within 24 hours following a rainfall event of 0.5 inches or greater as specified in this document.
2. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report.
3. Built up sediment will be removed from the inlet protection when it reaches one-third the height of the protection. Inspections will be made of the inlet protection measures to ensure that they are in good working order.
4. A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.
5. The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance, and repair activities, and filling out inspection reports.
6. Personnel selected for the inspection and maintenance responsibilities will receive training from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept onsite with the SWPPP.
7. Disturbed areas will be inspected for evidence of or potential for pollutants entering stormwater systems.
8. Report to Kentucky Department of Environmental Protection within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24-hour reporting: a) any unanticipated bypass which exceeds any effluent limitation in the permit, b) any upset which exceeds any effluent limitation in the permit, and c) a violation of a maximum daily discharge limitation for any of the pollutants listed by the EPA in the permit to be reported within 24 hours. The written submission must contain a description of the noncompliance and its cause; the period of the noncompliance, including exact dates and times, and if the noncompliance has

not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

9. Releases of hazardous substances or oil in excess of reportable quantities (as established under 40 CFR 110, 40 CFR 117, or 40 CFR 302) must be reported. Form G-1 provides further details on the notification and reporting process.

INSPECTION AND MAINTENANCE REPORT FORMS

Once installation of any required or optional erosion control device or measure has been implemented, at least once every seven (7) calendar days or within 24 hours following a rainfall event of 0.5 inches or greater as specified in KYR10. Inspections for this project shall occur at least once every seven (7) calendar days. If the specified schedule for inspections is changed, a modification report shall be filed. The Modification Reports can be found in this SWPPP. Inspections of each measure shall be performed by a Qualified Inspector. Inspectors shall have training in stormwater construction management such as KEPSC, CEPSC, CPSWQ, TNEPSC, CESSWI, or other similar training. Inspectors to inventory and report the condition of each measure and ensure sediment control measures are in good working order, shall use the forms found in this SWPPP.

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the stabilization of the site.

CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the Kentucky Department of Environmental Protection General Permit for construction Activity, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The contractor shall ensure that all non-storm water discharge is filtered and/or that sediment and silt from the construction is removed before water enters the receiving water body. The control measures that have been outlined previously in this SWPPP will be strictly enforced to ensure that no contamination of these non-storm water discharges takes place. The following non-storm water discharges are allowed by the Kentucky Department of Environmental Protection and may occur at the job site:

- Waters used for vehicle washing where detergents are not used
- Water used for dust control
- Potable water including uncontaminated waterline flushing
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
- Landscape irrigation
- Clean, non-turbid water-well discharges of groundwater
- Construction dewatering provided the requirements of the KPDES permit are met

MATERIALS MANAGEMENT PLAN

MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

Concrete/Additives/Wastes
Construction wastes
Petroleum based products

MATERIAL MANAGEMENT PRACTICES

The following are in the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The job site superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

1. An effort will be made to store only enough products required to do the job
2. All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
3. Products will be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances will not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all of a product will be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal will be followed.
7. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

1. Products will be kept in original containers with the original labels in legible condition.
2. Original labels and material safety data sheets (MSDS's) will be procured and used for each material.
3. If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

C. Hazardous Waste

All hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. The job site superintendent, who will also be responsible for seeing that these practices are followed, will instruct site personnel in these practices.

D. Product Specific Practices

The following product specific practices will be followed on the job site.

1. Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. **Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank.** Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tank(s) and/or equipment storage areas must be identified on the Construction Drawings, Sheets SA-1 through SA-15, by the contractor once the location(s) has been determined.

2. Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

E. Sanitary Wastes

All sanitary waste will be collected from the portable units a minimum of three times per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges.

F. Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) that may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the materials Management Plan and in accordance with applicable state and federal regulations.

Spill Prevention and Response Procedures

The Contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

A. In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
2. The minimum practical quantity of all such materials will be kept on the job site.
3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.
4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. In the event of a spill, the following procedures should be followed:

1. All spills will be cleaned up immediately after discovery.
2. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.
3. The project manager and the Engineer of Record will be notified immediately.

Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 110, 40 CFR 117, and 40 CFR 302) must be immediately reported to the EPA National Response Center, telephone 1-800-424-8802 and the Kentucky Environmental Response team at 1-800-928-2380.

4. The job site superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

SIGNED NOI TO BE PLACED HERE ONCE
COMPLETED BY THE CONTRACTOR

NOI DELIVERY CONFIRMATION TO BE PLACED HERE
ONCE COMPLETED BY THE CONTRACTOR

NOI PERMIT COVERAGE AUTHORIZATION
TO BE PLACED HERE ONCE
RECEIVED BY THE CONTRACTOR

Construction Site Inspection Report

Company:	Site:	County:
Site Operator:		Inspection Date:
Receiving Water:	Total Site Area (acres):	# Disturbed Acres:
Inspector Name:	Inspector Qualifications:	
Inspection Type: Weekly or ½ Inch Rain	Days Since Last Rainfall _____	# Inches of Last Rainfall: _____

Field Inspection Observations

BMP Category	Compliance			Field Indicators for Compliance
	Poor	Fair	Good	
Project Operations				Notice of Intent (KPDES permit) and other local/state permits on file ESC/SWPPP on site and available for review; project activities compliant with plan Weekly inspection and rain-event reports on BMPs available for review Diversions, silt checks/traps/basins, and silt fences/barriers installed prior to clearing Grading and clearing conducted in phases to minimize exposed soil areas No vegetation removal or operations in stream or sinkhole buffer area (25 ft min) Rock pad with underliner in place on all construction site exits leading to paved roads No sediment, mud, or rock on paved public roads in project area Dust control if needed when working in residential areas during dry conditions
Drainage Management				Upland runoff diverted around bare soil areas with vegetated/lined ditches/berms Drainage channels exiting the site are lined with grass/blanket/rock and stabilized Discharges from dewatering operations cleaned in silt fence enclosure or other filter No muddy runoff leaving site after rains up to 1½ inches
Erosion Protection				Exposed soil seeded/mulched after 2 weeks if no work is planned for the next 7 days Soils on steep slopes seeded/mulched/blanketed as needed to prevent rutting
Sediment Barriers				Silt fence, rock filter, or other sediment barrier below all bare soil areas on slopes Barrier installed across slope on the contour, trenched in, posts on downhill side Multiple sediment barriers at least 125 ft apart on unseeded slopes steeper than 4:1 J-hook interceptors along silt fence where heavy muddy flows run along fencing No visible undercutting or bypassing or blowout of sediment barrier Accumulated sediment is less than halfway to the top of sediment barrier
Slope Protection				Slopes tracked, disked, or conditioned after final grade is established Slopes seeded, mulched, or blanketed within 14 days, no unmanaged rills or gullyng Heavy downslope flows controlled by lined downdrain channels or slope drain pipes No muddy runoff from slopes into streams, rivers, lakes, or wetlands
Inlet Protection				Inlet dam/device or filtration unit placed at all inlets receiving muddy flows No visible undercutting, bypassing, or blowout of inlet protection dam or device Accumulated sediment is less than halfway to the top of the inlet protection dam/device
Outlet Protection				High flow discharges have rock or other flow dissipaters of adequate sizing at outlet Culvert outlets show no visible signs of erosion/scour, bank failure, or collapse
Ditch and Channel Stabilization				No unmanaged channel bank erosion or bottom scouring visible within or below site Ditches with slopes more than 3% have check dams spaced as needed, if not grassed Ditch check dams tied in to banks, with center 4" lower than sides, and no bypassing Ditches with slopes of up to 5% are thickly seeded with grass (minimum requirement) Ditches 5% to 15% are lined with thick grass and erosion control blankets as needed Ditches 15% to 33% are lined with thick grass and matting or other approved product Ditches exceeding 33% are paved or lined with rock or other approved product

SECTION 02374 – ESC PERMITTING, INSPECTION, AND PERMITTING PROCEDURES

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**Permitting, Inspection, and Enforcement Procedures for
Erosion and Sediment Control on
Division of Water Quality Capital Construction Projects**

Lexington-Fayette
Urban County Government



May 2021

Permitting, Inspection, and Enforcement Procedures
for Erosion and Sediment Control on Division of Water Quality
Capital Construction Projects

Date of Original Publication:

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Date of Current Publication:

May 2021



This publication was developed by the Tetra Tech / Third Rock Consultants Stormwater Program Management Team under contract to LFUCG for purposes of implementing the stormwater provisions of its Clean Water Act Consent Decree and/or its Kentucky Division of Water (KDOW) Municipal Separate Storm Sewer System (MS4) Permit.

Permitting, Inspection, and Enforcement Procedures for Erosion, Sediment, and Stormwater Control on Division of Water Quality Capital Construction Projects

DWQ Remedial Measures Plan Projects

DWQ RMP Program Manager: Bob Peterson

DWQ Program Management Consultant: Hazen and Sawyer

Construction Contract Administrators (CA): DWQ Consultants

Resident Project Representative (RPR): DWQ Consultants

ESC Plan Reviewer: DWQ Stormwater Section – Amad Al-Humadi

Land Disturbance Permit (LDP) Issuer: DOE New Development

Erosion and Sediment Control Compliance Inspector: RPR

Accela Data Entry: DWQ Compliance & Monitoring (C&M) – Kevin Lyne

Land Disturbance Permit (LDP) Permittee: Contractor

DWQ Wastewater Treatment Plant Capital Projects

DWQ Plant Engineer: Tiffany Rank

DWQ Project Manager: Varies

Construction Contract Administrators (CA): Rick Day, Rick Bowman

Resident Project Representatives (RPR): Varies

ESC Plan Reviewer: DWQ Stormwater Section – Amad Al-Humadi

Land Disturbance Permit (LDP) Issuer: DOE New Development

Erosion and Sediment Control Compliance Inspector: RPR

Accela Data Entry: DWQ Construction Management – Jody Scrivner

Land Disturbance Permit (LDP) Permittee: Contractor

DWQ Stormwater, Water Quality, and Capacity Assurance Capital Projects:

DWQ Section Managers: Mark Sanders, Jennifer Carey, or Chris Begley

DWQ Project Manager: Varies

Construction Contract Administrator (CA): Rick Day

Resident Project Representatives (RPR): Rick Day or Bill Warren

ESC Plan Reviewer: DWQ Stormwater Section – Rick Day or Amad Al-Humadi

Land Disturbance Permit (LDP) Issuer: DOE New Development

Erosion and Sediment Control Compliance Inspector: RPR

Accela Data Entry: DWQ Construction Management – Jody Scrivner

Land Disturbance Permit (LDP) Permittee: Contractor

Permitting Procedures

1. Contractor shall develop a Stormwater Pollution Prevention Plan / Erosion and Sediment Control Plan (SWPPP/ESC Plan). A SWPPP/ESC Plan template is on the LFUCG website at <https://www.lexingtonky.gov/new-development>. On some projects, the construction contract documents may contain a SWPPP/ESC Plan prepared by LFUCG's consultant for purposes of establishing bid quantities. If the Contractor chooses to use this SWPPP/ESC Plan to obtain the required permits, the Contractor takes sole responsibility for the content of the SWPPP/ESC Plan and the implementation of the plan during construction.
2. Contractor must submit an application for a Land Disturbance Permit to the LFUCG Division of Engineering before beginning project construction. The permit application is available at <https://aca3.accela.com/lexky/>.
3. For projects with a disturbed area of ≥ 1 acre, the contractor must submit a Notice of Intent (NOI) to the KY Division of Water (KDOW) and obtain KYR10 Permit coverage before beginning construction of any kind on the site. The NOI can be submitted electronically at <http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf>.
4. Contractor cannot start project work until they have obtained the LFUCG Land Disturbance Permit and KYR10 Permit coverage (if applicable – see above).
5. Amad Al-Humadi will review the SWPPP/ESC Plan, confirm that the Contractor has obtained KYR10 Permit coverage (if applicable – see above), and authorize the Contractor to install the initial BMPs.
6. Contractor then installs the initial BMPs, prior to project work (general excavation, grading, etc.).
7. Amad Al-Humadi inspects the installation of the initial BMPs and authorizes DOE New Development to issue the Land Disturbance Permit. Contractor then begins the project.

Contractor Responsibilities

Contractor shall:

1. Develop a SWPPP/ESC Plan, or review and agree to use the SWPPP/ESC Plan prepared by LFUCG's consultant, or amend it as needed.
2. Attend a pre-construction conference with LFUCG.
3. Post the LFUCG Land Disturbance Permit and KYR10 Permit (if applicable) on the project sign at the site, and keep a copy of the SWPPP/ESC Plan on site and available for review.
4. Follow the SWPPP/ESC Plan; revise and redline it as conditions change on the site.
5. Install and maintain BMPs to prevent sediment from washing into streets, storm sewers, and streams. All runoff from disturbed areas must pass through a BMP before leaving the site.
6. Maintain a 50-foot vegetative buffer strip along perennial and intermittent streams (including impounded streams), wetlands, sinkholes, and inlets.
7. If work must be done within 50 feet of a perennial or intermittent stream, wetland, sinkhole, or inlet, complete work as soon as possible and stabilize the area within 24 hours after completing work.
8. Conduct an ESC inspection at least once every 7 calendar days and within 24 hours after each rainfall of 0.5 inches or greater (or 4 inches of snow or greater).
9. Complete and sign the inspection form after each inspection. Keep the completed inspection forms on site and available for review.
10. Stabilize inactive portions of the site with straw, blanket, seed, or other cover within 14 days of no activity, and provide permanent stabilization within 14 days of reaching final grade.
11. If the project has a KYR10 Permit, file a Notice of Termination with the KY Division of Water and forward to the LFUCG Division of Engineering and LFUCG Division of Water Quality when construction has been completed and the site is stabilized. Final stabilization is defined as follows from KYR10: "All soil disturbing activities at the site have been completed and either of the two following criteria are met – a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed."
12. Respond promptly to Verbal Warnings and Notices of Violation from LFUCG regarding correcting ESC problems.

Inspection Procedures for the Resident Project Representative

Weekly Field Inspections

1. Ensure the LFUCG Land Disturbance Permit and KYR10 Permit are posted at the site
2. Ensure SWPPP/ESC Plan is available for review
3. Ensure that the weekly and rain event completed inspection forms are available for review
4. Walk the perimeter of the entire site
5. Note downgradient controls:
 - Inspect ditches and sheet flow areas
 - Silt fences working?
 - Ditches vegetated / stabilized?
 - Significant sediment discharges?
6. Walk around internal disturbed areas
 - Idle for more than 14 days . . . stabilized?
7. Inspect all inlets and ditches
 - Inlets protected, ditches stabilized?
8. Check out material / fuel storage areas
 - Spills? Leaks? Leaching pollutants? Litter / waste managed?
9. Inspect concrete washout(s)
10. Inspect the construction entrance / exit
11. Inspect the 50-foot vegetative buffer strip adjacent to waterways. The buffer strip must be stabilized within 24 hours of any approved construction activity in the buffer strip.
12. Communicate inspection findings to Contractor, note issues that need attention
13. Complete the LFUCG inspection checklist
14. Submit an electronic copy of the completed checklist to the Project Manager and the Accela Data Entry Contact person on page 1.
15. Inspect the site the next working day after a storm event of 0.5 inches or greater. Complete the inspection checklist and submit a copy to the Project Manager

Important Items for the Permittee / Contractor / RPR to Verify:

- Posted permits, plans, and inspection reports
- Graded / inactive areas stabilized with seed, mulch, blankets, mats, etc.
- Stabilized, non-eroding ditches
- Maintained silt fences and protected curb / drop inlets
- No mud on the street
- Trash and litter managed
- No disturbance in the 50-foot buffer zone adjacent to streams, wetlands, sinkholes, and inlets, unless approved; areas within the 50-foot buffer must be stabilized within 24 hours

Enforcement Procedures

1. The Contractor will be paid for erosion and sediment control based upon a schedule of values established within the Measurement and Payment section of the specifications (e.g., 25% paid once initial ESCs have been installed and LDP obtained, 50% paid in equal monthly payments for maintenance over the construction period, 25% paid for removal of ESCs and final stabilization). The intent of this provision is to pay the Contractor for ESC maintenance for each month that the BMPs are maintained and functioning properly.
2. The RPR shall follow the attached **Compliance Assistance Guidance for DWQ Capital Project RPRs** and implement the **Escalating Enforcement Process** described below.

Table 1 – ESC Escalating Enforcement Process

DWQ Capital Project	Escalating Enforcement Process
Remedial Measures Program	The RPR shall escalate the issue to the RMP Program Manager and RMP Program Management Consultant’s Project Manager
Wastewater Treatment Plants Stormwater Section MS4/Water Quality Section Sanitary Sewers Capacity Assurance Program	The RPR shall escalate the issue to the DWQ Section Manager and the DWQ Construction Contract Administrator

3. DWQ will use all available means in the contract to obtain compliance, including:
 - a. withholding payment
 - b. notifying the Contractor that LFUCG intends to initiate the process for declaring that the Contractor is in default of the contract and specifying a deadline for addressing the ESC deficiencies
 - c. initiating the process for calling the ESC Performance Bond
 - d. issuing Notices of Violation (NOVs)
 - e. stopping work

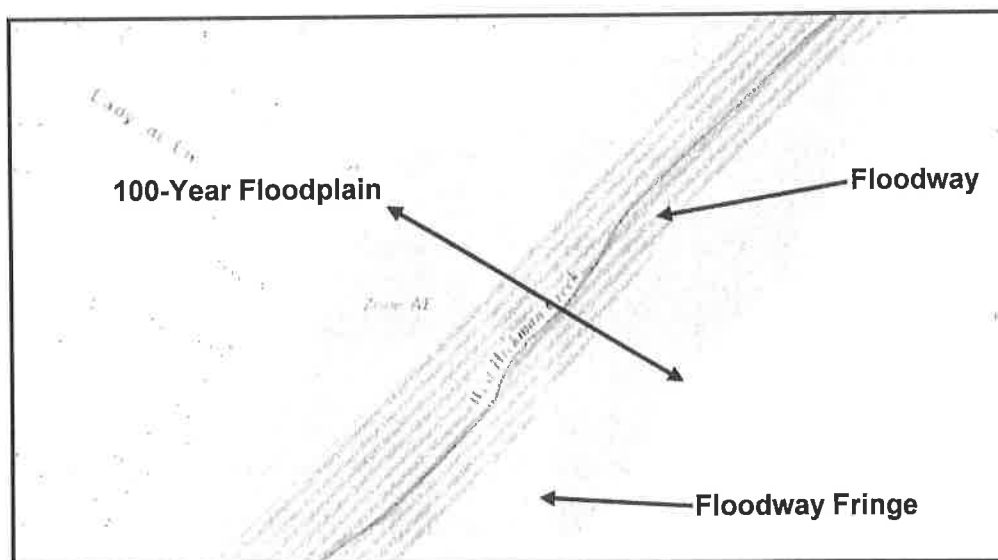
Compliance Assistance Guidance for DWQ Capital Project RPRs

Observed Condition	Verbal Warning to Correct within 3-5 days (See Note 1)	Verbal Warning to Correct within 24 hours (See Note 1)	Escalate the Issue Immediately in Accordance with Table 1
Construction Entrance to Public Road	Rock pad poorly installed/maintained	Rock pad not installed	
	Small amount of sediment on road	Rock pad completely covered with soil	
		Significant amount of sediment on road	
Unstabilized Areas	Flat inactive disturbed areas not stabilized in 14 days	Ditches not stabilized immediately after construction	
		Disturbed, inactive slopes not stabilized within 14 days	Disturbed, inactive slopes above waterways, wetlands, floodplains, critical areas ² not stabilized within 24 hours
Inlet Protection	Sediment needs to be removed around inlet protection	Curb inlet protection not in place or improperly installed	Discharge of concrete wash water, chemicals, other pollutants into inlets, streams, wetlands, etc.
Silt Fencing	Does not match SWPPP/ESC Plan but critical areas ² and roads are protected	Silt fence not installed per plan and critical areas ² and roads are not protected	
	Does not comply with Stormwater Manual but is functional	Blowouts have occurred with discharge of sediment to critical areas ²	Large quantities of sediment in critical areas ²
	Needs maintenance/repair, but is not near an inlet or surface water	Not trenched in, is not functional	
		Silt fence needs repairs in critical areas ²	
Soil Stockpiles	No perimeter controls, downstream BMPs in place	No perimeter controls, downstream BMPs not in place	
		Permit expired	Site not permitted (No LDP or KDOW NOI)
Permit Violations		Permit not posted or available on site	
		Contact name/phone not posted	
		No self-inspection reports; reports not on site	
		Self-inspection reports not current	
		SWPPP/ESC Plan not on site	
			Unapproved construction activities in 50-foot buffer zone around sinkholes, streams, wetlands, etc.
			Construction has started, BMPs not installed

1. Escalate the issue in accordance with Table 1 after the 2nd Verbal Warning.
2. Critical areas are areas within 25 feet of a stream, wetland, sinkhole, or inlet.

Policy for Storing Construction Material in the Floodway/Floodplain **Division of Water Quality Capital Projects** **October 1, 2019**

1. Excavated residual spoils from excavation may be stored in the floodway or floodway fringe under the following conditions:
 - a. Spoil material may be stored no longer than 30 days in the floodway. Any material in the floodway after 30 days shall be removed.
 - b. Spoil material may be stored in the floodway fringe (the area in the floodplain that is outside of the floodway) no longer than 180 days.
 - c. Spoil material stored in the floodway or floodway fringe shall be enclosed by reinforced silt fence (Coir logs are not acceptable). Diversion berms/ditches shall be constructed upslope of stockpiles to minimize run-on water.
 - d. Any evidence of erosion of the stored material shall be immediately mitigated.
2. Construction materials stored in the floodway shall be anchored to prevent floatation or displacement during a flood event.
3. Fuel tanks, lubricants, fertilizer, and chemical products or other potentially hazardous materials shall not be stored in the floodway or floodway fringe.
4. Prior to beginning construction, the contractor shall submit a Spoils Management Plan to LFUCG for review and acceptance. The plan shall be kept on site at all times.



SECTION 02531 – SEWAGE FORCE MAINS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all force main pipe and appurtenances as specified and shown on Drawings.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PLASTIC PRESSURE PIPE

- A. AWWA C905 (Outside Diameter compatible with Cast Iron O.D.)

1. 14-inch through 36-inch PVC plastic pipe shall conform to ANSI/AWWA C905. Pipe shall be pressure Class 165, DR 25 for 14-inch through 16-inch; pressure Class 200, DR 21 for 18-inch through 36-inch. PVC pipe shall have a minimum laying length of 12 feet, with bell end and elastomeric gasket, and with plain end for cast-iron or ductile-iron fittings. Elastomeric gasket shall conform with the requirements of ASTM F-477. The seal of the National Sanitation Foundation Testing Laboratory must appear on each pipe.
2. Joints for polyvinyl chloride (PVC) mains shall be integral bell and spigot type joints with rubber o-ring gasket. The cleaning and assembling of the pipe joints shall be in accordance with manufacturer's recommendations.
3. Pipe color shall be green.
4. Fittings shall be DI in the same pressure class as pipe with Protecto 401 lining as specified in this Section.

- B. AWWA C900 (Outside Diameter compatible with Cast Iron O.D.)

1. 8-inch through 12-inch PVC plastic pipe shall conform to ANSI/AWWA C900. Pipe shall be pressure Class 165, DR 25. PVC pipe shall have a minimum laying length of 12 feet, with bell end and elastomeric gasket, and with plain end for cast-iron or ductile-iron fittings. Elastomeric gasket shall conform with the requirements of ASTM F-477. The seal of the National Sanitation Foundation Testing Laboratory must appear on each pipe.
2. Joints for polyvinyl chloride (PVC) mains shall be integral bell and spigot type joints with rubber o-ring gasket. The cleaning and assembling of the pipe joints shall be in accordance with manufacturer's recommendations.
3. Pipe color shall be green.
4. Fittings shall be DI in the same pressure class as pipe with Protecto 401 lining as specified in this Section.

- C. Pipe shall be as manufactured by JM Eagle, H & W Pipe Company, Diamond Plastics, or equal.

2.02 RESTRAINT DEVICES FOR POLYVINYL CHLORIDE PLASTIC (PVC) PIPE

- A. Each restraint system shall be manufactured of ductile iron conforming to ASTM A536. A backup ring shall be utilized behind the PVC Bell. A restraint ring incorporating a plurality of individually actuating gripping surfaces shall be used to grip the pipe then bolted to the

backup ring. The restraint shall be the Series 2000PV (mechanical joint restraint to fittings) or 2800 (pipe harness) as manufactured by EBAA Iron, Inc. or approved equal.

- B. Restraint devices for mechanical joint fittings and appurtenances shall conform to either AWWA C111, or AWWA C153. The working pressure for the restraint shall equal that of the pipe on which it is used.
- C. Mechanical joint restraints, 4" through 24", shall meet or exceed the requirements of ASTM F1674.
- D. Mechanical joint restraint shall be Series 2800 produced by EBAA Iron, Inc. or approved equal.
- E. Mechanical joint retainer glands and pipe bell harnesses shall receive a fluoropolymer corrosion protective coating (EBAA Iron Mega-Bond or equal).

2.03 DUCTILE IRON (DI) PIPE AND FITTINGS

- A. **Ductile iron pipe and fittings shall be furnished with Protecto 401 lining as specified herein.** Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the drawings or in difficult working areas and with approval of the Engineer. All pipe inside of casing pipe shall have restraining gaskets as specified in this Section.
- B. Pressure class shall be minimum 150 psi for mechanical and push-on joint pipe.
- C. Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21.50 latest revision.
- D. Manufacture and testing of ductile iron pipe shall conform in all aspects to the requirements of ANSI/AWWA C151/A 21.51 latest revision.
- E. Pipe Coatings

1. Interior Lining

a. Condition of Ductile Iron Prior to Surface Preparation

All ductile pipe and fittings shall be delivered to the application facility without asphalt, cement lining, or any other lining on the interior surface. Because removal of old linings may not be possible, the intent of this specification is that the entire interior of the ductile iron pipe and fittings shall not have been lined with any substance prior to the application of the specified lining material and no coating shall have been applied to the first six (6) inches of the exterior of the spigot ends.

b. Lining Material

The standard of quality is Protecto 401 Ceramic Epoxy. The material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment. Any request for substitution must be accompanied by a successful history of lining pipe and fittings for sewer service, a test report verifying the following properties, and a certification of the test results.

- (1) A permeability rating of 0.00 when tested according to Method A of ASTM E-96-66, Procedure A with a test duration of 30 days.

- (2) The following test must be conducted on coupons from factory lined ductile iron pipe:
 - (a) ASTM B-117 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.
 - (b) ASTM G-95 Cathodic Disbondment 1.5 volts @ 77°F. Results to equal no more than 0.5 mm undercutting after 30 days.
 - (c) Immersion Testing rated using ASTM D-714-87.
 - i. 20% Sulfuric Acid – no effect after two years
 - ii. 25% Sodium Hydroxide – No effect after two years
 - iii. 160°F Distilled Water – No effect after two years
 - iv. 120° Tap Water (scribed panel) – 0.0 undercutting after two years with no effect.
- (3) An abrasion resistance of no more than 4 mils (.10 mm) loss after one million cycles European Standard EN 598: 1994 section 7.8 Abrasion resistance.

c. Application

(1) Applicator

The lining shall be applied by a competent firm with a successful history of applying linings to the interior of ductile iron pipe and fittings.

(2) Surface Preparation

Prior to abrasive blasting, the entire area to receive the protective compound shall be inspected for oil, grease, etc. Any areas where oil, grease, or any substance which can be removed by solvent is present, shall be solvent cleaned using the guidelines outlined in DIPRA-1 Solvent Cleaning. After the surface has been made free of grease, oil, or other substances, all areas to receive the protective compounds shall be abrasively blasted using compressed air nozzles with sand or grit abrasive media. The entire surface to be lined shall be struck with the blast media so that all rust, loose oxides, etc., are removed from the surface. Only slight stains and tightly adhering annealing oxide may be left on the surface. Any area where rust reappears before lining must be reblasted.

(3) Lining

After the surface preparation and within eight (8) hours of surface preparation, the interior of the pipe shall receive 40 mils nominal dry film thickness of Protecto 401. No lining shall take place when the substrate or ambient temperature is below 40 degrees Fahrenheit. The surface also must be dry and dust free. If flange pipe or fittings are included in the project, the lining shall not be used on the face of the flange.

(4) Coating of Bell Sockets and Spigot Ends

Due to the tolerances involved, the gasket area and spigot end up to six (6) inches back from the end of the spigot end must be coated with 6 mils nominal, 10 mils maximum Protecto Joint Compound. The joint compound shall be applied by brush to ensure coverage. Care should be taken that the joint compound is smooth without excess buildup in the gasket seat or on the spigot ends. Coating of the gasket seat and spigot ends shall be done after the application of the lining.

(5) Number of Coats

The number of coats of lining material applied shall be as recommended by the lining manufacturer. However, in no case shall this material be applied above the dry thickness per coat recommended by the lining manufacturer in printed literature. The maximum or minimum time between coats shall be that time recommended by the lining material manufacturer. **No material shall be used for lining which is not indefinitely recoatable with itself without roughening of the surface.**

(6) Touch-Up and Repair

Protecto Joint Compound shall be used for touch-up or repair in accordance with manufacturer's recommendations.

d. Inspection and Certification

(1) Inspection

(a) All ductile iron pipe and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined in SSPC-PA-2 Film Thickness Rating.

(b) The interior lining of all pipe barrels and fittings shall be tested for pinholes with a non-destructive 2,500-volt test. Any defects found shall be repaired prior to shipment.

(c) Each pipe joint and fitting shall be marked with the date of application of the lining system along with its numerical sequence of application on that date and records maintained by the applicator of his work.

(2) Certification

The pipe or fitting manufacturer must supply a certificate attesting to the fact that the applicator met the requirements of this specification, and that the material used was as specified.

e. Handling

Protecto 401 lined pipe and fittings must be handled only from the outside of the pipe and fittings. No forks, chains, straps, hooks, etc., shall be placed inside the pipe and fittings for lifting, positioning, or laying.

2. Exterior Coating

Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A 21.51 for pipe and ANSI/AWWA C110/A 21.10 for fittings.

F. Fittings and gaskets for mechanical and push-on joint ductile and cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110/A 21.10 for mechanical and push-on joint fittings, ANSI/AWWA C111/A 21.11 for gaskets and ANSI/AWWA C153/A 21.53 for mechanical and push-on joint compact fittings. Mechanical and push-on joint fittings shall have pressure class rating of 150 psi minimum.

G. All ductile and cast iron fittings shall be ductile iron grade 80-60-03 in accordance with ASTM A339-55.

- H. Restrained joint pipe and fittings shall use Mega-Lug pipe restraints or be a boltless system equal to "Field-Lok" restraining gaskets or "TRFLEX Joint" as manufactured by U.S. Pipe and Foundry Company.
- I. Pipe shall be as manufactured by U.S. Pipe and Foundry Company, Clow, American Pipe Company, or equal.
- J. Pipe or fitting shall have the ANSI/AWWA standard, pressure (or thickness) class, diameter, DI or ductile noted, manufacturer, and country and year where cast on the outside of the body.

2.04 COUPLING AND ADAPTORS

- A. Flexible couplings shall be of the sleeve type with a middle ring, two wedge shaped resilient gaskets at each end, two follower rings, and a set of steel trackhead bolts. The middle ring shall be flared at each end to receive the wedge portion of the gaskets. The follower rings shall confine the outer ends of the gaskets, and tightening of the bolts shall cause the follower rings to compress the gaskets against the pipe surface, forming a leak-proof seal. Flexible couplings shall be steel with minimum wall thickness of the middle ring or sleeve installed on pipe being 5/16-inch for pipe smaller than 10 inches, 3/8-inch for pipe 10 inches or larger. The minimum length of the middle ring shall be 5 inches for pipe sizes up to 10 inches and 7 inches for pipe 10 inches to 30 inches. The pipe stop shall be removed. Gaskets shall be suitable for 250 psi pressure rating or at rated working pressure of the connecting pipe. Couplings shall be harnessed and be designed for 250 psi.
- B. Flanged adapters shall have one end suitable for bolting to a pipe flange and the other end of flexible coupling similar to that described hereinbefore. All pressure piping with couplings or adapters shall be harnessed with full threaded rods spanning across the couplings or adapters. The adapters shall be furnished with bolts of an approved corrosion resistant steel alloy, extending to the adjacent pipe flanges. Flanges on flanged adapter (unless otherwise indicated or required) shall be faced and drilled ANSI B16.1 Class 125.
- C. Flexible couplings and flanged adapters shall be as manufactured by Dresser, Rockwell, or equal, unless otherwise specified and/or noted on the Drawings.

2.05 CONCRETE PIPE ANCHORS, THRUST BLOCKS, CRADLE OR ENCASEMENT

- A. Where indicated on the Drawings, required by the specifications or as directed by the Engineer, concrete pipe anchors, thrust blocks, cradles or encasements shall be installed. Concrete shall be Class A. Thrust blocking shall be in accordance with LFUCG Standard Drawings.

2.06 ELECTRONIC MARKERS

- A. Electronic markers shall be installed along the force main at intervals of 500 feet maximum, at all bends, and as noted on drawings or directed by Engineer. Maximum depth shall be 36". Markers shall be used regardless of the pipe material. Markers shall be green Tempo Omni Markers or equal.
- B. All non-metallic pipe shall include tracer wire. Tracer wire to be a minimum of 12-gauge solid copper with a HDPE insulation suitable for direct bury.

2.07 UNDERGROUND WARNING TAPE

- A. All pipe shall include detectable underground warning tape. Tape wire. Tracer wire shall have a thickness of 5 mils, constructed of a minimum 0.003" aluminum foil laminated between polyester and polyethylene sheeting, color coded to sewer, and suitable for direct bury.

2.09 AIR RELEASE VALVES (ARVs)

- A. Air release, air vacuum valves, and/or combination air valves shall be installed along the force main as noted on drawings or directed by Engineer. ARVs shall be ARI or approved equal.

PART 3 – EXECUTION

3.01 EXCAVATION FOR PIPELINE TRENCHES

- A. See Section 02225 for trenching specification.
- B. Minimum cover of 36" shall be provided for all force mains.**

3.02 PIPE BEDDING

- A. Bedding shall be in accordance with LFUCG Standard Drawings.

3.03 LAYING PIPE

- A. The laying of pipe in finished trenches shall be commenced so the spigot ends point in the direction of flow.
- B. All pipes shall be laid with ends abutting and true to line and grade as given by the Engineer. Supporting of pipes shall be as set out hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipes on blocks be permitted.
- C. Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure it's clean. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.
- D. Pipe shall not be laid on solid rock. Pipe bedding shall be installed prior to laying pipe. Irregularities in subgrade in an earth trench shall be corrected by use of #9 crushed limestone.
- E. When ordered by the Engineer, unsuitable materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe.
- F. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood or fabricated plug fitted into the pipe bell, so as to exclude earth or other material, and precautions taken to prevent flotation of pipe by runoff into trench.
- G. 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, alignment and grade, in the section laid.

3.04 BACKFILLING PIPELINE TRENCHES

- A. Backfilling shall be in accordance with LFUCG Standard Drawings.

3.05 SETTLEMENT OF TRENCHES

- A. Whenever lines are in, or cross, driveways and streets, the Contractor shall be responsible for any trench settlement which occurs within these rights-of-way within one year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Owner and/or the State Department of Transportation.

3.06 CONCRETE THRUST BLOCKS OR ENCASEMENT

- A. Concrete thrust blocks shall be formed and placed at all bends or where shown on the Drawings. Encasement of pipe bends or fittings shall only occur at the direction of the Engineer.
- B. All bends and fittings shall be wrapped with a minimum of 6 mil plastic prior to concrete placement.
- C. Concrete thrust blocks shall be placed against undisturbed or compacted earth.
- D. Concrete thrust blocks shall be 3000 psi concrete.

3.07 TESTING

- A. All ductile iron and PVC force mains shall be given a hydrostatic test to 150 psi or 250% of working design pressure, whichever is greater, and tested at the lowest level of the pipeline. In no case shall the pipe be tested at a pressure exceeding the pressure class rating of the pipe.
- B. All prestressed concrete cylinder pipe shall be given a hydrostatic test to 120% of working design pressure, and tested at the lowest level of the pipeline. In no case shall the pipe be tested at a pressure exceeding the pressure class rating of the pipe.
- C. Loss of pressure during the test shall not exceed 0 psi in a 4 hour period and 2 psi in a 24 hour period. Any test results that do not meet either of these requirements shall constitute a failure of the pressure test.
- D. Leakage in force mains, when tested under the hydrostatic test described above, shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe.
- E. Contractor shall furnish a recording gauge and water meter for measuring water used during leakage test and recording pressure charts during duration of test. Recording pressure charts shall be turned over to the Engineer at conclusion of tests. The pressure recording device shall be suitable for outside service, with a range from 0-200 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Engineer.
- F. Duration of test shall be not less than 24 hours.
- G. Where leaks are visible at exposed joints, evident on the surface where joints are covered and/or identified by isolating a section of pipe, the joints shall be repaired.

- H. All pipe, fittings, valves, and other materials found to be defective under test shall be removed and replaced at no additional expense to the owner.
- I. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with.
- J. The Contractor will provide water for testing the pressure piping.

END OF SECTION

SECTION 02532 – SEWAGE COLLECTION LINES

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, material, and equipment necessary to install gravity sewer piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

PART 2 – PRODUCTS

2.01 DUCTILE IRON (DI) PIPE

- A. Ductile iron pipe shall be furnished cement lined in accordance with ANSI/AWWA C104/A21.4 with bituminous seal coat unless otherwise noted on the drawings or in Bid Form. Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the drawings or in difficult working areas and with approval of the Engineer. All pipe inside of casing pipe shall have restraining gaskets as specified in this Section. **All DI pipe and fittings within 2,000 LF downstream or to nearest manhole beyond 2,000 LF of a force main discharge shall be lined with Protecto 401 coating, or approved equal as specified hereinafter.**
- B. Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21.50 latest revision.
- C. Manufacture and testing of ductile iron pipe shall conform in all aspects to the requirements of ANSI/AWWA C151/A 21.51 latest revision.
- D. Pipe Coatings

- 1. Interior Lining

- a. Condition of Ductile Iron Prior to Surface Preparation

All ductile pipe and fittings shall be delivered to the application facility without asphalt, cement lining, or any other lining on the interior surface. Because removal of old linings may not be possible, the intent of this specification is that the entire interior of the ductile iron pipe and fittings shall not have been lined with any substance prior to the application of the specified lining material and no coating shall have been applied to the first six (6) inches of the exterior of the spigot ends.

- b. Lining Material

The standard of quality is Protecto 401 Ceramic Epoxy. The material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment. Any request for substitution must be accompanied by a successful history of lining pipe and fittings for sewer service, a test report verifying the following properties, and a certification of the test results.

(1) A permeability rating of 0.00 when tested according to Method A of ASTM E-96-66, Procedure A with a test duration of 30 days.

(2) The following test must be run on coupons from factory lined ductile iron pipe:

(a) ASTM B-117 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.

(b) ASTM G-95 Cathodic Disbondment 1.5 volts @ 77°F. Results to equal no more than 0.5 mm undercutting after 30 days.

(c) Immersion Testing rated using ASTM D-714-87.

- i. 20% Sulfuric Acid – No effect after two years.
- ii. 25% Sodium Hydroxide – No effect after two years.
- iii. 160°F Distilled Water – No effect after two years.
- iv. 120°F Tap Water (scribed panel) – 0.0 undercutting after two years with no effect.

(3) An abrasion resistance of no more than 4 mils (.10mm) loss after one million cycles – European Standard EN 598: 1994 section 7.8 Abrasion resistance.

c. Application

(1) Applicator

The lining shall be applied by a competent firm with a successful history of applying linings to the interior of ductile iron pipe and fittings.

(2) Surface Preparation

Prior to abrasive blasting, the entire area to receive the protective compound shall be inspected for oil, grease, etc. Any areas where oil, grease, or any substance which can be removed by solvent is present, shall be solvent cleaned using the guidelines outlined in DIPRA-1 Solvent Cleaning. After the surface has been made free of grease, oil, or other substances, all areas to receive the protective compounds shall be abrasively blasted using compressed air nozzles with sand or grit abrasive media. The entire surface to be lined shall be struck with the blast media so that all rust, loose oxides, etc., are removed from the surface. Only slight stains and tightly adhering annealing oxide may be left on the surface. Any area where rust reappears before lining must be reblasted.

(3) Lining

After the surface preparation and within eight (8) hours of surface preparation, the interior of the pipe shall receive 40 mils nominal dry film thickness of Protecto 401. No lining shall take place when the substrate or ambient temperature is below 40 degrees Fahrenheit. The surface also must be dry and dust free. If flange pipe or fittings are included in the project, the lining shall not be used on the face of the flange.

(4) Coating of Bell Sockets and Spigot Ends

Due to the tolerances involved, the gasket area and spigot end up to six (6) inches back from the end of the spigot end must be coated with 6 mils nominal, 10 mils maximum Protecto Joint Compound. The Joint Compound shall be applied by brush to ensure coverage. Care should be taken that the Joint Compound is smooth without excess buildup in the gasket seat or on the spigot ends. Coating of the gasket seat and spigot ends shall be done after the application of the lining.

(5) Number of Coats

The number of coats of lining material applied shall be as recommended by the lining manufacturer. However, in no case shall this material be applied above the dry thickness per coat recommended by the lining manufacturer in printed

literature. The maximum or minimum time between coats shall be that time recommended by the lining material manufacturer. **No material shall be used for lining which is not indefinitely recoatable with itself without roughening of the surface.**

(6) Touch-Up and Repair

Protecto Joint Compound shall be used for touch-up or repair in accordance with manufacturer's recommendations.

d. Inspection and Certification

(1) Inspection

- (a) All ductile iron pipe and fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined in SSPC-PA-2 Film Thickness Rating.
- (b) The interior lining of all pipe barrels and fittings shall be tested for pinholes with a non-destructive 2,500-volt test. Any defects found shall be repaired prior to shipment.
- (c) Each pipe joint and fitting shall be marked with the date of application of the lining system along with its numerical sequence of application on that date and records maintained by the applicator of his work.

(2) Certification

The pipe or fitting manufacturer must supply a certificate attesting to the fact that the applicator met the requirements of this specification, and that the material used was as specified.

e. Handling

Protecto 401 lined pipe and fittings must be handled only from the outside of the pipe and fittings. No forks, chains, straps, hooks, etc., shall be placed inside the pipe and fittings for lifting, positioning, or laying.

2. Exterior Coating

Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A 21.51 for pipe and ANSI/AWWA C110/A 21.10 for fittings.

- E. Fittings and gaskets for mechanical and push-on joint ductile and cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110/A 21.10 for mechanical and push-on joint fittings, ANSI/AWWA C111/A 21.11 for gaskets, and ANSI/AWWA C153/A 21.53 for mechanical and push-on joint compact fittings.
- F. All ductile and cast iron fittings shall be ductile iron grade 80-60-03 in accordance with ASTM A339-55.
- G. Restrained joint pipe and fittings shall be a boltless system equal to "Field-Lok" restraining gaskets or "TRFLEX Joint" as manufactured by U.S. Pipe & Foundry Company.
- H. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, Clow, American Pipe Company, or equal.

- I. Pipe or fitting shall have the ANSI/AWWA standard, pressure (or thickness) class, diameter, DI or ductile noted, manufacturer, and country and year where cast on the outside of the body.

2.02 POLYVINYL CHLORIDE (PVC) PIPE (SOLID WALL)

- A. Bury depth 20 feet or less or encased in steel pipe: PVC pipe and fittings less than 15 inches in diameter shall conform to the requirements of ASTM Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Designation D 3034. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. For depths 15 feet and less, pipe shall have a pipe diameter to wall thickness ratio (SDR) of 35. For depths greater than 15 feet up to 20 feet maximum, pipe shall be SDR 26. If the PVC pipe is encased in a steel pipe, PVC pipe shall be SDR 35 regardless of buried depth.
- B. Bury depth 20 feet or less or encased in steel pipe: PVC pipe and fitting with diameters 18-inch and larger shall conform to the requirements of ASTM D-17845 and ASTM F-679. Pipe and fittings shall have a minimum cell classification of 14545C. The minimum wall thickness shall conform to T-1 as specified in ASTM F-679. For depths 15 feet and less, pipe shall have pipe stiffness 46 (SDR 35). For depths greater than 15 feet up to 20 feet maximum, pipe shall have pipe stiffness of 115 (SDR 26). If the PVC pipe is encased in a steel pipe, PVC pipe shall be SDR 35 regardless of buried depth.
- C. Bury depth greater than 20 feet: PVC pipe 8 inches through 12-inch PVC plastic pipe shall conform to ANSI/AWWA C900. Pipe 14-inch through 36-inch PVC plastic pipe shall conform to ANSI/AWWA C905. Pipe shall be pressure Class 165, DR 25. PVC pipe shall have bell end and elastomeric gasket, and with plain end for cast-iron or ductile-iron fittings. Elastomeric gasket shall conform with the requirements of ASTM F-477. The seal of the National Sanitation Foundation Testing Laboratory must appear on each pipe.
- C. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
- D. Pipe shall be furnished in lengths of at least 12 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.
- E. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
- F. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "Type PSM SDR 35 PVC Sewer Pipe" and the designation "ASTM D 3034", or "ASTM F-679". Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", "PSM" and the designation "ASTM D 3034", or "ASTM F-679".
- G. PVC pipe installation shall conform to ASTM D-2321 latest revision.
- H. Pipe shall be as manufactured by JM Eagle, H & W Pipe Company, Diamond Plastics, or equal.

2.03 CONNECTION TO EXISTING GRAVITY PIPE

- A. Connections between new and existing gravity pipe shall use a Fernco Strong Back, Straub-Flex coupling, Arpol or approved equal.
- B. Connections between like sizes of PVC pipe shall use a PVC GXG Repair Coupling.
- C. Connections between ductile iron and ductile iron, a Maxifit Mechanical Ductile Iron coupling as manufactured by Viking Johnson, or approved equal, may be used.
- D. For pipes 12 inches in diameter and larger, concrete cradle shall be poured under each coupling. The length of the cradle (longitudinally along the pipe) shall be at least one pipe diameter and centered on the coupling. The depth of the cradle shall be half a pipe diameter (measured from the bottom of the cradle to the invert of the pipe). Cradles shall be formed and poured in place and reach from springline to springline.

2.04 UNDERGROUND WARNING TAPE

- A. All pipe shall include detectable underground warning tape. Tape wire. Tracer wire shall have a thickness of 5 mils, constructed of a minimum 0.003" aluminum foil laminated between polyester and polyethylene sheeting, color coded to sewer, and suitable for direct bury.

PART 3 – EXECUTION

3.01 PIPE LAYING

- A. Excavation, trenching, backfilling, and bedding requirements are set forth in Section 02225.
- B. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert.
- C. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. Bevel can be made with hand or power tools.
- D. The interior of the pipe, as work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell so as to exclude earth or other material and precautions taken to prevent flotation of pipe by runoff into trench.
- E. All pipe shall be laid starting at the lowest point and installed so that the spigot ends point in the direction of flow.

3.02 JOINTING

- A. All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and

joint assembly shall follow the direction of the manufacturers of the joint material and of the pipe. The resulting joints shall be watertight and flexible. **No solvent cement joints shall be allowed.**

3.03 INSTALLATION OF PCCP AND FITTINGS

- A. Prestressed concrete cylinder pipe and fittings shall be installed in accordance with requirements of AWWA M9, except as otherwise provided herein. A firm, even bearing throughout the length of the pipe shall be provided by tamping select fill in the haunch area and at the side of the pipe to achieve the required bedding support angle. **BLOCKING WILL NOT BE PERMITTED.**
- B. Gasket, gasket groove, and bell sealing surfaces shall be cleaned and lubricated with a lubricant furnished by the pipe manufacturer. The lubricant shall be approved for use in potable water and shall be harmless to the rubber gasket. Use only lubricant supplied by the pipe manufacturer. Pipe shall be laid with bell ends looking ahead in the direction of laying. As soon as the spigot ring is centered in the bell of the previously laid pipe, it shall be forced home with approved equipment. After the gasket is compressed, verify the position of the gasket in the spigot ring groove with a feeler gage provided by the pipe manufacturer.
- C. The grout diaper for PCCP shall consist of a Tyvar synthetic fabric layer (gray in color) and a layer of closed cell foam. These layers are sewn together along with a pair of 5/8" wide steel bands at each edge which are used to secure the diaper to the pipe exterior. Use only grout diapers supplied by the pipe manufacturer. A stretching tool is used to tighten the steel bands. Once the bands are pulled tight, a steel clip is crimped around the bands to hold them in position. It is important that the diaper be carefully placed against the exterior surface of the pipe to insure that it is flush with no gaps or gathers. The closed cell foam surface is to be placed against the pipe exterior.

The wet grout will flow down to the bottom of the diaper and begin to bulge it out. It is often helpful to place some bedding material (or sandbags) directly under the diaper at the bottom to support the weight of the wet grout. Take care to not push excessive amounts of bedding material under the diaper such that the diaper is pushed up into the joint recess impeding the flow of wet grout.

Mix the grout using one part ASTM C150 Type 1 or Type 2 Portland cement to not more than three parts clean sand with sufficient water to achieve a pourable consistency. The grout should look and pour like a thick cream. Carefully pour the mixed grout into the gap at the top of the diaper. As the pouring proceeds, the workers must inspect the diaper around the joint periphery to insure that the grout is flowing all around. Once the diaper is full and wet grout is puddling at the gap at the top, apply a stiffer mix the consistency of wet brick mortar over the joint insuring that all steel components of the joint are covered.

3.04 UTILITY CROSSING CONCRETE ENCASEMENT

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed sanitary sewer pipe and any existing utility pipe is 18 inches or less. Utility pipe includes underground water, gas, telephone and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.
- B. There are two cases of utility crossing encasement. Case I is applicable when the proposed sanitary sewer line is below the existing utility line. Case II is applicable when the proposed sanitary sewer line is laid above the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.

- C. Concrete shall be Class A and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.

3.05 TESTING OF GRAVITY SEWER LINES

- A. After the gravity piping system has been brought to completion, and prior to final inspection, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the line of any and all dirt, debris, and trash. If necessary during the process of rodding the system, water shall be turned into the system in such quantities to carry off the dirt, debris, and trash.
- B. During the final inspection the Engineer will require all flexible sanitary sewer pipe (PVC, FRP, DI, and PP) to be mandrel deflection tested after installation.
 - 1. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine (9) evenly spaced arms of prongs. The mandrel dimension shall be 95 percent of the flexible pipe's published ASTM average inside diameter. Allowances for pipe wall thickness tolerances of ovality (from shipment, heat, shipping loads, poor production, etc.) shall not be deducted from the ASTM average inside diameter, but shall be counted as part of the 5 percent allowance. The contact length of the mandrel's arms shall equal or exceed the nominal diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance ± 0.001 inch.
 - 2. The mandrel inspection shall be conducted no earlier than 30 days after reaching final trench backfill grade provided, in the opinion of the Engineer, sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. Short-term (tested 30 days after installation) deflection shall not exceed 5 percent of the pipe's average inside diameter. The mandrel shall be hand pulled by the contractor through all sewer lines. Any sections of the sewer not passing the mandrel test shall be uncovered and the Contractor shall replace and recompact the embedment backfill material to the satisfaction of the Engineer. These repaired sections shall be retested with the go/no-go mandrel until passing.
 - 3. The Engineer shall be responsible for approving the mandrel. Proving rings may be used to assist in this. Drawings of the mandrel with complete dimensioning shall be furnished by the Contractor to the Engineer for each diameter and type of flexible pipe.
- C. Low-pressure air tests shall be performed on all gravity sanitary sewers to verify water tightness of pipe joints and connections. The Contractor shall perform testing on each manhole-to-manhole section of sewer line after placement of backfill.
 - 1. Testing of Polyvinyl Chloride (PVC), Fiberglass Reinforced Polymer Mortar (FRPM), Ductile Iron (DI), and Polypropylene (PP) pipe sewer lines shall be performed in accordance with the current editions of ASTM F1417, "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air," and UNI-B-6, "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe," respectively.
 - 2. All testing equipment shall be inspected by the Engineer to ensure that equipment is functioning properly.
 - 3. The rate of air loss in the section under test shall be determined by the time-pressure drop method. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig shall be not less than that indicated in the referenced standards.

4. Immediately following the low-pressure air test, the Contractor shall notify the Engineer of the test results. A Low-Pressure Air Test Report shall be completed by the Contractor during testing. The report shall be completed according to the procedures outlined in LFUCG's Construction Inspection Manual, current edition. A copy of the completed Low-Pressure Air Test Report shall be provided to the Engineer and LFUCG-Division of Water Quality for each test.
 5. Pipes failing the pressure test will not be accepted and shall be repaired or replaced until a successful test is achieved.
 6. When conducting a low-pressure air test, the Contractor shall securely install and brace all plugs prior to pressurizing the pipe. Personnel shall not be permitted to enter manholes when the sewer pipe is pressurized.
- D. TV Survey
1. TV survey and cleaning shall be performed on all gravity sewers.
 2. Hydraulic cleaning and vacuum must be done prior to TV survey.
 3. TV survey must be of dry pipe.
 4. TV survey shall be Pipe Assessment Certification Program (PACP) level of quality and TV equipment must include a slope-inclinometer.
 5. Acceptance of TV survey, completed sewers, and the repairs needed are to be determined at sole discretion of LFUCG.
 6. TV survey shall include:
 - a. Video file and shall be re-named to LFUCG's assets.
 - b. PACP database must be in Microsoft Access format, version 4.4.2 which includes photos embedded in database.
 - c. Report shall be provided in electronic version in PDF format.
- E. The Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the tests. Suitable bulkheads shall be installed, as required, to permit the test of the sewer. The Contractor shall construct weirs or other means of measurements as may be necessary.
- F. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.

END OF SECTION

SECTION 02540 – PIPE ABANDONMENT

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. This Section covers pipe abandonment procedures. The Contractor shall furnish all labor, materials and equipment to abandon pipe as described here or as shown on the Drawings.
- B. Unless otherwise indicated, pipes 18-inches and larger which are located under pavement with public access shall be safeloaded. All other abandoned sewer pipe shall be plugged.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02225 – Excavating, Backfilling, and Compacting
- B. Section 02240 - Dewatering

PART 2 – PRODUCTS

2.01 LEAN CONCRETE

- A. Fill shall be a flowable, lean mix of concrete and sand, by the mix given as follows, per cubic yard batch:

Cement	30 pounds
Fly Ash, Class F	300 pounds
Natural Sand (S.S.D.)	3,000 pounds
Water (Maximum)	550 pounds

PART 3 - EXECUTION

3.01 SAFELOAD

- A. The Contractor shall safeload the pipe by utilizing the lean concrete mix as described in paragraph 2.01 of this specification.

3.02 PLUG

- A. The Contractor shall expose and cut the pipeline where shown or directed and construct a minimum 9-inch thick 3,000 psi concrete plug at the pipe openings. Approved mechanical plug may be used in lieu of the concrete plug.

END OF SECTION

SECTION 02608 – MANHOLES

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, material, and equipment necessary to construct manholes for sanitary storm sewers, including steps, frames, and covers, together with all appurtenances as shown and detailed on the Drawings and specified herein. Manhole materials shall be precast concrete.

1.02 DEFINITIONS

- A. Standard Manhole: A standard manhole is defined as any manhole that is greater than 5 feet in depth, as measured from the invert of the manhole base at its center to the top (rim) of the manhole cover.
- B. Shallow Manhole: A shallow manhole is defined as any manhole that is 5 feet or less in depth, as measured in the preceding sentence.

PART 2 - PRODUCTS

2.01 CONCRETE MANHOLES - GENERAL

- A. Manholes shall conform in shape, size, dimensions, materials, and other respects as shown on the Drawings or specified herein.
- B. All concrete manholes shall have precast reinforced concrete developed bases. No other type of base will be allowed. Invert channels shall be factory constructed when the base is made. Sloping invert channels shall be constructed whenever the difference between the inlet and outlet elevation is 2 feet or less.
- C. The concrete manhole walls (barrels and cones) and base shall be precast concrete sections manufactured with **cementitious crystalline admixture at dosage of 3.5% by weight of cement**. The cementitious crystalline admixture shall be **Xypex C-1000 RED, KIM K-301, or Crystal-X Admix-R**. The top of the cone shall be built of reinforced concrete to allow adjustment rings to be added for adjustment of the frame to meet the finished surface. Minimum strength of the concrete for the precast sections shall be 4,000 psi at the time of shipment.
- D. **Manholes that receive sewage from a force main discharge, and within 2,000 LF downstream or to the nearest manhole beyond the 2,000 LF, shall have concrete admixture ConShield (in addition to the cementitious crystalline admixture listed in paragraph 2.01.C above), or approved equal.**
- E. Manholes located in the 100-year floodplain shall have a concrete base that includes an anti-floatation collar. The collar shall have a radius 6-inches larger than the exterior wall of the base section. Contractor shall submit buoyancy calculations for all manholes within the 100-year floodplain to determine the actual width of the anti-floatation collar. Contractor shall assume buoyance of the manhole to an elevation equal to the 100-year flood elevation. Buoyance calculations shall have a factor of safety of 2.
- F. For concrete manholes, the inverts of the developed bases shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of adjoining pipelines.

- G. For concrete manholes, the cast iron frames and covers shall be the standard frame and cover as indicated on the LFUCG Standard Drawings.
- H. Manholes shall be manufactured by Sherman Dixie, Oldcastle Precast or approved equal.

2.02 PRECAST CONCRETE SECTIONS

- A. Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for Precast Reinforced Concrete Manhole Sections, Designation C478, latest revision, with the following exceptions and additional requirements.
- B. The base section shall be monolithic for 4-foot and 5-foot diameter manholes. Manholes with diameter of 6 feet or larger shall have a monolithic base or base slab.
- C. The wall sections shall be not less than 5 inches thick.
- D. Type II or type III cement shall be used except as otherwise permitted.

2.03 CONCRETE MANHOLE - FRAMES AND COVERS

- A. The Contractor shall furnish all cast iron manhole frames and covers as shown in LFUCG Standard Drawings.
- B. Castings shall be designed for H-20 traffic loading.
- C. The castings shall be of good quality, strong, tough, evengrained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.
- D. Frames shall be set in mastic and bolted down in non-traffic areas with four $\frac{3}{4}$ " SS Hilti anchor bolts and washers. Hilti anchor bolts shall be embedded a minimum of 4-inches into precast concrete cone section. In traffic areas, the frame shall be set in mastic and Class A concrete donut poured around frame to the top of concrete cone section. The concrete donut shall be 12-inches in width and in depth up to within 1 $\frac{1}{2}$ -inches of surface for bituminous asphalt pavement.
- E. All casting shall be thoroughly cleaned and subject to a careful hammer inspection.
- F. Castings shall be at least Class 25 conforming to the ASTM Standard Specifications for Gray Iron Casting, Designation A48, latest revision.
- G. Unless otherwise specified, manhole covers shall be 22-3/4 inches in diameter, weighing not less than 305 pounds per frame and cover. Manhole covers shall set neatly in the rings, with contact edges machined for even bearings and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. The covers shall have two (2) pick holes about 1-1/4 inches wide and 1/2 inch deep with 3/8-inch undercut all around. Covers shall not be perforated. Frames and covers shall be J.R. Hoe and Sons Mc-350, or approved equal.
- H. Watertight lids shall have neoprene T-gasket and concealed pickhole.
- I. All covers shall be marked in large letters "LEXINGTON KENTUCKY SANITARY SEWER" as shown in LFUCG Standard Drawings.

2.04 MANHOLE STEPS (CONCRETE MANHOLES)

- A. Manholes steps shall be the polypropylene plastic type reinforced with a 1/2 inch diameter deformed steel rod. The step shall be 10-3/4 inches wide and extend 5-3/4 inches from the manhole wall. Steps shall line up over the downstream invert of the manhole. The steps shall be embedded into the manhole wall a minimum of 3-3/8 inches. Steps shall be uniformly spaced at 12-inch to 16-inch intervals.
- B. Manhole steps shall be in accordance with LFUCG Standard Drawings.

2.05 PREMOLDED ELASTOMERIC-SEALED JOINTS

- A. All holes for pipe connections in concrete barrels and bases shall have a factory-installed flexible rubber gasket to prevent infiltration. The manhole boots shall conform to the latest revision of ASTM-C923. The boots shall be A-Lok Manhole Pipe Seal A-Lok Premium manufactured by A-Lok Corporation, Trenton, NJ; or an approved equal.

2.06 MANHOLE DIAPHRAGM (FOR WATERTIGHT LID APPLICATIONS)

- A. Diaphragm manhole inserts shall be manufactured from corrosion-proof material suitable for atmospheres containing hydrogen sulfide and diluted sulfuric acid. Diaphragm shall be installed in all manholes per the General Notes.
- B. The body of the manhole insert shall be made of high density ethylene hexene-1 copolymer material meeting ASTM Specification D 1248, Class A, Category 5 (the insert shall have a minimum impact brittleness temperature of -180 degrees Fahrenheit). The thickness shall be uniform 1/8 inch or greater. The manhole insert shall be manufactured to dimensions as shown on the Drawings to allow easy installation within the manhole frame.
- C. Gaskets shall be made of closed cell neoprene. The gasket shall have a pressure sensitive adhesive on one side and shall be placed under the weight bearing surface of the insert by the manufacturer. The adhesive shall be compatible with the manhole insert material so as to form a long lasting bond in either wet or dry conditions.
- D. Lift strap shall be attached to the rising edge of the bowl insert. The lift strap shall be made of 1 inch wide woven polypropylene web and shall be seared on all cut ends to prevent unraveling. The lift strap shall be attached to the manhole insert by means of a stainless steel rivet. Location of the lift strap shall provide easy visual location.
- E. Standard ventilation shall be by means of a valve or vent hole. Vent holes shall be on the side wall of the manhole insert approximately 3/4 inch below the lip. The valve or vent hole will allow a maximum release of 5 gallons per 24 hours when the insert is full.
- F. The manhole insert shall be manufactured to fit the manhole frame rim upon which the manhole cover rests. The Contractor is responsible for obtaining specific measurements of each manhole cover to insure a proper fit. The manhole frame shall be cleaned of all dirt, scale and debris before placing the manhole insert on the rim.
- G. Diaphragm shall be Rainstopper manufactured by Rainstopper, Inc. in color white, or approved equal.

2.07 CLEANOUTS

- A. Cleanouts shall be cast iron and extend to the finish grade and capped with a clean-out plug in accordance with details and at locations shown on the Drawings. Pipe shall be the same size as the gravity sewer line in which the cleanout is located. A 4-inch thick concrete pad, with 6" x 6", 1.9 x 1.9 wire mesh, 24 inches square, with the valve box lid section, shall be provided around each cleanout.
- B. Cleanouts shall be in accordance with LFUCG Standard Drawings.

2.08 DROP CONNECTIONS

- A. Drop connections shall be installed on exterior of manhole as shown on the LFUCG Standard Drawings. The pipe material inside the drop manhole shall be of the same material as the sanitary sewer line.
- B. All outside drop manholes are to be precast. No field casting of drop manholes shall be allowed unless directed by the Engineer.
- C. Drop invert shall be at the springline of the mainline pipe.

2.09 EXTERNAL SEALS

- A. All manhole section joints shall receive an external seal. The external seal shall be installed per the manufacturer recommendations and shall meet ASTM C 877 (Type II) and have Type 316 stainless steel ratcheting straps. External seals shall be MARMAC MacWrap for manholes with straps.

PART 3 - EXECUTION

3.01 FABRICATION - PRECAST SECTIONS

- A. Manhole sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast.
- B. All precast concrete manhole sections shall be cured in a manner to assure the highest quality:
 - 1. Results of initial set tests (per ASTM C 403) shall be provided upon request. New test will be run in the event of change of cement supplier, mix design, or as otherwise necessary to maintain a quality product.
 - 2. Forms on wet-cast concrete shall not be removed until the concrete attains compressive strength equal to 2500 psi based upon field-cured cylinders, cured under conditions which equal the most severe conditions to which the product is exposed.
 - 3. Test cylinders for determining "shipping strength" shall be cured with similar methods as the product that they represent. In lieu of actual curing with the product, cylinders may be cured in curing chambers correlated in temperature and humidity with the product conditions.
 - 4. Any precast concrete manhole section which freezes before attaining 500 psi compressive strength will be rejected.
- C. No more than two (2) lifting hooks may be cast or drilled in each section.
- D. Flat slab tops shall have a minimum thickness of 6 inches and reinforcement in accordance with ASTM C478.
- E. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the precast sections.

- F. Acceptance of the sections will be on the basis of material tests and inspection of the completed product and test cylinders if requested by the Engineer.
- G. Cones shall be precast sections of similar construction.
- H. It shall be the responsibility of the precast manufacturer to handle all materials in such a manner as to avoid all damage to the product before and during delivery. This damage is defined as, but is not limited to, structural or spiderweb cracking, chips, spalls, pop-outs, or other damage.
- I. All precast concrete manhole sections shall be stored in a manner that will maintain product quality, as well as provide damage protection from yard traffic. All concrete pipe greater than 36" in diameter shall be "studded" with a minimum of two each, 4" x 4" wood posts providing vertical support during storage. This requirement shall apply both at the manufacturer's storage yard and on the jobsite.
- J. No precast concrete manhole sections shall be delivered to a jobsite or transported from the facility of origin until adequate quality and maturity has been attained, as described in these specifications.
 - 1. All precast concrete manhole sections shall be a minimum age of 7 days.
 - 2. All precast concrete manhole sections shall attain compressive strength equal to 4000 psi.
 - 3. No precast concrete manhole sections shall be delivered without Certification. Any product delivered without acceptable Certification will be subject to rejection.

3.02 SETTING PRECAST MANHOLE SECTIONS

- A. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- B. Butyl mastic sealant shall be installed in all manhole joints in accordance with the manufacturer's recommendations and as shown in LFUCG Standard Drawings. Butyl mastic sealant shall meet Federal Spec SS-S-210A, AASHTO M-19875I, and ASTM C990. Butyl mastic sealant shall be NPC Bidco C-56 as manufactured by Trelleborg Engineered Systems, or approved equal. Sealant shall be a minimum bead of 1 inch in rope configuration.
- C. All manhole section joints shall receive an external seal. The external seal shall be installed per the manufacturer recommendations and shall meet ASTM C 877 (Type II) and have Type 316 stainless steel ratcheting straps. External seals shall be MARMAC MacWrap for manholes with straps.
- D. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose.

3.03 ADJUSTING MANHOLE FRAMES AND COVERS TO GRADE

- A. Except where shown on the Drawings, the top of the precast concrete eccentric cone of a standard manhole or the top of the flat slab of a shallow manhole shall terminate 6 inches below existing grade in an unpaved non-traffic area except in a residential yard and 13 inches below existing grade in a paved or unpaved traffic area and in a residential yard. The remainder of the manhole shall be adjusted to the required grade.
- B. When a manhole is located in an unpaved non-traffic area other than in a residential yard, the frame and cover shall be adjusted to an elevation 1 inch above the existing grade at the center of the cover. If field changes have resulted in the installed manhole invert elevation to

be lower than the invert elevation shown on the Drawings, the adjustment to an elevation of 1 inch above existing grade shall be accomplished by the use of precast concrete or cast iron adjusting rings. The area around the adjusted frame and cover shall be filled with the required material, sloping it away from the cover at a grade of 1 inch per foot.

- C. When a manhole is located in a bituminous, concrete, or crushed stone traffic area, or in a residential yard, the frame and cover shall be adjusted to the grade of the surrounding area by the use of precast concrete or cast iron adjusting rings. The adjusted cover shall conform to the elevation and slope of the surrounding area.
 - 1. The Contractor shall coordinate elevations of manhole covers in paved streets with the local public works department. If resurfacing of the street in which sewers are laid is expected within twelve (12) months, covers shall be set 1-1/2 inches above the existing pavement surface in anticipation of the resurfacing operations.

3.04 ADJUSTING SECTIONS

- A. Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead of butyl mastic sealant and shall be thoroughly bonded.

3.05 SETTING MANHOLE FRAMES AND COVERS

- A. Manhole frames shall be set with the tops conforming to the required elevations set forth hereinbefore. Frames shall be set concentric with the top of the concrete and in a full bead (1") of butyl mastic sealant so that the space between the top of the masonry and the bottom flange of the frame shall be completely watertight.
- B. Manhole covers shall be left in place in the frames on completion of other work at the manholes.

3.06 VACUUM TESTING (ASTM C1244)

- A. Scope
 - 1. This test method covers procedures for testing precast concrete manhole sections and precast and cast in place drop manholes, when using the vacuum test method to demonstrate the integrity of the installed materials and the construction procedures. This test method is used for testing concrete manhole sections utilizing mortar, mastic, or gasketed joints.
- B. References, ASTM Standards:
 - 1. C 822 Terminology Relating to Concrete Pipe and Related Products.
 - 2. C 924 Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method.
 - 3. C 969 Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.

C. Summary of Practice

All lift holes and any pipes entering the manhole are to be plugged. All drop piping (precast or cast in place) shall be tested and included in the pressure testing zone). A vacuum will be drawn and the vacuum drop over a specified time period is used to determine the acceptability of the manhole.

D. Significance and Use

This is not a routine test. The values recorded are applicable only to the manhole being tested and at the time of testing.

E. Preparation of the Manhole

1. All lift holes shall be plugged.
2. All pipes entering the manhole shall be temporarily plugged, taking care to securely brace the pipes and plugs to prevent them from being drawn into the manhole.
3. All drop piping (precast or cast in place) shall be tested and included in the pressure testing zone).

F. Procedure

1. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.
2. A vacuum of 10 inches of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 inches of mercury.
3. The manhole shall pass if the **minimum time** for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury **exceeds 60 seconds (one minute)**.
4. If the manhole fails the initial test, necessary repairs shall be made by an approved method. The manhole shall then be retested until a satisfactory test is obtained.
5. Use or failure of this vacuum test shall not preclude acceptance by appropriate water infiltration or exfiltration testing, (see Practice C 969), or other means.

G. Precision and Bias

No justifiable statement can be made either on the precision or bias of this procedure, since the test result merely states whether there is conformance to the criteria for the success specified.

END OF SECTION

- L. Terminals shall be included to connect the electronic controls package, including display, to a back-up 24 VDC power source. As a standard alternative the actuator shall have the ability to maintain the status and alarm contacts in order to update status to the control room and also provides status visibility on the LCD screen without main power applied. It should be configurable for at least one hour and, once main power is restored, be available for the next unforeseen power outage. The use of an integral battery is prohibited.
- M. A dedicated circuit to prevent undesired valve operation in the event of an internal circuit fault or erratic command signal shall be included. A single point failure will not result in erratic actuator movement. An open or short-circuit in the internal circuit board logic shall not energize the motor contactor, nor shall a single fused control relay contact fail to deenergize the motor contactor. The command inputs shall be optically coupled and require a pulse width of at least 250 ms to 350 ms to turn on or off. In the event of an internal circuit fault, an alarm shall be signaled by tripping the Monitor Relay and through LCD indication.
- N. Four latched status contacts rated 125VAC, 0.5A and 30VDC, 2 amps shall be provided for remote indication of valve position, configured as 1-N/O and 1-N/C for both the open and closed positions. Two contacts may be configured to represent any other actuator status; mid-travel position, switched to local, overtorque, motor over temperature, manual operation, switched to remote, switched to stop, valve moving, close torque switch, open torque switch, hardware failure, ESD active, inhibits active, valve jammed, analog IP (input) lost, lost phase, and network controlled.
- O. A monitor relay shall be included and shall trip when the actuator is not available for remote operation. Both N/O and N/C contacts shall be included, rated 125VAC, 0.5A and 30VDC, 2 amps. The monitor relay shall be configurable for three additional fault indications; lost phase, valve jammed, and motor overtemp. The yellow LED shall blink when the monitor relay is active.
- P. The ACP (Actuator Control Panel) cover & module shall use solid-state Hall-effect devices for local communication and configuration. The use of reed switches on the module is prohibited. A 32-character, graphical LCD shall be included to display valve position as a percent of open, 0-100%, and current actuator status. "STATUS OK" shall be displayed for an operable actuator. If the actuator is not operable, the appropriate alarm shall be displayed. The alarm shall be continuously displayed until the actuator is operable. Red, green, and yellow LEDs shall be included for open, close, stopped, and moving indication. The Red and Green LEDs shall be reversible. A padlockable LOCAL-STOP-REMOTE switch and an OPEN-CLOSE switch shall be included for local valve actuator control. The control switches shall not penetrate the controls cover and shall be designed to electrically isolate the actuator's internal components from the external environment. The OPEN-CLOSE switch may be configured for maintained or push-to-run (inching) control.
- Q. The device shall be non-intrusive - All calibration shall be possible without removing any covers and without the use of any special tools. All calibration shall be performed in clear text languages, no icons shall be used. The languages shall be English, Spanish, French, German, Portuguese, Italian, Mandarin, Russian, Malay, and Katakana. All calibration shall be performed by answering the "YES" and "NO" questions displayed on the LCD. "YES" is signaled by using the OPEN switch and "NO" by using the CLOSE switch, as indicated adjacent to the switches. A configurable password option shall be available to prevent unauthorized changes.
- R. Double sealed terminal compartment & Terminal block - All customer connections shall be located in a terminal chamber that is separately sealed from all other actuator components. Site wiring shall not expose actuator components to the environment. The internal sealing within the terminal chamber is suitable for NEMA 4, 6, and IP68 to 15M for 96 hours. The chamber shall include screw-type terminals, three for power and 54 for control, for site connections. Three conduit entries, available as: (2) - 1.25" NPT (M32) and (1)-1.5" NPT (M40) shall be located in the terminal chamber.

- S. Coatings - The actuator shall be coated with a polymer powder coat. The coating system shall be suitable for an ASTM B117 salt spray test of 1500 hours. External fasteners shall be stainless steel or high-strength carbon steel that has been chromate-hexavalent coated, and then top coated with a high-strength, high-endurance polymer. The fasteners shall be suitable for an ASTM B117 salt spray test of 500 hours.
- T. A handwheel and declutch lever shall be provided for manual operation. The handwheel shall not rotate during electric operation nor can a seized motor prevent manual operation. Changing from motor to manual operation is accomplished by engaging the declutch lever. Energizing the motor shall return the actuator to motor operation. The lever to enable the declutch shall be padlockable to permit motor operation only.
- U. The actuator shall include a removable torque or thrust bushing to mate with the valve shaft.
- V. Diagnostic facilities shall be included to accumulate and report the performance of the motor, encoder, contactor, cycle time, handwheel operations, actuator ID, firmware revision, and output turns. In addition, a torque profile of the reference baseline valve stroke and the last valve stroke shall be included. A feature for reset shall be provided. All diagnostic information shall be displayed on the LCD. Diagnostics shall also include an FDA (Frequency Domain Analysis) feature. The Frequency Domain Analysis methodology shall capture torque, position or speed values at regular time intervals while the actuator is motoring, and calculate the resulting data set with a Fast Fourier Transform [FFT]. The resulting information shall be used to isolate any components in the mechanical drive train that may exhibit excessive wear or may effect normal actuator operation. FDA and resultant fault indications shall be displayed via the graphical LCD. The actuator shall contain the ability for diagnostics information to be downloaded to a PC or PDA via both IRDA and Bluetooth ports.
- W. Factory testing - Every actuator shall be factory tested to verify: rated output torque, output speed, handwheel operation, local control, control power supply, valve jammed function, all customer inputs and outputs, motor current, motor thermistor, LCD and LED operation, direction of rotation, microprocessor checks, and position-sensor checks. A report confirming successful completion of testing shall be included with the actuator.

2.06 ACTUATOR CERTIFICATIONS

- A. Non-hazardous (Weatherproof/Submersion) Certifications
 - 1. IEC 529 protection code IP68; 15 meters for 96 hours continuous
 - 2. USA & CSA; NEMA 3, 4, NEMA 4X, NEMA 6
- B. Standard Hazardous Global certifications:
 - 1. FM – Class I, Groups B, C & D, DIV.1 and Class II, Groups E, F, & G, T4
 - a. T4A temperature classification is acceptable w/ operational times < 15 min.
 - 2. ATEX Eex d IIB T4 ATEX II 2 G, CENELEC Norm EN50014 and EN50018
 - 3. ATEX Eex d IIC T4 ATEX II 2 G, CENELEC Norm EN50014 and EN50018
 - a. T4A temperature classification is acceptable w/ operational times < 15 min.
 - 4. CSA – Class I, Groups B, C & D, DIV.1 and Class II, Groups E, F, & G, T4
 - 5. IEC Eexd IIB T4, IIB T4
 - 6. IEC Eexd IIC T4, IIC T4

2.07 ACTUATOR OPTIONS

A. Lost power buffer

1. After the actuator has been powered by line power for one hour, it shall automatically withstand most power outages while maintaining the correct state of the S status contacts, even if the user repositions the actuator manually with the handwheel. To maximize its self-power time while the line power is lost, the actuator will place itself in its lowest possible power usage mode. The LCD will darken (sleep mode) until it is needed to be viewed. The LCD can be activated by moving the black knob to OPEN (YES) or by moving the actuator with the handwheel. After 10 seconds of inactivity, the LCD will return to sleep mode.
2. The use of batteries to perform this function shall be prohibited.

B. Analog Position Transmitter (APT)

1. A non-contacting, internally powered, electrically isolated position transmitter shall be included to provide a 4-20 mA signal that is proportional to valve position.

C. Modutronic Option

1. A controller that alters valve position in proportion to a 4-20 mA analog command signal shall be included. Positioning shall be accomplished by comparing the command signal to an internal position feedback. The internal feedback shall be of the non-contacting type. An automatic pulsing feature to prevent overshoot at the setpoint shall be included. Proportional bands, deadband, signal polarity, motion inhibits time, and fail position shall be adjustable through the LCD. Deadband shall be adjustable to 0.5% full span.

D. Relays for Status and Alarms

1. Up to eight additional latching output contacts rated 250 VAC/30 VDC, 5 amps and configurable to represent any actuator status in either N/O or N/C state shall be available: mid-travel position, switched to local, overtorque, motor over temperature, manual operation, switched to remote, switched to stop, valve moving, close torque switch, open torque switch, hardware failure, ESD active, inhibits active, valve jammed, analog IP (input) lost, lost phase, and network controlled.

E. DDC (Distributed Digital Control)

1. A digital communication control system that provides the ability to control and monitor up to 250 actuators over a single twisted-pair cable shall be included. The communication network shall employ Modbus (Bitbus) protocol on an RS-485 network, and shall be redundant such that any single break or short in the communication cable shall not disable any actuators. Each actuator shall include an addressable field unit that communicates over the twisted pair network and executes open, close, stop, ESD, and GO TO position commands. The field unit shall also communicate all actuator status and alarm diagnostic messages over the same communication network.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All valves shall be installed in accordance with the manufacturer's recommendations.

END OF SECTION

SECTION 11310 - SOLIDS HANDLING SUBMERSIBLE SEWAGE PUMPS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment, delivering, installing, testing, and placing into service all pumping equipment and with all appurtenances associated with the Lift Stations complete as shown on the Drawings and more fully described hereinafter. The equipment to be furnished and installed shall be as shown on the Drawings and shall include pumps, motors, guide rails, access hatches, control panels and control systems, and appurtenances, all tested and ready for operation.
- B. Unless otherwise specified the pump manufacturer shall furnish each pumping unit complete with drive motor and all other components and shall be entirely responsible for the compatibility in all respects of all components furnished.
- C. Several pump manufacturers are listed within this specification and for certain pump features there is more than one option that is acceptable. For these items, more than one option is specified in this specification and a pump manufacturer must meet one of the options.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals: Section 01300
- B. Operating & Maintenance Manuals: Section 01780

1.03 MANUFACTURER

- A. The pumping units shall be provided by a single manufacturer with a minimum of five (5) years' experience in designing and manufacturing pumping equipment of similar type, size and capacity. The pumps shall be manufactured by the KSB, Pentair-Myers, or approved equal.
- B. Replacement Parts Capability: The manufacturer shall have the ability to promptly furnish any and all interchangeable replacement parts as may be needed at any time within the expected life of the pumps. Upon request, the Contractor shall submit evidence of the proposed manufacturer's ability to promptly fill replacement orders.
- C. Quality Assurance: All pumping units shall be of approved design and make products of manufacturers who have built equipment of similar type, size and capacity.
- D. Additional Submittals: The Contractor shall submit, upon request, any additional information that the Engineer may deem necessary to determine the ability of the proposed manufacturer to produce the specified equipment.
- E. Manufacturer Information: All manufacturer information required by the specifications shall be submitted by the Contractor within thirty (30) calendar days of the date of receipt of the Notice to Proceed.

Any additional information or data, specifically requested by the Engineer, concerning manufacturer's capabilities (especially relating to requirements described hereinbefore), shall be submitted by the Contractor within fourteen (14) calendar days of the receipt of the written request thereof, unless otherwise specified.

Approval of manufacturers or suppliers will not be given until all information required by the specifications or requested by the Engineer has been submitted and acceptable.

G. Disqualification of Manufacturer:

1. Poor performance of similar pumping equipment now in operation under the specified conditions of service and pump rating constitute grounds for disqualification of the pump manufacturer, supplier, or both, unless such poor performance has been corrected.
2. Failure to successfully comply with the provisions of subparagraphs A through H, inclusive, will constitute grounds for disqualification of pump manufacturer.

1.04 SUBMITTALS (SHOP DRAWINGS)

- A. General: The Contractor shall comply with the provisions of the specifications regarding submittals, unless otherwise specified herein.
- B. At the time of submission, the Contractor shall, in writing, call the Engineer's attention to any deviations that the submittals may have from the requirements of the Engineer's Contract Drawings and Specifications.
- C. The Contractor shall provide a notarized certification indicating that all pumping products meet the required Specifications.
- D. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction shall be submitted on all items specified herein to the Engineer for review and approval before ordering.
- E. Content of Submittals: The following shall be included in submittals as a minimum. However, any additional information or data shall be added if and whenever requested by the Owner or the Engineer. Where applicable, submit separate data for each pump.
 1. Descriptive Literature:
 - a. Dimensions
 - b. Materials of Construction (including required coating).
 - c. Performance Data.
 - 1) Pump Impeller Size
 - 2) GPM
 - 3) TDH
 - 4) BHP
 - 5) RPM
 - 6) Performance curves showing pump operation including shutoff head, operating point, and run-out.
 - 7) Performance curves showing overall pump efficiencies.
 - 8) Weight of pump

- 9) Horsepower rating of pump motor
2. Installation Information: Submit installation drawings and information for pump connections, connecting piping and valves, electrical connections, and auxiliary equipment.

The Contractor shall submit all other drawings, material lists and other information specified, requested and/or necessary to show complete compliance with all details of the contract documents.

3. Operation and Maintenance Manual: Manual shall contain all information necessary for proper operation and maintenance of pumping units, as well as the location of the nearest permanent service headquarters.

1.05 TESTS

A. Shop Tests:

1. All pumps shall receive a non-witness certified factory performance test.
2. The Manufacturer shall factory test all pumps prior to shipment in accordance with the Hydraulic Institute standards, latest version. Flow rate, total head and Input KW shall be tested and recorded for at least five points on the pump performance curve. Test shall be performed to demonstrate that the pumps meet ANSI/HI 11.6 acceptance grade 1U for all specified points. The five points shall include the points specified in pump performance table in Paragraph 2.02.
3. The Manufacturer shall perform hydrostatic test on the pressure-containing parts in accordance with ANSI/HI 11.6. Test shall be conducted on each pump prior to shipment.
4. The Manufacturer shall perform the following test on each pump prior to shipment from factory:
 - a. Megger motor and pump for insulation breaks or moisture.
 - b. Prior to submergence, the pump shall be run dry and checked for correct rotation.
 - c. Pump shall be run for a minimum of 30 minutes in a submerged condition.
 - d. The pump shall be removed from test tank, meggered immediately for moisture and upper and lower seal unit shall be checked for water intrusion.
 - e. A written certification test report regarding the above tests shall be submitted for approval prior to shipment.
5. Five (5) certified copies of the results of these tests are to be sent to the Engineer. Also included with the test curves shall be a certified bill of material list depicting quality of construction.

B. Field Tests:

1. The pumping units will be accepted upon the basis of the certified copies of the shop test and be subject to a four-hour field test of each unit. This test will be for the purpose of determining if each pumping unit will operate under installed conditions within a reasonable degree of correlation with the shop tests.

2. The Contractor shall give at least two (2) weeks' notice to the Owner when the field tests are to be accomplished so that the Owner may have a representative present at the said tests.
3. The field tests shall be made by the Contractor in the presence of and as directed by the Engineer.
4. Field tests shall be made on each pumping unit. During the test, each pump shall be run at maximum rated speed for at least three (3) rates of flow corresponding to minimum rate, design rate, and maximum rate of flows specified as evidenced by the corresponding total head shown by the pump gauges; simultaneous ammeter readings shall be taken. Variation of the rate of flow shall be made by throttling the discharge valve (where applicable). The rated motor nameplate current and power shall not be exceeded at any rate of flow within the specified range.
5. Before any pump is rotated, the Contractor shall make certain that no debris is present in suction well, pumps or pipelines. Any internal damage done to equipment while starting up shall be assumed to be caused by debris and shall be replaced at the Contractor's expense. No pump shall be rotated under power unless submerged with liquid.
5. When water can be pumped, the Contractor shall commence pumping and shall have representatives from the pump manufacturer to start the pumps. When flow conditions are favorable, the Contractor or pump manufacturer shall in the presence of the Engineer, run a series of tests to establish the adequacy of the pumping units.
6. Field tests shall also conform to Part 3, Paragraph 3.03 as specified hereinafter.

C. Failure of Tests:

1. Any defects in the equipment or failure to meet the guarantees or requirements of the specifications shall be promptly corrected by the Contractor by replacements or otherwise. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails or refuses to make these corrections or if the improved equipment, when tested, shall fail again to meet the guarantees of specified requirements, the Owner notwithstanding its having made partial payment for work and materials which have entered into the manufacture of said equipment, may reject said equipment and order the Contractor to remove it from the premises at his own expense.
2. In case the Owner rejects said equipment, then the Contractor hereby agrees to repay to the Owner all sums of money paid to him for said rejected equipment on progress certificates or otherwise on account of the lump sum prices herein specified, and upon the receipt of said sum of money the Owner will execute and deliver to the Contractor a bill of sale of all its rights, title, and interest in and to said rejected equipment; provided, however, that said equipment shall not be removed from the premises of the Owner until the Owner obtains from other sources the equipment to take the place of the rejected. The Owner hereby agrees to obtain said other equipment within a reasonable time and the Contractor agrees that the Owner may use the equipment furnished by him without rental or other charge until said other new equipment is obtained.

D. Responsibility During Test: The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

E. Manufacturer's Representative: For all pumping units, the Contractor shall furnish the services of accredited representatives of the pump manufacturer who shall supervise the

installation, adjustment, and field tests of each pumping unit and give instructions to the operating personnel. As one condition necessary to acceptance of any pumping unit, the 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 operating personnel have been suitably instructed in the operation, lubrication, and care of the unit.

1.06 GUARANTEE PERIOD

- A. After successful completion of tests and trials under operating conditions on all equipment, the Contractor shall guarantee all equipment, materials and workmanship from undue wear and tear, from mechanical and electrical defects, and from any failure whatever, for a minimum of five (5) years. This five (5) year minimum shall not replace a standard manufacturer's guarantee which exceeds one (1) year.

1.07 PUMP WARRANTY

- A. The Contractor guarantees and warrants that during the first three years of operation, the pumps will operate satisfactorily and continuously according to the pump schedule specified herein, and that after due notice has been given by the Owner, he or the pump manufacturer will proceed, within a reasonable time, to adjust, regulate, repair and renew at his own expense or perform such work as is necessary to maintain the guaranteed capacities, efficiencies and performances. Overall pump warranty is five-years that includes 100% parts and labor for five years.

PART 2 - PRODUCTS

2.01 SOLIDS HANDLING SUBMERSIBLE SEWAGE PUMPS

A. Pump Design:

The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two parallel guide bars extending from the top of the station to the wet well mounted discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal-to-metal, or a resilient seating system with O-ring or profile gasket connection making watertight contact. The entire weight of the pump/motor unit shall be borne by the pump discharge elbow. No portion of the pump/motor unit shall bear on the sump floor directly or on a sump floor mounted stand.

Power and pilot cable supports shall be provided and consist of a wire braid sleeve with attachment loops or tails to connection to the underside of the access frame.

B. Pump Construction:

Major pump components shall be of gray cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other casting irregularities. All exposed nuts or bolts shall be AISI type 304 stainless steel. All metal surfaces coming into contact with the pumped media, other than stainless steel, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with either a polyester resin or a high solids two-part epoxy paint finish on the exterior of the pump.

Sealing design shall incorporate metal-to-metal contact between machined surfaces or a resilient seating system with O-ring or profile gasket. Pump/Motor unit mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Joint sealing will be the result of controlled compression of rubber O-rings in two planes and

O-ring contact of four sides without the requirement of a specific bolt torque limit. Rectangular cross-sectioned rubber, paper or synthetic gaskets that require specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

D. Cable Entry Seal:

Power cord and control cord shall be triple 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. A third sealing area shall be provided by a terminal board to separate the cable entry chamber from the motor chamber. Cords shall withstand a pull strain to meet FM requirements.

Insulation of power and control cords shall be type SOOW or W. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame.

E. Motor:

Motor shall be for 3-phase, 230 volts and shall be NEMA B type. Stator winding shall be of the open type with Class H insulation good for 180 degrees Celsius maximum temperature. Winding housing shall be filled with a clean high dielectric oil that lubricates bearings and seals and transfers heat from winding and rotor to outer shell. Air-filled motors, which do not have the superior heat dissipating capabilities of oil-filled motors, shall not be considered equal.

Motor shall have 2 heavy duty ball bearings to support pump shaft and take radial and thrust loads and a sleeve guide bushing directly above the lower seal to take radial load and act as flame path for seal chamber. Ball bearings shall be designed for 50,000 hours B-10 life. Stator shall be heat shrunk into motor housing. A heat sensor thermostat shall be attached to and embedded in the winding and be connected in series with the motor starter contactor coil to stop motor if temperature of winding is more than 30 degrees Celsius. Thermostat to reset automatically when motor cools to safe operating temperature. The common pump, motor shaft shall be of 416 stainless steel.

F. Pilot Cable:

The pilot cable shall be designed specifically for use with submersible pumps and shall be type SUBCAB (Submersible Cable). The cable shall be shielded, multi-conductor type with a chloroprene outer jacket and the tinned copper conductors insulated with ethylene-propylene rubber. The conductors shall be arranged in twisted pairs. The cable shall be rated for 600 Volts and 90°C (194°F) with a 40°C (104°F) ambient temperature and shall be approved by Factory Mutual (FM). The cable length shall be adequate to reach the junction box without the need for splices.

G. Mechanical Seal:

Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The lower seal shall be independent of the impeller hub. The seals shall operate in a lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating corrosion resistant tungsten-carbide or silicone-carbide seal ring.

Motor shall be protected by 2 mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell. 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 box. This signal shall not stop motor but shall act as a warning only, indicating service is required.

H. Pump Shaft:

Pump and motor shaft shall be a solid continuous shaft. The pump shaft shall be the extension of the motor shaft. Couplings shall not be acceptable. The shaft shall be of sufficient size to transmit full driver output with a maximum deflection of 0.002 inches measured at the lower mechanical seal. The pump shaft shall be of carbon steel ASTM A 572 Grade 50 or stainless steel, 1.4021 (AISI 420) and shall be completely isolated from the pumped liquid.

I. Impeller:

The impeller shall be ductile iron and of the 2-vane solids handling enclosed type. Vane inlet tips shall be carefully rounded to prevent stringy material from catching in vanes. Pump-out vane shall be used in front and back chamber. Impeller shall be dynamically balanced. Impeller shall be driven by stainless steel shaft key and impeller held in place with lock screw and washer. Impeller and motor shall lift off of case as a unit without disturbing discharge piping. Impeller neck shall run in bronze wear ring that is pressed into volute case.

J. Volute:

The volute case shall be cast iron and have a flanged center line discharge. Discharge flange shall be 4-inch standard with bold holes straddling center line. A bronze wear ring shall be pressed into case for guiding impeller neck and to prevent corrosion freeze-up. Wear ring to be held from rotating by locking with stainless steel set screw in end of ring. Minimum inlet and discharge size shall be as specified. The discharge size shall be the minimum size shown on the pump schedule. Proprietary or nonstandard flange dimensions shall not be considered acceptable.

K. Pump Discharge Flange:

The pump discharge-mating flange shall be as shown on the drawings.

2.02 PUMPING REQUIREMENTS

A. Solids handling pumps shall be manufactured by Myers or equal, and shall comply with the following characteristics:

No. of Pumps	Min Shut-off Head (Ft)	Design Point #1		Design Point #2		Design Point #3		Max. Speed (RPM)	Motor HP/Min Each Pump
		Flow (GPM)	Head (Ft)	Flow (GPM)	Head (Ft)	Flow (GPM)	Head (Ft)		
2	84	600	60	800	55	1000	48	1760	20

B. Power supply shall be 230 volts, 3-Phase, 60 Hz, 4 wire service.

C. Motors shall be 230-volt, 3 phase, 60 Hz.

D. Minimum pump discharge diameter shall be 4 inches.

- E. The pumps shall operate throughout the entire operating range with the maximum vibration velocity in inches per second RMS unfiltered, measured in the field, shall be less than the requirements of ANSI/Hi 11.6-latest edition.

2.03 PUMP ACCESSORIES AND OTHER

- A. All pumps and controls shall be completely wired at the factory for power and control and shall be color-coded. All wiring outside the control cabinet shall be rigid conduit. All accessory equipment shall be permanently wired with suitable disconnecting means and overload protection.
- B. All pump motors shall be provided with stator temperature sensor switches and stator housing leak detector.
- C. The pump/motor assembly shall be suitable for use in Class I, Division 1, Group D hazardous locations.
- D. Contractor shall be responsible for supply of appropriate lengths of lifting chain, submersible power cable, and MG Hi conductor submersible cable.
- E. Access hatches for wet well and valve pit shall be as specified in Section 08370 of these specifications. Dimensions as noted on the Drawings shall be confirmed by the Pump Manufacturer.

2.04 GUIDE RAILS

- A. The pumping station shall be furnished with the necessary, stainless steel upper guide holder and level sensor cable holder.
- B. Lower guide holders shall be integral with the discharge connection. Dual guide rails shall be of Schedule 40, welded two-inch minimum diameter, Type 316 stainless steel pipe of the length required by the Drawings. Single guide rails and guide cables are not acceptable.
- C. Intermediate guide brackets shall be furnished and installed so that the maximum length of unsupported guide rails will be no longer than 20 feet, and shall be fabricated of Type 316 stainless steel.
- D. Stainless steel cable holders including the cable hooks shall be fabricated from Type 316 stainless steel plate. Sharp corners and edges shall be ground smooth to prevent abrasion and cutting of electrical cable insulation. The cable holder shall be of sufficient length and strength to provide support for each separate cable, except that the pump power and lift cables may use the same hook position, provided the cables do not foul one another and the lift cable is easily accessed from the hatch opening.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Coordinate with other trades, equipment and systems to the fullest extent possible.
- B. Take all necessary measurements in the field to determine the exact dimensions for all work and the required sizes of all equipment under this contract. All pertinent data and dimensions shall be verified by the Contractor.

3.02 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the locations shown on the Drawings. Anchor bolts shall be set in accordance with the manufacturer's recommendations and setting plans.
- B. The Contractor shall also provide from the submersible pump supplier the service of a qualified start-up engineer (factory representative) who has had prior on-site start-up experience to assist in performing start-up, checkout and initial operation services of the pumping units. The start-up engineer shall also instruct the Owner's personnel on the operation and maintenance procedures for the station. Qualified supervisory services, including manufacturers' engineering representatives, shall be provided for a minimum of 4 man-days to ensure that the work is done in a manner fully approved by the respective equipment manufacturer. The pump manufacturer's representatives shall specifically supervise the installation of the pump and the alignment of the connection piping. If there are difficulties in the start-up or operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no cost to the Owner. Services of the manufacturer's representatives and training shall be provided when the first pump is started, with follow-up visits upon start-up of each subsequent pump.
- C. A certificate from each equipment manufacturer shall be submitted stating that the installation of his/her equipment is satisfactory, that the equipment is ready for operation and that the operating personnel have been suitably instructed in the operation, lubrication and care of each unit.

3.03 FIELD TESTS

- A. During the field tests, observations shall be recorded of head, capacity, and motor input. All defects or defective equipment revealed by or noted during the tests shall be corrected or replaced promptly at the expense of the Contractor, and if necessary, the tests shall be repeated until results acceptable to the Engineer are obtained. The Contractor shall furnish all labor, piping, equipment, and materials necessary for conducting the tests. A report of the field tests shall be submitted to the Engineer.
- B. After installation of the pumping equipment, and after inspection, operation, testing and adjustment have been completed by the manufacturer's representative, each pump shall be given a running test in the presence of the Engineer, such tests as necessary to indicate that the pumps, motors, and drives generally conform to the efficiencies and operating conditions specified and its ability to operate without vibration or overheating. The pumps and motors shall operate at the specified capacities in the range of heads specified without undue noise or vibration. Any undue noise or vibration in the pumps or motors, which is deemed objectionable by the Engineer, will be sufficient cause for rejection of the units.
- C. A thirty-day operating period of the pumps will be required before acceptance. If a pump performance does not meet the Specifications, corrective measures shall be taken or the pump shall be removed and replaced with a pump which satisfies the conditions specified. All test procedures shall be in accordance with Hydraulic Institute Standards certified results of tests shall be submitted.
- D. Provide, calibrate and install all temporary gauges and meters, shall make necessary tapped holes in the pipes, and install all temporary piping and wiring required for the field acceptance tests. Written test procedures shall be submitted to the Engineer for approval 30 days prior to testing.

3.04 TRAINING

- A. A factory representative shall provide a minimum of 4 person-hours of training to the Owner's operations staff concerning the recommended operation and maintenance of the equipment. Training shall be performed after substantial completion of the project with the use of operating equipment.

END OF SECTION

SECTION 11900--OPEN-CHANNEL GRINDERS, GRINDING and SHREDDING EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes Open-channel Grinder, Installation Frame and Controller.

1.02 REFERENCE STANDARDS

- A. Equipment shall, as applicable, meet the requirements of the following industry standards.

- B. ASTM International (ASTM):

1. ASTM A36 - Carbon Steel Plate.
2. ASTM A536 - Ductile Iron Castings.
3. ASTM A48 - Gray Iron Castings.
4. ASTM A564 Grade 630 condition H1150 (17-4) stainless steel

- C. American Iron and Steel Institute (AISI):

1. AISI Type 1020 Steel
2. AISI Type 1045 Steel.
3. AISI Type 4130 - Heat Treated Alloy Steel.
4. AISI Type 4140 Heat Treated Alloy Steel.
5. AISI Type 18-8 Stainless Steel
6. AISI Type 303 Stainless Steel.
7. AISI Type 304 and 304L Stainless Steel.
8. AISI Type 316 and 316L Stainless Steel.

- D. Society of Automotive Engineers (SAE):

1. SAE Type 660 Bearing Bronze.

- E. National Electrical Manufacturer's Association (NEMA) Standards.

- F. National Electrical Code (NEC).

- G. Underwriters Laboratory (UL and cUL).

- H. International Electrotechnical Commission (IEC).

1.03 QUALITY ASSURANCE

- A. Qualifications:

1. Manufacturer is documented as being engaged in the sale of similar products for over forty-years.
2. Manufacturer is single supplier for equipment listed in this section.

3. Manufacturer's Service Center is located domestically for repairs and upgrades.
 4. Manufacturer supports Renew Program, providing new factory-built replacements of selected products for install without requirement to return existing equipment.
 5. Manufacturer supports Preventative Maintenance Program, providing inspection and service of equipment by Manufacturer's Factory Technicians.
 6. Manufacturer stocks all non-custom spare Parts.
- B. Regulatory Requirements:
1. Manufacturer is U.L. listed for the construction of controller.
- C. Certifications:
1. Manufacturer's management system is ISO9001 certified.

1.04 SUBMITTALS

Submittal documentation is provided for approval in ".pdf" format.

- A. Product Data:
1. Product description text.
 2. Performance curves or capacity tables.
 3. Catalog data.
- B. Shop Drawings
1. General arrangement of installation.
 2. Product Configuration.
 3. Assembly
- C. Operation and Maintenance Manuals:
- Submit one copy of a suitable operation and maintenance manual with shipment of product. An electronic version shall be supplied to create additional copies.
1. The manuals shall include but not be limited to the following: Equipment descriptions, operating instructions, drawings, troubleshooting techniques, recommended maintenance schedule, recommended lubricants, and recommended replacement parts list.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Packaging, Shipping, Handling, and Unloading
1. Packaged in containers or on skids suitable for normal shipping, handling, and storage.
 2. Protected from rain, snow, impact, and abrasion while in the possession of the carrier.
- B. Acceptance at Site
1. Contractor shall review the contents of the shipment at time of delivery and promptly notify the carrier and supplier of any discrepancies.

C. Storage and Protection

1. Equipment to remain in the packaging provided by the supplier until it is installed.
2. Equipment to be stored in a dry environment between 40 and 100 degrees Fahrenheit.

D. Waste Management and Disposal

1. Contractor shall be responsible for discarding all packaging materials in an environmentally friendly manner and in accordance with local regulations.

1.06 WARRANTY

A. 12-month Limited + 5 Year Special Warranty (Monster Metal®)

1. Manufacturer submits a document clearly identifying the scope, term and exclusions of coverage for a standard twelve-month limited warranty plus 5-year warranty on the wet end of the grinder including coverage for failure from excessive wear of the cutters, spacers, seals, bearings and shafts.

1.07 SERVICE

A. Supplier supports product with multiple programs options available.

1. Service Center located domestically for repairs and upgrades.
2. Renew Program: Provides new factory-built replacements of selected products for install without requirement to return existing products.
3. Preventative Maintenance Program: Inspection and service of equipment by Factory Technicians.
4. Spare Parts.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. JWC Environmental Inc, 2850 S. Red Hill Ave. Suite 125, Santa Ana, CA 92705; Tel: 800-331-2277; www.jwce.com

1. Substitution requests will be considered in accordance with provisions in appropriate sections in Division 01 and the following conditions.

2.02 OPEN-CHANNEL GRINDER

A. Reduces solids conveyed in a wastewater stream to a size that is non-detrimental to downstream equipment. Grinder uses side rail with flow channel and specially designed fingers with a shape to create a pressure gradient increasing flow capacity and maximize capture of solids. Grinder uses low speed and high torque drive with two counter-rotating shafts stacked with intermeshed individual cutters and spacers supported on both ends of each shaft with mechanical seal and bearing cartridges, driven by an electric motor and speed reducer.

B. Basis of Design:

1. Muffin Monster model# 30005-0024-DI as manufactured and supplied by JWC Environmental Inc. or equal.
 - a. Maximum Design Flow Capacity: 1370 GPM (1.97 MGD)

- b. Cutter Stack Height: 24-inches

C. Cutter Assembly-Multi-Zone

Zone 1-Grit Zone Cutters and Spacers.

- 1. Material Zone 1: Alloy Steel.
 - a. Cutters: Through hardened to 45-52 HRC
 - b. Spacers: Through hardened to 34-52 HRC.
 - 2. Configuration Zone 1: Double stacked.
 - 3. Material Zone 1: Monster Metal® Chromium Molybdenum Steel.
 - a. Cutters: Through hardened to 55-60 HRC
 - b. Spacers: Through hardened to 34-42 HRC.
 - 4. Configuration Zone 1: Double stacked.
 - 5. Cutters-Zone 1
 - a. 7-tooth Cam style, .876-inch thick, 4.710-inch diameter. Designed specifically for waste streams containing heavy volumes of solids.
 - b. Precision ground individual cutter elements with a thickness tolerance of +.000/- .001.
 - c. Keyed to shaft with hexagon opening.
- Spacers-Zone 1
- d. Smooth O.D. .892-inch thick, Alloy Steel.
 - e. Precision ground individual spacer elements with a thickness tolerance of +.001/- .000.
 - f. Keyed to shaft with hexagon opening.

Zone 2-Working Zone Cutters and Spacers.

- 6. Material Zone 2: Alloy Steel.
 - a. Cutters: Through hardened to 45-52 HRC
 - b. Spacers: Through hardened to 34-52 HRC.
- 7. Configuration Zone 2: Single Stacked.
- 8. Cutters-Zone 2
 - a. 17-tooth Serrated Cam style, .438-inch thick, 4.730-inch diameter. Designed specifically for waste streams requiring focused reduction of disposable and non-disposable cloth products or wipes.

- b. Multiple serrations located on outside diameter edge of cutter teeth create punctures or perforations in the cloth or paper materials creating a confetti type cut that inhibits reweaving of the material with hair and other solids.
- c. Precision ground individual cutter elements with thickness tolerance of $+.000/-0.001$
- d. Keyed to shaft with hexagon inner profile.

Spacers-Zone 2

- e. Knurled O.D. .446-inch thick.
- f. Knurled diamond pattern on outside diameters surface.
- g. Precision ground individual spacer elements with a thickness tolerance of $+.001/-0.000$.
- h. Keyed to shaft with hexagon opening.

D. Mechanical Seal and Bearing Cartridges-Standard

- 1. Seals and bearing incorporated into a cartridge style design requiring no external seal flush or lubricants to operate wet or dry.
- 2. Rated for maximum operating depth: 208 feet (90 psi).
- 3. Dynamic and Static seal faces to be Tungsten carbide with 6% nickel binder.
- 4. Cartridge bushing and housing are AISI 304 stainless steel.
- 5. O-rings to be Buna-N (Nitrile).

E. Shafts

- 1. 2-inch hexagon heat treated AISI 4140 alloy steel.
- 2. Minimum tensile strength of 170,000 psi.
- 3. Supported on either end by Mechanical Seal and Bearing Cartridges.
- 4. Cantilevered designs are not acceptable.

F. End Housings, Side Rails, Top Cover, Bottom Cover, and Gaskets

- 1. End Housings
 - a. Cast integral bushing deflector directs solids away from Mechanical Seal and Bearing Cartridge bushings.
 - b. Directional flow arrows on side of housings indicate correct installation orientation for solids discharge.
 - c. Cast ASTM A536-84 65-45-12 ductile iron.

2. Side Rails
 - a. Evenly-spaced horizontal fingers and flow channels. Flow channels create additional open area through grinder increasing flow capacity. Horizontal fingers direct solids toward cutters by creating a pressure differential towards the cutters.
 - b. Shape of flow fingers creates a pressure gradient to force solids to cutters and minimize water head loss.
 - c. Fingers and flow channel are positioned on the upstream side of the grinder terminating even with the center of the cutter providing free discharge.
 - d. Side rails with flow channel running the entire length of the side rail are not allowed.
 - e. Cast ASTM A536-84 65-45-12 ductile iron.
3. Top Cover:
 - a. Manufacturing identification plate mounting.
 - b. Cast ASTM A536-84 65-45-12 ductile iron.
4. Bottom Cover:
 - a. ASTM A36 Steel.
5. Gaskets:
 - a. Cork and neoprene rubber.
- G. Transfer Gears with integral interlocking lobes
 1. Heat treated and hardened AISI 4140 alloy steel.
 2. Number of teeth on gears creates ratio of cutter tip speed on low speed shaft to cutter tip speed of highspeed shaft greater than 0.90 and less than 1.00 to promote cleanout of processed material in cutting stack.
- H. Couplings
 1. Low Speed Coupling
 - a. Two-piece 3-jaw interlocking design.
 - b. Hardened AISI 4140 alloy steel
 2. High Speed Coupling
 - a. Type L 3-jaw with elastomer
 - b. Buna-N spider.
- I. Lifting Eyes
 1. Drop forged Steel
 2. Rated for 1300 lb

3. Designed for lift of grinder.

J. Speed Reducer

1. Grease lubricated cycloidal design Cyclo Series 6000 with 29:1 reduction ratio.
2. Manufacturer: Sumitomo Machinery Corporation of America.

K. Motor

1. XPNV Immersible Explosion Proof Motor: Baldor Electric Company.
 - a. Installed Horsepower: 5 HP.
 - b. Motor Service Factor: 1.15.
 - c. Minimum Motor Efficiency (at Full Load): 91 percent.
 - d. Minimum Motor Power Factor (at Full Load): 76.

Performance:

- e. Grinder Peak Torque with Reducer: 1,665 lb-ft.
- f. Grinder Peak Force at Cutter Tip: 8,493 lbf.
- g. UL rated NEMA 6P, Class I, Div. 1 Groups C&D, Class II Div. 2, Groups F&G, Class III Div. 1.
- h. Manufacturer rating of 40 consecutive days of submergence at a maximum depth of 40 feet.
- i. Capable of operating in air 100 percent of time with no external cooling required.
- j. No fan cooling during operation.
- k. Utilize ceramic shaft seal requiring no oil lubrication.

L. Identification:

1. Corrosion resistant nameplate affixed to top cover of Grinder.
2. Nameplate Information: Manufacturer's name and address, Model No., Serial No., Capacity, Max. psi, Weight, Manuf. Date.

M. Finishes:

1. Paint Coatings for Ferrous Materials: Prepared to SSPC-SP6 (Commercial Blast Cleaning) and coated with minimum 6 to 8 mils TDFT (total dry film thickness) of an aliphatic acrylic polyurethane paint in the color Hunter Green.
2. Paint Coatings for Previously Coated Components (Motors, Speed Reducers, etc.): Prepared to SSPC-SP1 (Solvent Cleaning) and SSPC-SP2 (Hand Tool Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) of an aliphatic acrylic polyurethane paint in the color Hunter Green.

2.03 INSTALLATION FRAME

Installation Frame provides structure for mounting and positioning of the grinder in an open channel or wet well. Installation frame secures the grinder in position and provides structure and baffling to properly support and prevent unwanted bypass of material.

A. Frame

1. Mounts to channel walls supporting weight of grinder with suitable anchors supplied by contractor for installation.
2. Frame design uses pocket or guide plate to allow grinder to be lifted or lowered in and out of frame with no removal of fasteners.
3. Where possible frame uses adjustable side flanges to mount to channel walls adjusting to taper or irregularities in the wall.

B. Guide Rail

1. Provides guidance of grinder into frame for deep channel or well installations.
2. Mounts to channel walls or well with suitable anchors supplied by contractor for installation.
3. Uses guide plate mounted to grinder to interface with guide slots in rail to guide grinder into installation frame.
4. Fabricated of AISI 304L stainless steel.
5. Finish: No special requirements

2.04 MOTOR CONTROLLER

A. DESIGN: NEMA enclosure with programmable logic controller (PLC), operation and fail indicators, and selector switches.

B. Basis of Design:

1. Model# PC2200 as manufactured and supplied by JWC Environmental Inc.
 - a. Motor Controller Power Supply: 230 V/ 3 PH/ 60 Hz.

C. Enclosure, Selector Switches, Pushbuttons and Pilot Lights

1. Enclosure NEMA 4X
 - a. Fiberglass reinforced plastic with hinged door and mounting flanges.
 - b. Selector Switches: 22 mm, three-position, rated equal or better than the enclosure and indicate On-Off/Reset-Remote.
 - c. Pilot Lights: 22 mm, LED (pilot lamp), rated equal or better than the enclosure and indicate POWER ON, grinder RUN, grinder JAMMED and MOTOR FAULT.

D. Programmable Logic Controller

1. Basis of Design: Panasonic FP-X series.
 - a. 16K program capacity.

- b. (8) 24 Vdc inputs, (6) relay outputs.

E. Motor Starters, Overload Relays and Control Power Transformer:

- 1. Starters
 - a. IEC, full voltage, and reversing.
 - b. Maximum short circuit protective fault current 100 kA.
- 2. Overload Relays
 - a. Adjustable and sized to full load amperes (FLA) of the motor.
- 3. Control Power Transformer
 - a. Produce 120-volt AC power from the supply power. Sized and fused in accordance with code to accommodate the control power requirements.

F. Current Transducers

- 1. Discrete output type with an adjustable set point from 1-135A with 200ms or faster response time.

G. Operation:

- 1. Grinder Control: In accordance with ON-OFF/RESET-REMOTE Selector Switch.
 - a. OFF/RESET Position (OFF): De-energizes Grinder.
 - b. OFF/RESET Position (RESET): Clears all fault conditions.
 - c. ON Position: Energizes Grinder
 - d. REMOTE Position: Grinder operates as controlled by a remote start/stop dry contact.
- 2. Grinder JAM Condition: In accordance with setting of current transducer.
 - a. Controller will stop and reverse the Grinder motor three (3) times and activate the Grinder FAIL indicator and relay.
 - b. Grinder will stop operation.
- 3. Grinder MOTOR OVERLOAD Condition: In accordance with setting of Motor Overload Relay.
 - a. The MOTOR FAULT indicator lamp will be illuminated, and the FAIL contact will be closed.
 - b. Grinder will stop operation.
- 4. Grinder MOTOR OVERTEMP Condition: In accordance with setting of Motor Thermostat. (Only with applicable motors).
 - a. The MOTOR FAULT indicator lamp will be illuminated, and the FAIL contact will be closed.
 - b. Grinder will stop operation.

5. Power Failure:
 - a. While System is Operating: System shall not return to normal operation until power is restored and START pushbutton is pressed.
 - b. While System is in a Fail Condition: System shall return to a fail state when power is restored. The fail state shall not be cleared until reset.
6. Reset of Grinder: Accomplished from the controller only.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Coordinate installation of the equipment in accordance with the manufacturer's installation instructions, approved submittals, and in accordance with OSHA, local, state, and federal codes and regulations.

3.02 FIELD QUALITY CONTROL

A. INSPECTION

1. The manufacturer is required to provide the services of a factory or manufacturer's representative for a minimum of one day to inspect the equipment for proper installation, apply power for the first time and check for proper motor rotation, oversee the initial introduction of material into the system and confirm the equipment operates as intended.

B. TRAINING

1. Field training for operations, maintenance, and supervisory staff members is to be provided by a manufacturer or manufacturer's representative. Field instruction shall cover key components of the equipment, operating and maintenance requirements and troubleshooting techniques.

END OF SECTION

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 REQUIREMENT

- A. Contractors bidding work under this Contract shall read and understand Division Zero and Division 1 - General Requirements. If any discrepancies are discovered between the Basic Electrical Materials and Methods and General Requirements, the above mentioned documents shall overrule this section. The Basic Electrical Materials and Methods are intended as a supplement to the above mentioned documents.
- B. The Contractor shall bid as outlined in the above mentioned Specifications and shall be governed by any alternates or unit prices called for in the form of proposal.
- C. Each Contractor bidding on the work included in these Specifications shall view the building site and carefully examine the contract Drawings and Specifications, so that he/she may fully understand what is to be done, and to document existing conditions.

1.02 SCOPE OF WORK

- A. Work included in this section of the Specifications shall include the furnishing of all labor, material, tools, approvals, utility connection fees, excavation, backfill, and other equipment necessary to install the electrical system as shown on the Contract Drawings and as specified herein.
- B. It also includes installation and connection of all electrical utilization equipment included in this Contract but furnished by other contractors or suppliers.
- C. It is the general intent that all motors shall be furnished with the particular object of equipment it drives.
- D. The Contractor shall furnish and install all conduit, wire, disconnect switches and miscellaneous material to make all electrical connections to all items of utilization equipment or wiring devices except as otherwise specified.
- E. The electrical design depicted in the Contract Drawings, is a concept. As the Contractor and Subcontractors layout the job in the field and submit Shop Drawings, it is likely that minor changes will need to be made to the layout, field control wiring, or branch circuits/feeders, from what is shown on the Contract Drawings. These changes will be indicated by Engineer review comments on Shop Drawings or issuance of field orders. It is the Contractors job to coordinate these changes among Subcontractors and equipment vendors, to assure a complete and fully operational electrical system at completion of construction. The Contractor shall not layout the job from the Contract Drawings, but rather from accepted Shop Drawings. Electrical rough-in shall be done based on templates provided from the electrical switchgear and MCC manufacturers showing allowable conduit entry locations. Do not submit electrical panelboard Shop Drawings, Motor Control Shop Drawings, Switchboard or Switchgear Shop Drawings until all utilization equipment submittals have been made and accepted. Short Circuit, Coordination and Arc Flash studies must be accepted prior to submittal of Shop Drawings for panelboards, MCC's, switchboards or switchgear.
- F. The Contractor shall perform the work of this contract in a "neat and workmanlike manner" as required by NEC Article 110.12, and further delineated in ANSI/NECA 1, latest edition, "Standard for Good Workmanship in Electrical Construction".
- G. Equipment connections shall be made with flexible or rigid conduit as required. Controllers for motors, disconnect switches, and all control, protective and signal devices for motor circuits, except where such apparatus is furnished mounted and connected integrally with

the motor driven equipment, shall be installed, connected and left in operating condition. The number and size of conductors between motors and control or protective apparatus shall be as required to obtain the operation described in these Specifications, and/or by the Contract Documents, and/or as shown in manufacturer furnished, Engineer reviewed Shop Drawings.

- H. All devices and items of electrical equipment, including those shown on the Contract Drawings but not specifically mentioned in the Specifications or those mentioned in the Specifications but not shown on the Contract Drawings, are to be furnished under this section of the specifications. Any such device or item of equipment, if not defined in quality, shall be equal to similar Equipment and/or devices specified herein.
- I. All devices and items of equipment mentioned in this section of the Specifications whether electrical or not or whether furnished under this or other Division of the Specifications, shall be installed under this Division of the Specifications, unless specifically indicated otherwise.
- J. Where wiring diagrams are not shown on the Contract Drawings, they are to be provided by the supplier of the equipment served and such diagrams shall be adhered to except as herein modified.
- K. The following is a list of items that may not be defined clearly on the Contract Drawings or in other parts of these Specifications. The list is meant to be an aid to the Contractor and is not necessarily a complete list of all work to be performed under this Contract:
 - 1. Connect all motors and accessories furnished by equipment suppliers.
 - 2. Furnish, install, and connect all motor controls.
 - 3. Furnish, install, and connect outdoor lighting.
 - 4. Furnish, install, and connect power and signal lines to all instrumentation equipment, and accessories.
 - 5. Furnish, install, and connect all electrical conduit, duct, and cables.
 - 6. Furnish, install, and connect all communications boxes, outlets, etc.
 - 7. Furnish, install, and connect all power distribution equipment.
 - 8. Furnish and install standby power equipment.

1.03 SHOP DRAWINGS, DESCRIPTIVE LITERATURE, INSTALLATION, OPERATION, AND MAINTENANCE INFORMATION

- A. Shop Drawings including descriptive literature and/or installation, operation and maintenance instructions shall be submitted per Section 01300.
- B. Shop Drawings shall be submitted on the following materials specified in this Division:
 - 1. Conduit - all types and sizes, including liquid-tight flexible.
 - 2. Boxes - all types and sizes.
 - 3. Coal tar epoxy paint.
 - 4. Wiring devices.
 - 5. Device plates.

2. Mechanical Characteristics

a. Integral Horsepower Motor Construction

- 1) Motor frames for horizontal motors shall be cast iron, heavy fabricated steel, or cast aluminum (alloy 356 or 360). A steel insert ring shall be set into the aluminum alloy endshield when cast to minimize wear of the bearing support. Aluminum alloy motors shall not be used in areas where exposed to chlorine gas.
- 2) Motor frames for vertical motors shall be cast iron, heavy fabricated steel, or extruded aluminum (alloy 6063-T4 or 6063-T6). Endshields for vertical motors must be cast iron.
- 3) If an aluminum frame is used, the endshields and/or all other steel hardware must be plated with zinc or cadmium and coated with grease before assembly to minimize the galvanic action between the steel and aluminum.
- 4) Motor frames and endshields shall be of such design and proportions as to hold all motor components rigidly in proper position and provide adequate protection for the type enclosure employed. Lifting lugs of all motors shall conform to NEMA standards.
- 5) Windings shall be random or form wound, adequately insulated and securely braced to resist failure due to electrical stresses and vibration. If the windings are aluminum, there shall be a cold welded aluminum-copper transition joint at the termination of the windings to permit the use of standard copper to copper connection techniques by the electrician and to prevent galvanic action between the copper power wires and the aluminum windings.
- 6) The motor shaft shall be made of high grade machine steel or steel forging of size and design adequate to withstand the load stresses normally encountered in motors of that particular rating. Bearing journals shall be ground and polished.
- 7) Rotors shall be made from high grade steel laminations adequately fastened together and to the shaft. Rotor cage windings may be cast aluminum of bar type construction with brazed end rings.
- 8) Integral horsepower motors shall be equipped with cone, roller, or ball bearings made to AFBMA standards, Grade 1 and shall be of ample capacity for the motor ratings. The bearing housing shall be large enough to hold sufficient lubricant to minimize the need for frequent relubrication (ten years normal operation without lubrication), but facilities shall be provided for adding new lubricant and draining out old lubricant without motor disassembly. The bearing housing shall have long, tight running fits or rotating seals to protect against the entrance of foreign matter into the bearings or leakage of lubricant out of the bearing cavity.
- 9) See the specification division relating to each piece of motor driven equipment for additional motor requirements to those listed above.

b. Fractional Horsepower Motor Construction

- 1) Motor and shell shall be rigid welded steel designed to maintain accurate alignment of motor components and provide adequate protection. End shields shall be reinforced, lightweight, die cast aluminum. Windings shall be of varnish insulated wire with slot insulation of polyester film and baked on bonding treatment to make the stator winding strongly resistant to heat, aging, moisture, electrical stresses, and other hazards. Motor shafts shall be made from high grade, cold rolled, shaft steel with drive shaft extensions carefully machined to

standard NEMA dimensions for shaft coupled drive connection. Bearings shall be carefully selected precision ball bearings with extra quality, long life grease and large reservoir providing 10 years normal operation without relubrication, AFBMA Grade 1.

c. Submersible Motor Construction

- 1) See Equipment Specifications.

3. Tests, Nameplates, and Shop Drawings

a. Tests

- 1) Tests shall be required on integral horsepower motors only. A factory certified test report of "electrically duplicate motors previously tested" shall be supplied on all motors under 200 horsepower. The test shall be certified by the factory and shall contain a statement to the effect that complete tests affirm the guaranteed characteristics published in the manufacturer's catalogs or descriptive literature.
- 2) Tests will be in accordance with IEEE test procedures.

b. Nameplates

- 1) Each motor shall have a permanently affixed nameplate of brass, stainless steel, or other metal of durability and corrosion resistance. The data contained on the nameplate shall be in accordance with NEMA standards.

c. Shop Drawings

- 1) Shop Drawings shall consist of motor dimensions, nameplate data from each motor and tests as outlined above. Also included shall be efficiency and power factor at 100, 75, and 50 percent load. Operation, maintenance, and lubrication information (including bearing catalog numbers) shall be submitted with Shop Drawings for review.

4. Efficiency Requirements

- a. The following motor full load efficiency requirements shall be met as a minimum for totally enclosed 3 phase integral horsepower motors, per NEMA test methods:

Horsepower	Nominal 3600 RPM (Minimum %)	Nominal 1800 RPM (Minimum %)	Nominal 1200 RPM (Minimum %)
1	75.5	82.5	80.0
1.5	82.5	84.0	85.5
2	84.0	84.0	86.5
3	85.5	87.5	87.5
5	87.5	87.5	87.5
7.5	88.5	89.5	89.5
10	89.5	89.5	89.5
15	90.2	91.0	90.2
20	90.2	91.0	90.2
25	91.0	92.4	91.7
30	91.0	92.4	91.7

Horsepower	Nominal 3600 RPM (Minimum %)	Nominal 1800 RPM (Minimum %)	Nominal 1200 RPM (Minimum %)
40	91.7	93.0	93.0
50	92.4	93.0	93.0
60	93.0	93.6	93.6
75	93.0	94.1	93.6
100	93.6	94.5	94.1
125	94.5	94.5	94.1
150	94.5	95.0	95.0
200	95.0	95.0	95.0

Open Motors where specified shall also comply with NEMA efficiency minimums.

- b. Motors shall be energy efficient type to comply with requirements of the Energy Policy Act of 1992.

PART 3 - EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

- A. Installation of motors shall comply with motor manufacturer's instructions as well as applicable NEMA recommendations and requirements of the driven equipment OEM (original equipment manufacturer).
- B. Motors shall be aligned to acceptable tolerances and shall not vibrate excessively.
- C. Motors shall not be energized until they have been accepted by the OEM start up personnel.

END OF SECTION

SECTION 16280 – SURGE PROTECTIVE DEVICES

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall furnish, install, and place in satisfactory operation, the surge protective devices (SPD) as specified herein.
- B. Surge protective devices shall be provided as a stand-alone unit, separate from the enclosure of the equipment to which they are connected or as integrally mounted devices as noted on the Contract Drawings.

1.02 CODES AND STANDARDS

- A. The surge protective device shall be designed, manufactured, and listed to the following standards:
 - 1. Underwriters Laboratories, Inc. (UL)
 - a. UL1449 3rd Edition: Surge Protective Devices
 - b. UL1283 5th Edition: Electromagnetic Interference Filters
 - 2. American National Standards Institute (ANSI)/Institute of Electrical & Electronic Engineers (IEEE)
 - a. C62.41.1: 2002 Guide for Surge Voltages in Low-Voltage AC Power Circuits
 - b. C62.41.2: 2002 Recommend Practice on Characterization of Surges in Low Voltage (100V and Less) AC Power Circuits.
 - c. C62.45: 2002 IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits
 - d. C62.62: 2000 IEEE Standard Test Specifications for Surge Protective Devices for Low Voltage (1000V and Less) AC Power Circuits
 - 3. National Electric Code (NEC), Latest Edition

1.03 TESTING

- A. All tests shall be performed in accordance with the requirements of the General Conditions and Division 1. The following tests are required:
 - 1. Witnessed Shop Tests
 - a. None required.
 - 2. Certified Shop Tests and Reports
 - a. Standard factory tests shall be performed on the equipment under this section. All tests shall be in accordance with the latest version of NEMA, ANSI, and UL standards.

- b. All surge protective devices, subassemblies, and components shall be 100% tested and certified by the manufacturer to meet their published performance parameters.

3. Field Tests

- a. None required.

1.04 SUBMITTALS

- A. The Contractor shall obtain from the equipment manufacturer and submit the following per Section 01300:
 1. Shop Drawings
 2. Operation and Maintenance Manuals
 3. Spare Parts List
 4. Special Tools List
 5. Reports of ShopTests

1.05 SHOP DRAWINGS

- A. Each submittal shall be complete in all respects, incorporating all information and data listed herein and all additional information required for evaluation of the proposed equipment's compliance with the Contract Documents.
- B. Partial, incomplete, or illegible submittals will be returned to the Contractor without review for re-submittal.
- C. Drawings submitted by the manufacturer shall be complete and documented to provide the Owner with operations and maintenance capabilities.
- D. Shop drawings for each SPD shall include but not be limited to:
 1. Product Data Sheets.
 2. Detailed drawings showing weights and dimensions.
 3. Wiring diagrams showing field connections.
 4. Proof that all products provided under this Section are UL listed and labeled by Underwriters Laboratories to UL1449 3rd Edition. This proof shall be a copy of the data listed under the UL File Number for the manufacturer, which may be obtained from the UL Online Certification Directory. No other means of proving compliance (such as manufacturer data sheets, marketing material, etc.) will be considered acceptable.
 5. Proof of Short Circuit Current Ratings (SCCR), Voltage Protection Ratings (VPRs) for all modes, Maximum Continuous Operating Voltage rating (MCOV), Nominal Discharge Current (In), and device listing Type shall be submitted using the same means as described in the paragraph above.
 6. Proof that all products provided under this Section are UL listed and labeled by Underwriters Laboratories to UL 1283 5th Edition. This proof shall be a copy of the data listed under the UL File Number for the manufacturer, which may be obtained from the UL Online Certification Directory. No other means of proving compliance (such as manufacturer data sheets, marketing material, etc.) will be considered acceptable.

7. Warranty Information

- E. The shop drawing information shall be complete and organized in such a way that the Engineer can determine if the requirements of these Specifications are being met. Copies of technical bulletins, technical data sheets from "Soft Cover" catalogs, and similar information which is "highlighted" or somehow identifies the specific equipment items the Contractor intends to provide are to provide are acceptable and shall be submitted.

1.06 OPERATION AND MAINTENANCE MANUALS

- A. The Contractor shall submit operation and maintenance manuals.

1.07 TOOLS, SUPPLIES, AND SPARE PARTS

- A. The SPDs and accessories shall be furnished with all special tools necessary to disassemble, service, repair, and adjust the equipment. All spare parts as recommended by the equipment manufacturer shall be furnished by the Contractor to the Owner.
- B. The Contractor shall furnish one (1) spare field replacement module of each rating provided under this Contract.
- C. The spare parts shall be packed in containers suitable for long term storage, bearing labels clearly designating the contents and the pieces of equipment for which they are intended.
- D. Spare parts shall be delivered at the same time as the equipment to which they pertain. The Contractor shall properly store and safeguard such spare parts until completion of the Work, at which time they shall be delivered to the Owner.
- E. Spare parts lists, included with the shop drawing submittal shall indicate specific sizes, quantities, and part numbers of the items to be furnished. Terms such as "1 lot of packing material" are not acceptable.
- F. Parts shall be completely identified with a numerical system to facilitate parts inventory control and stocking. Each part shall be properly identified by a separate number. Those parts which are identical for more than one size, shall have the same part number.

1.08 IDENTIFICATION

- A. Each SPD shall be identified by equipment name. A nameplate shall be securely affixed in a conspicuous place on each SPD.

1.09 TRAINING

- A. The Contractor shall provide training for Owner personnel. Training shall be conducted by the manufacturer's factory trained specialists who shall instruct Owner personnel in operation and maintenance of all equipment provided under this Section. The training shall also include an overview of current SPD standards, as well as basic SPD operation and maintenance.
- B. Provide the services of an experienced, factory trained technician or service engineer of the SPD manufacturer at the jobsite for minimum of 1/2 day for training of Owner personnel, beginning at a date mutually agreeable to the Contractor and the Owner.

1.10 WARRANTY

- A. All SPDs, associated hardware, and supporting components shall be warranted to be free from defects in materials and workmanship, under normal use and in accordance with the instructions provided, for a period of five (5) years after acceptance of the equipment by the Owner.

- B. Any component or subassembly contained within the surge protection system that shows evidence of failure or incorrect operation during the five (5) year warranty period, shall be replaced and reinstalled by the manufacturer at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The SPD shall be UL 1449 4th Edition Listed and must bear the 4th Edition mark. Units that are "manufactured in accordance with" UL 1449 3rd Edition or tested by other testing agencies "in accordance with" UL 1449 3rd Edition are not acceptable and will be rejected.
- B. The SPD shall be UL 1283 5th Edition Listed and must bear the UL mark. Units that are "manufactured in accordance with" UL 1283 5th Edition or tested by other testing agencies "in accordance with" UL 1283 5th Edition are not acceptable and will be rejected. Further, SPD units using UL 1283 capacitors but not tested to UL 1283 will be rejected.
- C. SPDs shall be provided as a stand-alone unit, separate from the equipment to which they are connected.
- D. All SPDs furnished and installed under this Contract shall be from the same manufacturer.

2.02 PRODUCTS

- A. Type I surge protective devices (SPD) shall be furnished and installed. Type II SPDs are not acceptable.
- B. Each SPD shall be rated for the voltage and configuration of the equipment to which it is connected.
- C. Each SPD shall have UL 1283 5th Edition EMI/RFI filtering with minimum attenuation of -50dB at 100kHz.
- D. The short circuit current rating of each SPD shall match or exceed the rating of the equipment to which it is connected. The Contractor shall reference the Pump Station Schedule for short circuit current rating of each piece of equipment.
- E. Each SPD system shall provide surge protection in all possible modes. Surge protection shall be as follows:

SYSTEM CONFIGURATION	MODES OF PROTECTION	NUMBER OF MODES
3-Phase Wye	L-N, L-G, N-G	7
3-Phase Delta	L-L, L-G	6
3-Phase Impedance Grounded	L-L, L-G	6
Single-Phase	L-N, L-G, N-G	3

- F. Each SPD shall have a Maximum Continuous Operating Voltage (MCOV) of at least 115% of the nominal voltage of the equipment to which it is connected.
- G. The Nominal Discharge Current (I_n) of each SPD shall be 20kA. Peak surge current ratings shall not be used as a basis for applying the SPD to the system.

H. The Voltage Protection Rating (VPR) of each SPD shall not exceed the following:

SYSTEM VOLTAGE	L-N	L-G	L-L	N-G
208Y/120	700V	700V	1200V	700V
480Y/277	1200V	1200V	1800V	1200V
480 DELTA	N/A	1200V	2000V	N/A
240 DELTA	N/A	1200V	1200V	N/A
120/240	700V	700V	1200V	700V

- I. The surge current rating for each SPD shall be as indicated on the Contract Drawings. Surge current rating indicated is on a per phase basis.
- J. Each SPD shall be provided in an enclosure to match or exceed the NEMA rating of the equipment enclosure that it is serving (i.e. NEMA1, NEMA 12, NEMA 4X, etc.).
- K. Each SPD shall be provided with the following accessories:
1. Each individual module shall feature an LED indicating the individual module has all surge protection devices active. If any single component is taken off-line, the LED shall turn off and another LED shall illuminate, providing individual module as well as total system status indication.
 2. Surge counter and audible alarm with reset/silence switch.
 3. One set of Form C (SPDT) dry contacts rated for at least 5A at 120VAC.
- L. SPDs shall be as manufactured by Eaton Electrical, Thor Systems, Advanced Protection Technologies (APT), or LEA International.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The SPD units shall be furnished and installed in accordance with the manufacturer's installation instructions. One (1) copy of these instructions shall be included with the equipment at time of shipment.
- B. The SPD units shall be mounted such that the conductor lengths are as short as possible, but no greater than 36 inches. Any installation resulting in a conductor length of greater than 36 inches shall be reviewed with the Engineer as a special type of cable may need to be installed. For equipment such as panelboards, the Contractor shall relocate the circuit breaker that is to be connected to the SPD as needed to achieve the shortest conductor length possible.
- C. The Contractor shall use a close nipple to enclose the conductors between the SPD and the equipment served. However, if due to field conditions a 90 degree conduit bend is required to connect the SPD to the equipment that it serves, the bend shall have a minimum radius of 36 inches to eliminate any potential for sharp bends in the conductors.
- D. Conductors between the equipment served and the SPD shall be 600V power wire and cable as specified in Section 16120 – Conductors and Cables. The individual conductors shall be gently twisted.
- E. Prior to energizing, the Contractor shall verify that the SPD unit voltage and configuration is suitable for the system to which it is connected.
- F. Prior to energizing, the Contractor shall also verify that any Neutral to Ground bonding jumpers are installed as required.

- G. Prior to energizing, the Contractor shall also verify that the impedance of the equipment grounding conductor between the SPD and the grounding electrode system is less than 1 ohm.

END OF SECTION

SECTION 16440 - MOTOR CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall furnish and install motor control equipment as specified herein and as shown on the Drawings.

1.02 SUBMITTALS

- A. Motor control equipment shall be new and the equipment of one manufacturer. Each component is specified by a particular trade name; however, this does not relieve the Contractor of the responsibility of submitting descriptive literature and Shop Drawings for review of all components. Motor control shall be the same brand as power distribution equipment on projects with both.
- B. Shop drawings, including layout drawings, complete schematic and composite wiring diagrams, control circuit wiring diagrams and descriptive literature shall be submitted to the Engineer for review. **Service manuals shall be submitted on all equipment and shall be bound in 3-ring looseleaf binders.** The manuals shall also include information on accessories such as timers, etc., built in the control center.

1.03 SERVICE OF MANUFACTURER'S REPRESENTATIVE

- A. The Contractor shall provide the services of a qualified manufacturer's technical representative who shall adequately supervise the installation and testing of all equipment furnished under this Contract and instruct the Contractor's personnel and the Owner's operating personnel in its maintenance and operation as outlined elsewhere in Division 1. The services of the manufacturer's representative shall be provided for a period of not less than as follows:
 - 1. One trip of one (1) working day after acceptance of the equipment.
- B. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor. The manufacturer's representative shall sign in and out at the office of the Engineer's Field Representative on each day he is at the project.

1.04 TRAINING

- A. The Contractor shall provide training for Owner personnel. Training shall be conducted by the manufacturer's factory trained specialists who shall instruct Owner personnel in operation and maintenance of all equipment provided under this Section.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Control Equipment
 - 1. Schneider, "Eaton," "Allen Bradley," or equal.
- B. Timers
 - 1. "Paragon," "Tork," "Intermatic," or equal.

2.02 INDIVIDUALLY MOUNTED MOTOR CONTROL DEVICES (480, 240, OR 120 VOLT)

A. General

1. All motor control equipment shall be new and the product of 1 manufacturer. All individually mounted disconnects, push-button stations, latchout stations, starters, etc., indoors shall be mounted on a 1-inch galvanized unistrut, 1 inch Kindorf channel, or equal to provide an air space at rear. Outside mounted equipment shall utilize 1-inch aluminum strut as required in 16070. These specifications also apply to devices inside a custom control panel.

B. Starters

1. General

- a. All starters shall be of the voltage rating, type, and sized for the motor size shown in these Specifications and/or on the Contract Drawings. For enclosure type see the system operation description and/or the Contract Drawings. All starters shall be of the magnetic type. Should a piece of electrically driven equipment be furnished with a larger motor than shown on the Contract Drawings, the proper size combination starter shall be provided for the equipment supplied, at no extra cost to the Owner.
- b. See the Contract Drawings for the auxiliary equipment to be furnished and/or Section 16900 - Controls of this division. **Maximum control voltage shall be 120 volts, a-c.** Minimum starter size shall be NEMA Size 1.
- c. Pilot light assemblies shall be push-to-test LED type.

2. Overloads

- a. Each starter shall have a thermal overload device in each ungrounded leg. The overload shall be of the "Ambient compensated Bi-metallic," thermal element type. All overloads shall be of the manual reset type and shall be reset without opening the starter enclosure. Heaters will be sized for the proper temperature rise of the motor that it is being used on. Heaters for general service shall be of the standard trip type. **Adjustable Overload Relay Thermal Units are not allowed.** All integral horsepower motors, 15 horsepower and over, require thermal elements embedded in the windings. See Motor Specifications, this division.

3. Contactors

- a. All contactors for motor starters shall be of the a-c magnetic type with "undervoltage" protection when used in conjunction with momentary contact push-button control and "undervoltage" release when used with maintained contact push-button control.
- b. Contactor size shall be in accordance with NEMA Standards for the motor controlled and shall be horsepower rated. IEC rated equipment is not acceptable and shall be used as a basis for rejection of the equipment.
- c. Contacts shall be of the heavy duty silver-to-silver type and shall be totally enclosed in individual arc quenching chambers. Contacts shall be easily accessible for replacement.
- d. The contactor coil shall be of the vacuum impregnated or epoxy resin type, moisture resistant and corrosion proof.

C. Control Stations

1. General

- a. Control stations shall be heavy duty, maintained or momentary contact type, as noted on the Contract Drawings. Contacts shall be silver alloy, double break type. The number and marking of controls shall be as shown on the Contract Drawings. Enclosures shall be NEMA 4X for indoor and outdoor mounting, unless otherwise noted on the Contract Drawings. All control stations shall operate on 120 volt, a-c maximum, unless otherwise designated on the Contract Drawings. "Latch-out" facilities shall be provided where called for in these Specifications and/or on the Contract Drawings.

2. Maintained Contact

- a. Maintained contact control switches shall be marked "On" and "Off". The button pushed shall remain in and push the other button out until the other button is pushed. In general, they are to be used for hand control of motors which have to operate continuously and restart whenever power is off then resumed, without any manual operator. This is needed for motors which have to operate continuously in the absence of an operator.

3. Momentary Contact

- a. Momentary contact control push-button switches shall be marked "start" and "stop". Pushbuttons shall spring out whenever pushed. If the circuit is dropped for any reason, operation cannot be resumed until a "start" push-button is pushed. In general, they are to be used for hand control of motors which are desired to operate intermittently in the presence of the operator and stop and start independently from more than one parallel control location.

D. Circuit Breakers

1. Circuit breakers shall be molded case type. Trip elements of multi-pole breakers shall be effectively insulated from one another. Multi-pole breakers shall be designed so that an overload on any one pole shall open all poles simultaneously.
2. The breaker operating mechanism shall be the quick-make, quick-break type and shall be entirely trip free to prevent the contacts being held in a closed position against a short circuit.
3. Breakers not used with motor starters shall be of the thermal magnetic type with a thermal bimetallic element for time delayed overload protection and a magnetic element for short circuit protection.
4. The breaker shall be trip indicating with the trip position midway between the "On" and "Off" positions.
5. Breakers for combination starters shall be 100 amp frame or larger. All breakers for combination starters shall have an adjustable magnetic trip element of the motor circuit protector type.
6. Breakers for combination starters shall be F frame or larger. All breakers shall have adjustable magnetic trip elements. Circuit breakers K frame and larger shall have interchangeable thermal-magnetic trip elements.

E. Selector Switches

1. Hand-off-automatic type selector switches shall be of oil-tight construction and shall have 3 positions. The switch must not have a spring loaded return. It shall be of the "quick-make," "quick-break" type.

F. Manual Motor Starting Switches

1. Manual motor starting switches for the control of fractional horsepower motors shall be single pole, and shall be provided with a thermal heater of the correct size for the load controlled. Each starting switch shall be mounted where shown on the Contract Drawings. Where they are used for rotating equipment such as grinders, they shall be equipped with low voltage protection, and required manual reset after power failure. As an alternate to low voltage protection built-in, a "Safety Restart Plug" may be utilized, available from Mitchell Instrument Company.

G. Alarm Horns

1. Alarm horns, where called for on the Contract Drawings, shall be weatherproof, suitable for surface mounting and shall be provided with a silence button. Alarm horn shall be Edwards 876 series with 103dB at 10 feet, Federal Signal, or equal.

H. Timing Relays

1. Time delay relays shall have an adjustable timing range as shown on the Contract Drawings. The time delay shall be after energizing timer coil. Timing relays shall be Agastat, Square D, or equal.

2.03 TIMERS

- A. Timers for various services required in the motor control equipment shall be Paragon, Tork or equal as indicated in control circuits shown on the Drawings.
- B. Timers requiring tripping pins shall be supplied with enough pins to completely fill all locations on the dial face.

2.04 REDUCED VOLTAGE SOLID STATE STARTER

- A. The solid-state reduced-voltage starter shall be UL and CSA listed. The solid-state reduced-voltage starter shall be an integrated unit with power SCRs, logic board, an integral paralleling bypass contactor, and electronic overload relay enclosed in a single molded housing. The starter shall meet all applicable requirements of this Section and other sections in this Division.
- B. The RVSS shall be suitable for continuous operation at 115% of its continuous ampere rating. To ensure that pump or blower/motor load starting torque requirements are met, the Contractor shall furnish the starter of the next higher maximum continuous current rating than otherwise required based on the full load ampere rating of the motor.
 1. The Contractor is fully responsible for the review of the mechanical specifications to determine specified motor speed, horsepower and full load amperes. This information is available in the applicable mechanical specifications for each piece of equipment (e.g. backwash blower).
- C. The RVSS shall be suitable for the following environmental conditions:
 1. Operating Temperature: 0-50 degrees C

2. Humidity: 0-95 percent non-condensing.
 3. Altitude: up to 3,300 feet.
- D. The RVSS shall be suitable for operation on a 240V, 3-phase, 60 Hertz system.
 - E. The SCR-based power section shall consist of six (6) back-to-back SCRs and shall be rated for a minimum peak inverse voltage rating of 1500 volts PIV. Units using triacs or SCR/diode combinations are not acceptable. Resistor/capacitor snubber networks shall be used to prevent false firing of SCRs due to dv/dt effects.
 - F. The integral paralleling run bypass contactor shall energize when the motor reaches full speed and close/open under one (1) times motor current. The paralleling run bypass contactor shall utilize an intelligent coil controller to limit contact bounce and optimize coil voltage during varying system conditions. The coil shall have a lifetime warranty.
 - G. The starter shall be provided with electronic overload protection as standard and shall be based on an inverse time-current algorithm. Overload protection shall be capable of being disabled during ramp start for long acceleration loads via a DIP switch setting on the device keypad. Overload protection shall be adjusted via the device keypad and shall have a motor full load ampere adjustment from 30 to 100% of the maximum continuous ampere rating of the starter. The starter shall have selectable overload class setting of 5, 10, 20 or 30 via a DIP switch setting on the device keypad. The starter shall be capable of either an electronic or mechanical reset after a fault. Units using bimetal or eutectic alloy overload relays are not acceptable. Overtemperature protection (on heat sink) shall be standard.
 - H. The starter shall provide protection against improper line-side phase rotation as standard. The starter shall stop the motor load if a line-side phase rotation other than A-B-C exists. This feature may be disabled via a DIP switch on the device keypad.
 - I. The starter shall provide protection against a phase loss or unbalance condition as standard. The starter shall stop the motor load if a 50% current differential between any two phases is encountered. This feature may be disabled via a DIP switch on the device keypad.
 - J. The starter shall provide protection against a motor stall condition as standard. This feature may be disabled via a DIP switch on the device keypad.
 - K. The starter shall provide protection against a motor jam condition as standard. This feature may be disabled via a DIP switch on the device keypad.
 - L. The starter shall be provided with a form C normally open (NO), normally closed (NC) contact that shall change state when a fault condition exists. The contacts shall be rated 60 VA (resistive load) and 20 VA (inductive load). In addition, an LED display on the device keypad shall indicate the type of fault (Overtemp, Phase Loss, Jam, Stall, Phase Reversal, and Overload).
 - M. The starter shall be provided with an unpowered internal "Run" contact rated for 24VDC or 120 VAC operation.
 - N. The following control function adjustments on the device keypad shall be provided:
 1. Selectable Torque Ramp Start or Current Limit Start
 2. Adjustable Kick Start Time, 0-2 seconds
 3. Adjustable Kick Start torque, 0-90%
 4. Adjustable Ramp Start Time; 0.5-180 seconds

5. Adjustable Initial Starting Ramp Torque; 0-100%
6. Adjustable Smooth Stop Ramp Time; 0-60 seconds.

The Human Interface Module (HIM) provided for the RVSS shall be the same as provided for the variable frequency drives.

- O. Enclosed units shall include a thermal-magnetic circuit breaker for short-circuit protection and quick disconnect means. If required, the unit shall include a 24 VDC power supply to be used as the primary control voltage source. A 120 VAC control power transformer, fused on both the primary and secondary sides, shall be provided as an additional control power source to power such devices as motor space heaters, solenoid valves, and similar control elements as required. Input and output isolation contactors shall be furnished as indicated on the Drawings.
- P. Unless otherwise specified or indicated on the Drawings, the RVSS enclosure shall be open chassis designed for control panel mounting.
- Q. The complete starter assembly shall be rated per UL 508D for a minimum withstand rating of 65 kAIC rms.
- R. The following accessories and spare parts shall be provided for each starter:
 1. Surge suppressor mounted on the line side of the starter to clip the input line voltage.
 2. Lug kits for both the line and load side of the starter.
 3. One (1) user's manual for each frame size of starter.
 4. One (1) spare 24VDC power supply for each size used.
- S. The reduced voltage solid state starter shall be the SMC-Flex with integral bypass as manufactured by Allen-Bradley, EATON equivalent, the General Electric Company equivalent, the Schneider equivalent, or Siemens Energy and Automation, Inc. equivalent.

PART 3 - EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

- A. Individually Mounted Motor Control Devices (480, 240, or 120 Volt)
 1. Each motor disconnect shall be located as near as possible to its respective motor.
 2. Remote control station at or near motor shall be mounted near its respective motor, adjacent to the motor disconnect.
 3. All devices and equipment furnished under this section (electronic circuit monitors, power correction equipment, etc.) shall be programmed, configured, and calibrated by the manufacturer. Any settings required shall be as determined by the manufacturer. If coordination studies or power system analysis is required, it shall be performed by the manufacturer.

3.02 EXTRA STOCK/SPARE PARTS

A. Provide the following spare parts:

- 10 fuses of each type/amperage used
- 1 pilot light lamp for each pilot light socket assembly provided
- 1 control transformer for each size utilized

END OF SECTION

SECTION 16900 - CONTROLS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Equipment controls shall be as specified herein and shown on the Contract Drawings. Legends for starter nameplates shall be taken from the one line diagram in the Contract Drawings.
- B. Certain equipment starters contain nonresettable elapsed time meters as shown in the Contract Drawings. Also, certain motor starters have remote control devices and require connections to operate these control devices as shown on starter schematics (control circuits).
- C. All starters contain red "on" lights, control transformers, and auxiliary contacts to operate as defined on the control circuits of the Contract Drawings. Reset pushbuttons shall also be provided for overloads built into the starters.

1.02 CUSTOM CONTROL PANELS

- A. All control panels furnished under this Contract shall be manufactured in accordance with industry standards and as herein specified. Some control panels are specified to be furnished with the equipment controlled and others are to be furnished by the Contractor, as written elsewhere.
- B. Panel construction shall comply with OSHA and other code requirements as applicable, and may be attested to by UL listing the panels as an assembly. Otherwise, panel modifications as required by the Electrical Inspector shall be performed by the supplier at no extra cost to the Owner.
- C. Control panels to be furnished on this project shall be wired to function according to schematics shown on the contract Drawings. In addition to the requirements shown on the Contract Drawings, the panels shall adhere to additional requirements as written herein, and in the utilization equipment specifications.
- D. Enclosures shall be dead front with all operators' devices accessible without opening the enclosure door. All relays, timers, terminal strips, etc., shall be mounted to a subpanel inside the enclosure. All wiring must be stranded and sized to be protected by a 20 A circuit breaker. Supplemental overcurrent protection may be used in lieu of oversized wiring. All panels mounted outside shall have operators' devices mounted on an inner door with an outdoor door that is blank.
- E. All terminal strips and lugs shall be of a type UL listed to terminate the size and quantity of wires encountered. Myers hubs shall be installed to maintain the enclosure rating where conduits enter NEMA 4X rated enclosures.
- F. Enclosures shall be provided with a locking hasp and any exterior hardware shall be stainless steel or other corrosion resistant material. Enclosures for use in process or outdoor areas shall be NEMA 4X, unless otherwise indicated.
- G. Elementary control schematics and connection diagrams showing the spatial relationship of components and wiring shall be submitted for review. Also, a bill of materials, drawing of device arrangement on front, and enclosure fabrication drawings shall be submitted. Further, descriptive literature is required on all components. A copy of the shop drawings shall be furnished and stored in a pocket inside the enclosure.

- H. Sleeve type wire markers or other "permanent" type marker shall be installed on all wires, keynoted back to the elementary schematic or the connection diagram, and all terminals identified.
- I. To minimize spare parts inventory system-wide, LFUCG has some brand preferences as follows:
 - 1. Control panel enclosure – Hoffman, NEMA 4X aluminum (not stainless steel).
 - 2. Wetwell junction box mounting plates and vented pedestals (24" or 36" tall as indicated on the Drawings) – USF FAB, aluminum (not stainless steel).
 - 3. 4-channel intrinsically safe relay – Time Mark.
 - 4. Relay, moisture sensor – Macromatic Industrial Controls.
 - 5. Alternator relay – Time Mark.
 - 6. Phase volt monitor, socket type, plug-in - Macromatic Industrial Controls.
 - 7. Control panel heater – Hoffman DAHI001A (100W, 120V).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 17312 – RADIO TELEMETRY SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section describes the requirements for furnishing, installing, and starting up a radio system for polling SCADA communications using Ethernet protocol.
- B. On this project, salvage the existing RTU from the old pump station, as well as the Yagi antenna, and turn over to the Owner. LFUCG will provide an RTU and antenna from existing inventory for installation by the Contractor at the Replacement Pump Station. Provide new mounting at the pump control panel, and all new coaxial cable and connectors. Mount antenna on new service pole.
- C. Contractor shall utilize the services of Intellimodus for setting up the RTU and modifying SCADA system programming and integration.
- D. Mount antenna at the same elevation as it exists now and aim it in the same direction.

1.02 SYSTEM DESCRIPTION

- A. The successful communication of the new RTU panel back to the designated LFUCG WWTP (Town Branch or West Hickman) is the sole responsibility of the Contractor. The new radio shall be fully compatible with the existing system.
- B. The radio systems shall be comprised of, but not limited to, the following (refer to the Drawings):
 - 1. For radio all communications:
 - a. The existing 812.06250 MHz radios are located at each pump station. The replacement radios will be connected to a new PLC at each site. Antennas, transmission cable, connectors, enclosure and mounting hardware shall be provided as required and as shown on the Drawings.
 - b. A central repeater will be utilized for all communications from all sites back to the designated LFUCG WWTP (Town Branch or West Hickman) where the data will be utilized for monitoring and control from SCADA.
 - c. Provide directional (Yagi) antennas, coaxial cable, connectors, in-line coaxial cable surge protectors, and antenna mounting supports as required. Each antenna shall be mounted on a support structure which meets the requirements for that site as shown on the drawings. The Contractor shall be responsible for obtaining any and all required Construction Permits for the installation of equipment at the sites and shall meet all applicable codes and regulations.
 - d. Coordination with Owner to meet all applicable federal communications commission (FCC), state and local regulations.
- C. All equipment furnished under this Section of the Specifications shall be the responsibility of the ISS. The ISS shall assume responsibility for the complete radio telemetry including radios, antennas, and radio supervisory and control system. This shall include system testing and installation. The ISS shall furnish and install any additional equipment (e.g. repeaters, towers, etc.) necessary to provide a functional system. A functional system shall be defined as a system where the received signal at any location not be less than 25 dB fade margin based on radio manufacturer's published receive sensitivity for 10⁻⁶ bit error rate for unfaded signal.

- D. The existing SCADA system shall clearly identify the station being polled, the number of consecutive fails at each station, and the current poll timer, maximum poll time, and minimum poll time.

1.03 SUBMITTALS

- A. Include the following information for each product specified in this section in the submittal for this section.
1. Data sheets and catalog literature for hardware (radios and accessories), and for the poll/response SCADA communications software that will be used.
 2. Physical dimension drawings.
 3. A complete set of installation and service manuals for the equipment specified in this section.
 4. Installation and interconnection/wiring diagrams depicting the proposed installation of the equipment, in conformance to the requirements specified on the Plans. These drawings shall be detailed to the extent that they may be modified after installation to serve as the "AS-BUILT" drawings.
 5. After installation is complete at each site, provide printout of radio/communication performance data (i.e. forward and reverse power, etc.).

PART 2 - PRODUCTS

2.01 RADIOS

- A. The following general requirements shall be met by the radio:
1. Frequency Band: 451.3 / 456.3 MHz.
 2. Data Rate: 1 Mbps/512 kbps, user configured.
 3. Environmental: Full performance -30°C to +60°C
 4. Power Requirements: 10-30 VDC.
 5. RTU/PLC Interface: 10/100-base T, RJ45 connector.
 6. System Gain: 139dB @ 512kbps; 134dB@1Mbps
 7. Receiver Sensitivity: -97dBm @ 512kbps with 10⁻⁶ BER; -92dBm @ 1Mbps with 10⁻⁶ BER
 8. Protocols: Wireless Ethernet TCP/IP.
 9. Encryption: AES-128 with automatic key rotation.
 10. Management: HTTPS.
- B. Radios shall be Schneider Trio QR450, Simrex Datamover TR or Engineer approved equal

2.02 REPEATER

- A. Replace the existing repeater with a Redundant Repeater.
- B. Repeater equipment shall be manufactured by GE MDS or approved equal.

2.03 ANTENNAS

- A. Antennas (omni-directional and Yagi types) shall be furnished as replacement at all pump station sites.
- B. Antenna characteristics:
 - 1. Frequency Range: 806 to 890 MHz
 - 2. Gain: as required
 - 3. Input Power: 50 watts minimum
 - 4. VSWR: Less than 1.5
 - 5. Lightning Protection: Direct ground
 - 6. Connector: 18 inch flexible extension (RG-393/U), type N male with neoprene housing or equivalent
 - 7. Mounting Hardware: Clamps, standoff hardware as recommended by the antenna manufacturer
 - 8. Manufacturer: Radio Frequency Systems (Celwave), or approved equal
- C. Each antenna shall be mounted on a support structure which meets the requirements for that location.

2.04 TRANSMISSION CABLE AND ACCESSORIES

- A. The transmission cable connecting the radio antenna port with the antenna shall be the low-loss foam-dielectric coaxial type. A single continuous piece of coaxial cable shall be furnished for each radio. This cable shall be ½ inch diameter (Andrew LDF4-50A, or equal). For coax runs exceeding 100 feet in length, furnish 7/8" diameter cable (Andrew LDF5-50A, or equal).
- B. Provide one 3-foot section of "superflexible" transmission cable for coax interconnection at the radio antenna port. Provide standard Type N connectors at each end which will mate with the SS radio and the transmission cable.
- C. Furnish two N-type connectors for terminating both ends of each transmission cable.
- D. Furnish two coaxial cable grounding kits per radio. Furnish Andrew, or equal.
- E. Provide Andrew coaxial cable hanger kits and clamping hardware, in 316 stainless steel. Adequate kits shall be installed to anchor the cables at three-foot intervals on the vertical antenna mast/tower.
- F. All outdoor coaxial connectors shall be wrapped with two layers of Scotch Super 88 UV resistant tape, and then coated with two layers of Scotch-Kote.

2.05 LIGHTNING/SURGE PROTECTION

- A. Furnish one in-line coaxial cable surge protector for each cable. Furnish Polyphaser, or equal with N-connector mating.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

- A. Instrumentation and accessory equipment shall be installed in accordance with the Manufacturer's instructions. Obtain in the field all information relevant to the placing of process control work and in case of any interference with other work, coordinate with the Engineer/Owner and furnish all labor and materials necessary to complete the work in an acceptable manner.
- B. All work shall be executed in full accordance with codes and local rulings. Should any work be performed contrary to said rulings, ordinances and regulations, the ISS shall bear full responsibility for such violations and assume all costs arising therefrom.

END OF SECTION

SECTION 17410 - BASIC MEASUREMENT AND CONTROL INSTRUMENTATION MATERIALS AND METHODS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish all materials, labor, tools, equipment, supplies and services necessary to install all process control and instrumentation equipment complete as specified herein and shown on the Drawings. The Contractor shall be responsible for the expense of changing Drawings or structures, or any other expense necessitated by reason of installing alternative equipment. The Contractor will assume the responsibility for the satisfactory operation of any and all equipment offered.
- B. The following equipment specification is included to establish the quality of equipment to be obtained. It is the intent of these Specifications to obtain industrial quality instrumentation and control equipment. Equipment furnished shall be accepted by the Engineer, prior to purchase by the Contractor.
- C. Auxiliary and accessory devices necessary for system operation or performance, such as transducers or relays to interface with equipment provided under other Sections of this Specification, shall be included whether specified or not, at no extra cost.
- D. In order to ensure proper integration and compatibility of the plant instrumentation and control systems, the systems must be supplied by a single provider of instrumentation and control equipment. This is not to say that all equipment being supplied shall be manufactured by a single manufacturer, but rather that a single provider of instrumentation and control equipment shall be responsible for supplying the complete system. To facilitate the Owner's future operation and maintenance, products performing the same function shall all be of the same manufacturer, type, and model number.
- E. Substitutions on functions or equipment specified will not be acceptable. In order to ensure the interchangeability of parts, the maintenance of quality, the ease of interfacing between the various subsystems, and the establishment of minimums with regard to ranges and accuracy, strict compliance with the above requirements shall be maintained. In order to ensure compatibility between all equipment, it shall be the responsibility of the system supplier hereunder to coordinate all interface requirements with mechanical and electrical system suppliers and furnish any signal isolation devices that might be required.
- F. Equipment shall be fabricated, assembled, installed, and placed in proper operating condition in full conformity with detail drawings, specifications, engineering data, instructions and recommendations of the equipment manufacturer as accepted by the Engineer.
- G. The instrument supplier for this Contract shall be responsible for making the modifications shown on the Drawings and for recalibrating all instruments and placing them in proper working order.

1.02 RELATED WORK

- A. The following Sections of this Specification Division contain requirements on instrumentation and control equipment and software which are considered to be covered by applicable requirements of this section (and shall be included in the bid by a single Instrumentation Supplier for this Project):

Section 17430 - Boxes, Panels and Control Centers
Section 17480 - Instrument Lists and Reports
Section 17490 - Measurement and Control Commissioning

- B. The following Divisions of these Specifications contain requirements on equipment furnished by other suppliers that must interface with the instrument system, or on methods and materials to be performed/used in the installation and/or wiring of the instrumentation system.

- Division 1 - General Requirements
- Division 11 - Equipment
- Division 16 - Electrical

1.03 QUALITY ASSURANCE

- A. The system supplier shall be required to demonstrate a minimum of 4 years recent, past experience in the design, manufacture, and commissioning of instrumentation and control systems of comparable size, type, and complexity to the proposed project. Further, the manufacturer must have at least 10 similar systems in operation currently. The system supplier shall be required to have his own in-house capability to handle complete system engineering, fabrication, and testing.
- B. The system supplier shall have in his employ the capable personnel for detail engineering, coordination, drafting, procurement and expediting, scheduling construction, testing inspection, installation, start-up service for calibration and commissioning, and warranty compliance for the period specified.

1.04 REFERENCES

- A. The Contractor is referred to Standards and Practices for Instrumentation published by the International Society of Automation (latest edition), for terminology, symbols, methods and practices used or described herein or on the Drawings.

1.05 SUBMITTALS

A. General

1. Complete detail Drawings of the instrumentation and control systems and all components shall be submitted in 3 copies in a 3-ring loose-leaf cardboard reinforced vinyl binder to the Engineer for preliminary review. They shall include installation instructions, operation and maintenance instructions, descriptive literature, connection drawings, and parts list for each item as well as individual control schematic drawings for each item.
2. The Contractor shall make any corrections or changes required by the Engineer, within the scope of the Drawings and Specifications, and return copies in 3-ring loose-leaf cardboard reinforced vinyl binders for final review and distribution. Number of copies shall be as specified in Special conditions and as agreed at the pre-construction conference.
3. Should any system submitted in the shop drawings not meet with the Engineer's acceptance as to conformity with requirements of the Drawings and Specifications, it shall be the responsibility of the successful Contractor to make whatever changes are necessary for acceptance at no extra cost to the Owner.

B. Detailed Requirements - Instruments/Hardware

1. Detailed information for each instrument or control device shall be submitted, including manufacturer's descriptive literature and a specific data sheet for each device which shall include as a minimum:
 - a. Tag number assigned by the Contract Documents.
 - b. Product (item) name used herein and on the Contract Drawings.

- c. Manufacturer's complete model number.
 - d. Location of the device.
 - e. Input - output characteristics.
 - f. Electrical characteristics.
 - g. Range, size, and graduations.
 - h. Physical size with dimensions, enclosure NEMA classification, and mounting details.
 - i. Materials of construction of all components.
 - j. Instrument or control device sizing calculations where applicable.
 - k. Certified calibration data on all flow metering devices.
2. Submit a detailed loop diagram, for each monitoring or control loop, each on a single 8 ½ in. x 11 in. sheet. The format shall be the Instrument Society of America, Standard for Instrument Loop Diagrams, ISA-S5.4.
 3. The data sheets shall be provided with an index and proper identification and cross-referencing. Partial submittals will be rejected.
 4. Submit detailed drawings concerning control panels and/or enclosures including:
 - a. Cabinet assembly and layout drawings to scale.
 - b. Fabrication and painting specifications.
 - c. I/O layout.
 - d. Elementary panel wiring diagrams
 - e. Point to point wiring diagrams depicting wiring within the panel as well as connections to external devices.
 - f. Color samples for paint selection by the Engineer and/or Owner.
 - g. Panel submittal drawings shall be on 11 in x 17 in sheets.
 5. Exceptions to the Specifications or Drawings shall be clearly indicated in the submittal by the system supplier. Data shall contain sufficient details so a proper evaluation may be made by the Engineer.
 6. Prior to final acceptance, the final shop drawing submittal, which is to include Installation, Operation, and Maintenance instructions, shall be updated to reflect "As Constructed" status, and shall provide at least the following as a minimum:
 - a. A comprehensive index.
 - b. A complete "As Constructed" set of accepted shop drawings.
 - c. A complete list of the equipment supplied, including serial numbers, ranges, and pertinent data.
 - d. Full specifications on each item.

- e. System schematic drawings "As Constructed", illustrating all components, piping and electrical connections of the systems supplied under this Section.
- f. Detailed service, maintenance, and operation instructions for each item supplied.
- g. Special maintenance requirements particular to this system shall be clearly defined, along with special calibration and test procedures.
- h. The operating instructions shall also incorporate a functional description of the entire system, with reference to the systems schematic drawings and instructions.
- i. Complete parts lists with stock numbers and name, address, and telephone number of the local supplier.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Shipping Precautions

- 1. After completion of shop assembly, factory test, and acceptance, all equipment, cabinets, panels, and consoles shall be packed in protective crates and enclosed in heavy duty polyethylene envelopes or secured sheeting to provide complete protection from damage, dust, and moisture. Dehumidifiers shall be placed inside the polyethylene coverings. The equipment shall then be skid-mounted for final transport. Lifting rings shall be provided for moving without removing protective covering. Boxed weights shall be shown on shipping tags together with instructions for unloading, transporting, storing, and handling at the job site.
- 2. Special instructions for proper field handling, storage and installation required by manufacturer for proper protection, shall be securely attached to each piece of equipment proper to packaging and shipment.

B. Identification

- 1. Each component shall be tagged to identify its location, tag number and function in the system. Identification shall be prominently displayed on the outside of the package.
- 2. A permanent stainless steel or other non-corrosive material tag firmly attached and permanently and indelibly marked with the instrument tag number, as given in the tabulation, shall be provided on each piece of equipment supplied under this Section.

C. Storage

- 1. Equipment shall not be stored out-of-doors. Equipment shall be stored in dry permanent shelters including in-line equipment, and shall be adequately protected against mechanical injury. If any apparatus has been damaged, such damage shall be repaired by the Contractor at his own cost and expense. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried out and put through such tests as directed by the Engineer. This shall be at the cost and expense of the Contractor, or the apparatus shall be replaced by the Contractor at his own expense.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All instrumentation supplied shall be of the manufacturer's latest design and shall produce or be activated by signals which are established standards for the water industry.

- B. All electronic instrumentation shall be of the solid-state type and shall utilize linear transmission signals of 4 to 20 mA_{dc} (milliampere direct current), however, signals between instruments within the same panel or cabinet may be 0-10 V_{dc} (volts direct current), or other manufacturer standard.
- C. Outputs of equipment that are not of the standard signals as outlined, shall have the output immediately raised and/or converted to compatible standard signals for remote transmission. No zero based signals will be allowed for remote transmission.
- D. All instruments shall be provided with mounting hardware and floor stands, wall brackets, or instrument racks as shown on the Drawings or as required.
- E. All indicators and LED readouts shall be linear, direct reading in process units, unless otherwise noted. Percentage scales and indicators are prohibited.
- F. All transmitters shall be provided with either integral indicators or conduit mounted indicators in process units, accurate to two percent, unless otherwise noted.
- G. Electronic equipment shall be of the manufacturer's latest design, utilizing printed circuitry and suitably coated to prevent contamination by dust, moisture and fungus. Solid state components shall be conservatively rated for their purpose, to assure optimum long term performance and dependability over ambient atmosphere fluctuations and 0 to 95 percent relative humidity. The field mounted equipment and system components shall be designed for installation in dusty, humid, and slightly corrosive service conditions.
- H. All equipment, cabinets and devices furnished hereunder shall be heavy-duty type, designed for continuous industrial service. The system shall contain products of a single manufacturer, in-so-far as possible, and shall consist of equipment models which are currently in production. All equipment provided shall be of modular construction and shall be capable of field expansion.
- I. All equipment shall be designed to operate on a 60 Hertz alternating current power source at a nominal 115 volts, plus or minus 10 percent, except where specifically noted. All regulators and power supplies required for compliance with the above shall be provided between power supply and interconnected instrument loop. Where equipment requires voltage regulation, constant voltage transformers shall be supplied.
- J. All switches shall have double-pole double-throw contacts rated at a minimum of 600 VA, unless specifically noted otherwise.
- K. Materials and equipment used shall be UL listed (or other independent lab listed) wherever such listed equipment and materials are available.
- L. All equipment shall be designed and constructed so that in the event of a power interruption, the equipment specified hereunder shall resume normal operation without manual resetting when power is restored.
- M. All circuit boards in instruments mounted in damp locations or mounted outdoors shall be fungus proofed. All field transmitters mounted outside shall be equipped with sunshields and shall be capable of operation to -20° Fahrenheit.
- N. Equipment installed in a hazardous area shall meet Class, Group and Division as shown on the contract drawings, to comply with the National Electrical Code. All power supply and signals coming from and going to hazardous areas shall have intrinsic safety barriers provided.

2.02 INSTRUMENTS AND ACCESSORY EQUIPMENT

- A. Refer to other Division 17 Instrumentation Specification Sections for equipment requirements for field mounted primary devices, transmitters and secondary instruments, receivers and central control equipment.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 17430 - BOXES, PANELS, AND CONTROL CENTERS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish and install all boxes, panels and control centers and accessory items as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. The following Sections of this Specification Division contain requirements on instrumentation and control equipment and software which are considered to be covered by applicable requirements of this section (and shall be included in the bid by a single Instrumentation Supplier for this Project):

Section 17312 – Radio Telemetry System

Section 17410 – Basic Measurement and Control Instrumentation Materials and Methods

Section 17480 – Instrument Lists and Reports

Section 17490 – Measurement and Control Commissioning

Section 16900 – Controls

- B. The following Divisions of these Specifications contain requirements on equipment furnished by other suppliers that must interface with the instrument system, or on methods and materials to be performed/used in the installation and/or wiring of the instrumentation system.

Division 1 - General Requirements

Division 11 - Equipment

Division 16 - Electrical

PART 2 - PRODUCTS

2.01 FABRICATION

A. Instrument Panels

1. Furnish and install the following instrument panels:

- a. Pump Control Panel

The instrument panels shall be similar in design to that shown on the Drawings or as specified herein. The panels shall be of all-welded aluminum construction, shall be rated NEMA 4X, and shall have a continuous drip lip over the door(s). Panels shall be suitable for surface wall mounting, unless indicated as freestanding.

2. The panel shall have single or double doors as required. Doors shall have a triple latch with continuous hinge with chrome plated handle and lock. The top of the panel shall be covered. The panel shall be rack mounted.
 3. Panels shall contain an interior light with switch by the door inside, and an interior GFCI duplex receptacle. The duplex receptacle shall be powered upstream of the UPS.
 4. The panels shall be sized to provide heat dissipation such that the maximum operating temperature for the lowest rated component is not exceeded with an ambient temperature of 100 degrees Fahrenheit. Calculation shall include direct mid-summer sun exposure for exterior-mounted panels.

5. Provide thermostatically-controlled panel heater to maintain an interior panel temperature of not less than 50 degrees F with an ambient temperature of -20 degrees Fahrenheit. Panel heater shall not be powered from the UPS.
6. All conductors running from the field to the panels shall be a single, continuous length, without splices, except at accepted junction boxes. Junction boxes shall have terminal blocks with 20 percent spares in addition to terminals for all wires including spare wires. Special care shall be exercised to carry grounding lines through such junction boxes with the least possible resistance.
7. All panel equipment shall be mounted and wired on or within the cabinet. Wiring shall comply with the latest National Electrical Code. All wiring within the panel shall be grouped together with harnesses or ducts and secured to the structure. All wiring shall be numbered in accordance with the numbering system used on the wiring/connection diagrams. Power wiring shall be routed in separate wireways from low voltage DC signal wiring. Where crossing power and low voltage DC wiring is necessary, crossing shall be at right angles. Parallel troughs for different voltages shall be separated by a minimum of 12 inches. Power wire shall be 12 AWG type THWN stranded, insulated for not less than 600 volts, unless specified otherwise. Signal wire shall be 16 AWG, THW stranded, insulated for not less than 600 volts.
8. Wire color shall be as follows:
 - a. Line Power – Black
 - b. Neutral or common – White
 - c. AC Control – Red
 - d. DC Control – Blue
 - e. Equipment or Chassis Ground – Green
 - f. Externally powered circuits - Yellow
9. Wiring and connection diagrams shall conform to ISA S5.4 Instrument Loop Diagrams and shall be submitted by the manufacturer as part of the shop drawings for review by the ENGINEER.
10. All wiring in the panels shall terminate in a terminal blocks. Terminal blocks shall have a minimum of 25 percent spares of each type. Terminal blocks shall be arranged in vertical rows and separated into groups (Power, AC control, DC signal, alarm). Terminal blocks shall be barrier type with the appropriate voltage rating (600 volts minimum). They shall be the raised channel mounted type. Wiring trough for supporting internal wiring shall be plastic type with snap-on covers. The sidewalls shall be open top type to permit wire changing without disconnecting. Wire connectors shall be the hook fork type with non-insulated barrel for crimp type compression connection to the wire. Wire and tube markers shall be the sleeve type with heat impressed letters and numbers. Terminal strips shall be provided for the purpose of connecting all control and signal wiring. Direct interlock wiring between equipment will not be allowed. Only one side of a terminal block row shall be used for internal wiring. The field wiring side of the terminal shall not be within 6 inches of the side panel or adjacent terminal. Wiring troughs shall not be filled to more than 60 percent visible fill. Wiring trough covers shall be match marked to identify placement. If component identification is shown on covers for visibility, the ID shall also appear on the mounting sub-panel.
11. All wiring to hand switches and devices which are live circuits independent of the panel's normal circuit breaker protection shall be clearly identified as such.

12. Nameplates shall be provided for all flush mounted equipment. The nameplates shall be approximately 1 inch by 3 inch constructed of black and white laminated, phenolic material having engraved letters approximately 1/4 inch high, extending through the white face into the black layer. Nameplates may be omitted if a nameplate of approximately the same dimension is more conveniently and suitably located on the instrument door or face. Nameplates shall be attached to panels by self-tapping screws.
13. Print storage pockets shall be provided on the inside of each panel. Its size shall be sufficient to hold all of the prints required to service the equipment.
14. The instrument panel shall be factory-tested prior to shipment. Field installation by the Subcontractor shall consist only of setting the panel in place and making necessary electrical connections.
15. All components shall be mounted in a manner that shall permit servicing adjustment, testing and removal without disconnecting, moving or removing any other component. All gages, meters, receivers, switches, pushbuttons and accessories shall be flush mounted.
16. Components mounted on the inside of panels shall be mounted on removable plates and not directly to the enclosure. Mounting shall be rigid and stable unless shock mounting is required otherwise by the manufacturer to protect equipment from vibration. Component mounting shall be oriented in accordance with the component manufacturer's and industries' standard practices. All internal components shall be identified with suitable plastic or metal engraved tags attached with drive pins adjacent to (not on) each component identifying the component in accordance with Drawings, Specifications, and Supplier's data.
17. Pushbuttons shall be heavy-duty, oil tight, 30.5 mm, with momentary contacts. Switches shall be supplied with the number of poles required for the application, an escutcheon plate, and contacts rated for 10 amperes at 120 volts AC.
18. Relays shall be double pole, double throw, octal plug-in type with a transparent dust cover. The relay shall be equipped with an indicating light to indicate when its coil is energized. The relays shall have contacts rated for 10 amperes at 120-volts AC. The mechanical life of the relay shall be 10,000,000 operations minimum (ampere rating shall be increased as necessary for load handling capacity where needed.)
19. Timing relays shall be solid-state plug-in type with a dust and moisture resistant case. The timers shall be of the multi-range/analog or digital type with selectable ranges, between 1 second and 10 hours full scale. The output contacts shall be rated at 2.5 amperes minimum at 120 volts AC. The timing relay shall have a "timing in progress" indication. The mechanical life shall be 10,000,000 operations minimum.
20. Selector switches shall be heavy-duty 30.5 mm, oil tight. Switches shall be supplied with the number of poles required for the application, an escutcheon plate, and contacts rated for 10 amperes at 120 volts AC.
21. General layout of instruments and controls are shown on the Drawings. Minor deviations from the layout may be allowed after review by the ENGINEER.
22. Complete shop drawings, including wiring diagrams and panel structural drawings, shall be required for review prior to shipment.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 17480 - INSTRUMENT LISTS AND REPORTS

PART 1 - GENERAL

1.01 WORK INCLUDED

The CONTRACTOR shall furnish and install all instrumentation equipment and accessory items as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. The following Sections of this Specification Division contain requirements on instrumentation and control equipment and software which are considered to be covered by applicable requirements of this section (and shall be included in the bid by a single Instrumentation Supplier for this Project):

Section 17312 – Radio Telemetry System
 Section 17410 - Basic Measurement and Control Instrumentation Materials and Methods
 Section 17430 - Boxes, Panels and Control Centers
 Section 17490 - Measurement and Control Commissioning

The following Divisions of these Specifications contain requirements on equipment furnished by other suppliers that must interface with the instrument system, or on methods and materials to be performed/used in the installation and/or wiring of the instrumentation system.

Division 1 - General Requirements
 Division 11 - Equipment
 Division 16 - Electrical

1.03 LOOP DESCRIPTIONS

- A. Miscellaneous Alarms and Status

1. The high wetwell level float switches shall be connected directly to a digital input in the RTU. A power failure output shall be provided from the phase volt monitor located in the Pump Control Panel.
2. Comminutor running status and overtorque alarm shall be provided from the equipment control panel. Both of these alarm contacts shall be wired directly to digital inputs in the RTU.
3. See Contract Drawings for more information/details.

1.04 GAUGE SCHEDULE

Location Required	Range					Accessories
	Combination			Compound		
	Size	PSI	Feet	Vacuum (ft)	Altitude (ft)	
Pump Discharge	4-1/2"	0-60	0-140			A, B, C

Pressure Gauge Accessory Code:

- A - Gauge Liquid Filled
- B - Diaphragm Seal, Liquid Filled
- C - Ball Valves for Shutoff and Vent
- * - Viton Diaphragm

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 17490 - MEASUREMENT AND CONTROL COMMISSIONING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish and install all instrumentation equipment and accessory items as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. The following Sections of this Specification Division contain requirements on instrumentation and control equipment and software which are considered to be covered by applicable requirements of this section (and shall be included in the bid by a single Instrumentation Supplier for this Project):

- Section 17312 - Radio Telemetry System
- Section 17410 - Basic Measurement and Control Instrumentation Materials and Methods
- Section 17430 - Boxes, Panels and Control Centers
- Section 17480 - Instrument Lists and Reports

- B. The following Divisions of these Specifications contain requirements on equipment furnished by other suppliers that must interface with the instrument system, or on methods and materials to be performed/used in the installation and/or wiring of the instrumentation system.

- Division 1 - General Requirements
- Division 11 - Equipment
- Division 16 - Electrical

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION

- A. Installation and startup of the new pump station RTU shall be coordinated with the Owner, as the equipment will communicate over an existing trunked radio system.
- B. Delivery, startup, and programming of new equipment furnished under this Division shall be coordinated with process equipment installation. A qualified technician shall be present on site during pump startup.

3.02 INSTALLATION/APPLICATION/ERECTION

- A. Instrumentation and accessory equipment shall be installed in accordance with the manufacturer's instructions. The locations of equipment, transmitters, alarms and similar devices shown on the Drawings are approximate only. Exact locations shall be as accepted by the Engineer during construction. Obtain in the field all information relevant to the placing of process control work, proceed as directed by the manufacturer and furnish all labor and materials necessary to complete the work in an acceptable manner.
- B. The instrumentation installation details on the Drawings indicate the designed installation for the instruments specified. Where specific installation details are not specified or shown on the Drawings, the manufacturer's recommended practice shall be followed.

- C. All work shall be executed in full accordance with codes. Should any work be performed contrary to said codes and/or regulations, the Contractor shall bear full responsibility for such violations and assume all costs arising therefrom. All equipment used in areas designated as hazardous shall be designed for the Class, Division, and Group as required on the Drawings for the locations.
- D. Unless specifically shown in the Contract Documents, direct reading or electrical transmitting instrumentation shall not be mounted on process piping. Instrumentation shall be mounted on instrument racks or stands. All instrumentation connections shall be provided with shutoff and drain valves.
- E. All piping to and from field instrumentation shall be provided with necessary unions, test tees, couplings, adaptors, and shut-off valves.
- F. Field instruments requiring power supplies shall be provided with local electrical shut-offs and fuses as required.
- G. Brackets and hangers required for mounting of equipment shall be provided. They shall be installed in a workmanlike manner and not interfere with any other equipment.
- H. The system supplier shall investigate each space in the building through which equipment must pass to reach its final location. If necessary, the system supplier shall be required to ship his material in sections sized to permit passing through restricted areas in the building. The system supplier shall also investigate, and make any field modifications to the allocated space for each cabinet, enclosure and panel to assure proper space and access (front, rear, side).
- I. The shield on each process instrumentation cable shall be continuous from source to destination and be grounded as directed by the manufacturer of the instrumentation equipment but in no case shall more than one ground point be employed for each shield.
- J. Lifting rings shall be removed from cabinets/assemblies. Hole plugs shall be provided for the holes of the same color as the cabinet.
- K. The system supplier, acting through the Contractor, shall coordinate the installation, the placing and location of system components, their connections to the process equipment panels, cabinets and devices, subject to the Engineer's acceptance. He shall be responsible to ensure that all field wiring for power and signal circuits are correctly done in accordance with best industry practice and provide for all necessary system grounding to ensure a satisfactory functioning installation. The Contractor hereunder shall schedule and coordinate his work under this Section with that of the electrical work specified under applicable Sections of Division 16.

3.03 FIELD QUALITY CONTROL

- A. After equipment and materials have been shipped to the job site, the Supplier shall furnish the services of a factory-trained service technician or engineer to assist and advise the Contractor during installation and to provide programming/calibration/ adjustment at initial startup. A minimum period of 2 calendar days on the job site is required, and expenses associated with additional days necessary shall be at no cost to the Owner.
- B. Following installation, checkout, and final adjustment of all panels, instruments, meters, monitoring, and control devices, the Contractor shall schedule a performance test in the presence of the Engineer on all equipment. The Contractor shall furnish the services of the system supplier's servicemen, all special tools, calibration equipment, and labor to perform the tests.

- C. Meters shall be tested at 0 percent, 25 percent, 50 percent, 75 percent, and 100 percent of scale, if possible. All status and alarm switches as well as all monitoring and control functions shall also be checked, including logging at printers and change of state on graphics. Testing shall be done from the signal source to the final element or device including all field wiring. Results of all testing shall be submitted to the Engineer in writing.
- D. As much as possible, points shall be checked "end-to-end". For example, valve status inputs shall be checked by stroking the valve, and a pump start output shall be checked by using it to start to start the pump. Simulated testing shall be allowed only when no practical alternative exists. Workstation displays shall be verified for correctness at the same time. An I/O checklist shall be used to record test results and a copy provided to the Engineer upon completion. During system testing, the Contractor shall have a representative onsite continuously who is capable of troubleshooting and modifying system configuration programming.
- E. If, during running of the tests, one or more points appear to be out by more than the system accuracy statement, or fails to perform in accordance with agreed strategies, the system supplier's servicemen shall make such adjustment or alterations as are necessary to bring equipment/programming up to specification performance. Following such adjustment, the tests shall be repeated for all specified points to ensure compliance.

3.04 PERFORMANCE TEST

- A. Subsequent to the full system implementation, the Contractor shall conduct a successful 30 day final acceptance test for the system furnished and installed under this Contract. In this test, the entire system must operate continuously for 24 hours per day, 7 days per week during the test period, with zero downtime resulting from system failures. If a system failure occurs, the 30-day test period will be repeated, starting over at time zero, from the time that the system failure is repaired. The Contractor shall repeat the test until it is satisfactorily completed. The system will only be acceptable to the Owner after all equipment and software has satisfied the performance test requirements.
- B. The Contractor shall submit a final acceptance test completion report which shall state that all Contract requirements have been met and which shall include a summary of maintenance/repair efforts that were required during the test period. Final acceptance of the system by the Owner until this has occurred.

3.05 ADJUSTING AND CLEANING

- A. All equipment furnished under this Section of the Specifications shall be adjusted/calibrated as defined elsewhere this Section/Division.
- B. All instruments and equipment shall be left free from shipping stickers, paint splatter, dirt, grease, etc., and shall be clean and in like new condition at final acceptance. Touch-up paint shall be furnished as needed to repair blemishes and scratches in finish paint on panels and enclosures, which shall be corrected by the Contractor.

3.06 EXTRA STOCK/SPARE PARTS

- A. The following supplies and spare parts shall be furnished:
 - 1. Ten fuses for each type/size in the system.
 - 2. Two Cutler-Hammer C799L2 oxidation inhibitors; install one in each cabinet.
 - 3. One relay of every size and type provided in the project

- B. Other spare parts are listed in specific instrument technical specifications in the appropriate Division 17 Specification Section herein. All spare parts shall be packaged in an acceptable manner for long-term storage and adequately protected against corrosion, humidity and temperature extremes. All items shall be tagged externally with what they are; both a written description and a manufacturer brand/part number.

END OF SECTION



LOKICO-S01

PCARVER

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
2/4/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Houchens Insurance Group 505 Wellington Way Lexington, KY 40503	CONTACT NAME: Robbin Emberton, ACSRC, MLIS, CRIS PHONE (A/C, No, Ext): (270) 467-1364 4291 FAX (A/C, No): (270) 843-8808 E-MAIL ADDRESS: remberton@higusa.com	
	INSURER(S) AFFORDING COVERAGE	
INSURED Lokits Contracting, LLC 2480 Woodfield Circle Lexington, KY 40515-1200	INSURER A : Crum & Forster Specialty Insurance Company NAIC # 44520	
	INSURER B : Auto-Owners Insurance Company 18988	
	INSURER C : Kentucky Employers' Mutual Insurance 10320	
	INSURER D :	
	INSURER E :	


COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	X	X	EPK-138380	1/6/2022	1/6/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 CONTRACTORS POL \$ 1,000,000
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	X		53-680849-00	1/6/2022	1/6/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 0			EFX-119617	1/6/2022	1/6/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
C	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input checked="" type="checkbox"/> Y/N If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	437071	1/11/2022	1/11/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Job: Bid 129-2021 Hartland Pump Station

The certificate holder is considered an additional insured in regards to the general liability and auto per written contract with the insured on a primary and non-contributory basis. 30 Day notice of cancellation.

CERTIFICATE HOLDER Lexington-Fayette Urban County Government 200 E Main Street Lexington, KY 40507	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 

QUICK REFERENCE

**THE DECLARATIONS PAGE SHOWS THE: NAMED INSURED
 SCHEDULE OF COVERED AUTOS AND COVERAGES
 LIMIT OF INSURANCE
 ENDORSEMENTS THAT APPLY TO THIS POLICY
 PREMIUM**

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COMMERCIAL AUTO POLICY

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine rights, duties and what is and is not covered. Throughout this policy, words and phrases that appear in **bold face type** have special meaning. Refer to SECTION VI - DEFINITIONS. The descriptions in the headings of this policy and all applicable endorsements are solely for convenience and are not part of the terms and conditions of coverage.

SECTION I - COVERED AUTOS

A. COVERED AUTO DESIGNATION SYMBOLS

The following symbols describe the **autos** for which coverage may be provided. Symbols shown next to

the various coverages in the Declarations designate only those **autos** which shall be considered covered **autos** for each such coverage.

Symbol	Description Of Covered Auto Designation Symbols	
1	Any Auto	
2	Owned Autos Only	Only those autos you own (and for Covered Autos Liability Coverage any trailer you do not own while connected to or accidentally disconnected from a power unit you own). This includes those autos you acquire ownership of after the policy begins.
3	Owned Private Passenger Autos Only	Only private passenger autos you own (and for Covered Autos Liability Coverage any trailer while connected to or accidentally disconnected from a private passenger auto you own). This includes those private passenger autos you acquire ownership of after the policy begins.
4	Owned Autos Other Than Private Passenger Autos Only	Only those autos you own that are not private passenger autos (and for Covered Autos Liability Coverage any trailer while connected to or accidentally disconnected from a power unit, other than a private passenger auto, you own). This includes those autos that are not private passenger autos you acquire ownership of after the policy begins.
5	Owned Autos Subject To No-fault	Only those autos you own that are required by law to have no-fault benefits in the state in which they are licensed or principally garaged. This includes those autos you acquire ownership of after the policy begins provided they are required to have no-fault benefits in the state where they are licensed or principally garaged.
6	Owned Autos Subject To A Compulsory Uninsured Motorist Law	Only those autos you own that are required by law of the state in which they are licensed or principally garaged to have and cannot reject Uninsured Motorist Coverage. This includes those autos you acquire ownership of after the policy begins provided they are subject to the same state uninsured motorist requirement.
7	Scheduled Autos Only	Only those autos scheduled in the Declarations for which a premium charge is shown (and for Covered Autos Liability Coverage any trailer while connected to or accidentally disconnected from a power unit scheduled in the Declarations).
8	Hired Autos Only	Only those autos you lease, hire, rent or borrow. This does not include any auto you lease, hire, rent or borrow from any of your employees , partners (if you are a partnership), members (if you are a limited liability company), executive officers (if you are a corporation), or members of their households.
9	Non-owned Autos Only	Only those autos you do not own, lease, hire, rent or borrow that are used in connection with your business. This includes autos owned by your employees , partners (if you are a partnership), members (if you are a limited liability company), executive officers (if you are a corporation), or members of their households, but only while used in your business or your personal affairs.

Symbol	Description Of Covered Auto Designation Symbols	
19	Mobile Equipment Subject To Compulsory Or Financial Responsibility Or Other Motor Vehicle Insurance Law Only	Only those autos that are land vehicles and that would qualify under the definition of mobile equipment under this policy if they were not subject to a compulsory or financial responsibility law or other motor vehicle insurance law where they are licensed or principally garaged.

B. NEWLY ACQUIRED AUTOS

If Symbol 7 is entered next to a coverage in Item Two of the Declarations, then:

1. Coverage

a. An **auto you** acquire ownership of shall be a covered **auto** provided:

- (1) The date **you** acquire ownership of the **auto** is during the policy term shown in the Declarations;
- (2) No other insurance policy provides coverage for the **auto**; and
- (3) **We** already cover all other **autos you** own, that are licensed for use on public roadways, except any that are out of service because of mechanical breakdown or damage sustained in an **accident**; and

b. If such **auto you** acquire ownership of:

- (1) Replaces an **auto you** previously owned, it shall be provided only those coverages which applied to the replaced **auto**.
- (2) Is an additional **auto** (that is not a **trailer**), it shall be provided the following coverages:
 - (a) For other than physical damage coverage, it shall be provided the broadest coverages applicable to any one covered **auto** (that is not a **trailer**).
 - (b) For physical damage coverage, it shall be provided only those coverages (regardless of deductible) common to all of **your** other covered **autos**. The deductible shown in Item Two of the Declarations shall apply.
- (3) Is an additional **auto** (that is a **trailer**), it shall be provided only those physical damage coverages (regardless of deductible) common to all of **your** other covered **autos**. The deductible shown in Item Two of the Declarations shall apply.

2. Duration of Coverage

Coverage for an **auto you** acquire ownership of shall apply for the remainder of the policy term or 30 days from the date **you** acquired

ownership of the **auto** if this policy is renewed, whichever is longer.

3. Reporting

You must report all **autos you** acquire ownership of to **us** by the expiration of the policy term during which the **auto** was acquired or 30 days from the date **you** acquired the **auto** if this policy is renewed, whichever is longer.

4. Premium

You will be charged the premium for all **autos you** acquire ownership of that are provided coverage under this extension from the date **you** acquired the **autos**.

5. Option to Purchase Physical Damage Coverage

You may at any time during the first 30 days after **you** acquire ownership of the **auto**, purchase the broadest physical damage coverages applicable to any one **auto** already scheduled in the Declarations.

C. TRAILERS AND MOBILE EQUIPMENT

The Covered Autos Liability Coverage provided by this policy for an **auto** extends to:

- 1. A **trailer** that is not connected to an **auto**, provided such **trailer**:
 - a. Has a load capacity of 2,000 pounds or less; and
 - b. Is owned by or is in the care, custody or control of:
 - (1) **You**;
 - (2) A **family member**, if **you** are an individual, who owns an **auto** (that is not a **trailer**) scheduled in the Declarations for Covered Autos Liability Coverage or who only owns a **trailer**; or
 - (3) Any other individual or organization who owns an **auto** (that is not a **trailer**) scheduled in the Declarations for Covered Autos Liability Coverage.

Coverage only applies for the ownership or use of the **trailer** by the individuals or organizations described in (1), (2) and (3) immediately above.

- 2. A **trailer** that is connected to an **auto** (that is not a **trailer**) to which Covered Autos Liability Coverage provided by this policy does not apply, provided such **trailer**:
 - a. Has a load capacity of 2,000 pounds or less; and

- b. Is owned by:
- (1) **You**;
 - (2) A **family member**, if **you** are an individual, who owns an **auto** (that is not a **trailer**) scheduled in the Declarations for Covered Autos Liability Coverage or who only owns a **trailer**; or
 - (3) Any other individual or organization who owns an **auto** (that is not a **trailer**) scheduled in the Declarations for Covered Autos Liability Coverage.

Coverage only applies for the ownership of the **trailer** arising from the use of the **trailer** by an individual or organization other than the **trailer** owner. No coverage applies to the owner or operator of the **auto** (that is not a **trailer**) to which the **trailer** is connected.

3. **Mobile equipment** while being carried or towed by a covered **auto**.
4. Non-motorized farm machinery or farm wagons while connected to or accidentally disconnected from such covered **auto**.

D. TEMPORARY SUBSTITUTE AUTOS

Any **auto you** do not own while used with the permission of its owner as a temporary substitute for a covered **auto you** own that is out of service because of its:

1. Breakdown;
2. Repair;
3. Servicing;
4. **Loss**; or
5. Destruction

shall be provided only those coverages which apply to such covered **auto** that is out of service.

E. HIRED AUTOS

Any leased, hired, rented or borrowed **auto** scheduled in the Declarations will be considered a covered **auto you** own and not a covered **auto you** lease, hire, rent or borrow.

SECTION II - COVERED AUTOS LIABILITY COVERAGE

A. COVERAGE

We will pay all sums an **insured** legally must pay as damages because of **bodily injury** or **property damage** to which this insurance applies, caused by an **accident** and resulting from the ownership, maintenance or use of a covered **auto** as an **auto**.

We will also pay all sums an **insured** legally must pay as a **covered pollution cost or expense** to which this insurance applies, caused by an **accident** and resulting from the ownership, maintenance or use of a covered **auto** as an **auto**. However, we will only pay for the **covered pollution cost or expense** if there is either **bodily injury** or **property damage** to which this insurance applies that is caused by the same **accident**.

We will investigate, settle or defend, as we consider appropriate, any claim or **suit** for damages or a **covered pollution cost or expense**, covered by this policy. We will do this at our expense, using attorneys of our choice. Our duty to defend or settle ends when the Limit of Insurance for Covered Autos Liability Coverage has been exhausted by payment of judgments or settlements.

1. Who Is An Insured

The following are **insureds**:

- a. **You** for any covered **auto**.
- b. Anyone else while using, with **your** permission, a covered **auto** (that is not a **trailer**) **you** own, lease, hire, rent or borrow except:
 - (1) (a) The owner or anyone else, from whom such covered **auto** is leased, hired, rented or borrowed; or

(b) Any **employee**, agent or driver of the owner or anyone else, from whom such covered **auto** is leased, hired, rented or borrowed.

- (2) Your **employee**, partner (if **you** are a partnership), member (if **you** are a limited liability company) or **executive officer** (if **you** are a corporation), if such covered **auto** is owned by him or her or a member of his or her household.
 - (3) A person using such covered **auto** while working in a business of selling, leasing, servicing, repairing, parking, storing, delivering or testing **autos**, unless that business is **yours**.
 - (4) A person, other than an **employee**, partner (if **you** are a partnership), member (if **you** are a limited liability company) or **executive officer** (if **you** are a corporation), or a lessee or borrower or any of their **employees**, while moving property to or from such covered **auto**.
- c. The owner of a **trailer**, non-motorized farm machinery or farm wagon only when connected to or accidentally disconnected from a covered **auto**.
 - d. A partner (if **you** are a partnership), a member (if **you** are a limited liability company) or an **executive officer** (if **you** are a corporation) while someone, other than **you**, is using with **your** permission a covered **auto**

- you** do not own, lease, hire, rent or borrow, in connection with **your** business.
- e. If **you** are an individual:
- (1) A **family member** who does not own an **auto** (that is not a **trailer**); and
 - (2) A **family member** who owns an **auto** scheduled in the Declarations while using a covered **auto**; and
 - (3) Anyone else while using, with the permission of a **family member**, a scheduled **auto**.
- f. Anyone liable for the conduct of an **insured** described in 1.a. through 1.e. immediately above, only to the extent of that liability.
- g. Any other individual or organization who owns an **auto** (that is not a **trailer**) scheduled in the Declarations while using a scheduled **auto**.
- h. Those individuals or organizations described in 1.e. and 1.g. immediately above for liability associated with ownership or use of a **trailer** not scheduled in the Declarations which is owned by such individual or organization only when such **trailer**:
- (1) Has a load capacity of 2,000 pounds or less; and
 - (2) Is not connected to an **auto**; or
 - (3) Is connected to an **auto** (that is not a **trailer**) to which Covered Autos Liability Coverage is not provided by this policy while such **trailer** is being used by an individual or organization other than the **trailer** owner.
- i. While any covered **auto** scheduled in the Declarations is rented or leased to **you** and is being used by or for **you**, its owner or anyone else from whom **you** rent or lease it is an **insured** but only for that covered **auto**.
- 2. Coverage Extensions**
- a. **Supplementary Payments**
In addition to **our** Limit of Insurance for Covered Autos Liability Coverage, **we** will also pay:
- (1) Premiums on appeal bonds in any **suit we** defend. **We** will not apply for or furnish such bonds.
 - (2) Premiums on bonds to release attachments in any **suit** against an **insured we** defend, but only for bond amounts that do not exceed the applicable Limit of Insurance. **We** will not apply for or furnish such bonds.
 - (3) Up to \$2,000 for the cost of bail bonds (including bonds for related traffic law violations) required because of an **accident we** cover. **We** will not apply for or furnish such bonds.
- (4) Interest on damages owed by an **insured** because of a judgment in a **suit we** defend and accruing:
 - (a) After the judgment, and until **we** pay, offer or deposit in court, the amount for which **we** are liable under this policy; or
 - (b) Before the judgment, where owed by law, but only on that part of the judgment **we** pay.
 - (5) Expenses an **insured** incurs for first aid to others at the time of an **accident** covered by this policy.
 - (6) All court costs taxed against an **insured** in any **suit** against that **insured** which **we** defend.
 - (7) All reasonable expenses incurred by an **insured** at **our** request, including actual loss of earnings up to \$250 per day.
- b. **Out-of-state Coverage Extensions**
While a covered **auto** is away from the state where it is licensed, **we** will:
- (1) Increase the Limit of Insurance for Covered Autos Liability Coverage to meet the limits specified by a compulsory or financial responsibility law of the jurisdiction where the covered **auto** is being used. This extension does not apply to the limit or limits specified by any law governing motor carriers of passengers or property.
 - (2) Provide the minimum amounts and types of other coverages, such as no-fault, required of out-of-state vehicles by the jurisdiction where the covered **auto** is being used.
- We** will not duplicate payments available under this or any other insurance for the same elements of **loss**.
- B. EXCLUSIONS**
This insurance does not apply to any of the following:
1. **Care, Custody or Control**
Property damage to or covered **pollution cost** or **expense** involving property owned or transported by the **insured** or in the **insured's** care, custody or control. This exclusion does not apply to:
 - a. Liability assumed under a sidetrack agreement; or
 - b. **Property damage** to a residence or private garage, caused by a covered **private passenger auto**, when the residence or private garage is in the care, custody or control of the **insured**.

2. Contractual

Liability for **bodily injury** or **property damage** assumed under any contract or agreement. This exclusion does not apply to liability for damages:

- a. Assumed in a contract or agreement that is an **insured contract** provided that the **bodily injury** or **property damage** occurs subsequent to the execution of such contract or agreement;
- b. That the **insured** would have in the absence of the contract or agreement; or
- c. Assumed in a **private passenger auto** lease or rental agreement, provided **you** are an individual and a party to the contract.

3. Employee Indemnification and Employer's Liability

Bodily injury to:

- a. An **employee** of the **insured** arising out of and in the course of:
 - (1) Employment by the **insured**; or
 - (2) Performing the duties related to the conduct of the **insured's** business; or
- b. The spouse, child, parent, brother or sister of that **employee** as a consequence of Paragraph **3.a.** above.

This exclusion applies:

- a. Whether the **insured** may be liable as an employer or in any other capacity; and
- b. To any obligation to share damages with or repay someone else who must pay damages because of the injury.

This exclusion does not apply to **bodily injury** to **domestic employees** not entitled to workers compensation benefits or to liability assumed by the **insured** under an **insured contract**.

4. Fellow Employee

Bodily injury to:

- a. Any fellow **employee** of any **insured** arising out of and in the course of the fellow **employee's** employment or while performing duties related to the conduct of **your** business; or
- b. The spouse, child, parent, brother or sister of the fellow **employee** as a consequence of Paragraph **4.a.** above.

5. Expected or Intended Injury

Bodily injury or **property damage** expected or intended from the standpoint of the **insured**.

6. Handling of Property

Bodily injury or **property damage** resulting from the handling of property:

- a. Before it is moved from the place where it is accepted by the **insured** for movement into or onto the covered **auto**;

- b. After it is moved from the covered **auto** to the place where it is finally delivered by the **insured**; or
- c. To or from any non-motorized farm machinery or farm wagon.

7. Operations

Bodily injury or **property damage** arising out of the operation of:

- a. Any equipment listed in Paragraphs **6.b.** and **6.c.** of the definition of **mobile equipment**.
- b. Machinery or equipment that is in, upon or attached to a land vehicle that would qualify under the definition of **mobile equipment** if it were not subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged.
- c. Machinery or equipment that is in, upon or attached to a **trailer**, non-motorized farm machinery or farm wagon.

8. Completed Operations

Bodily injury or **property damage** arising out of **your** work after that work has been completed or abandoned.

In this exclusion, **your** work means:

- a. Work or operations performed by **you** or on **your** behalf; and
- b. Materials, parts or equipment furnished in connection with such work or operations.

Your work includes warranties or representations made at any time with respect to the fitness, quality, durability or performance of any of the items included in Paragraph **8.a.** or **8.b.** above.

Your work will be deemed completed at the earliest of the following times:

- a. When all of the work called for in **your** contract has been completed;
- b. When all the work to be done at the site has been completed if **your** contract calls for work at more than one site; or
- c. When that part of the work done at a job site has been put to its intended use by any person or organization other than another contractor or subcontractor working on the same project.

Work that may need service maintenance, correction, repair or replacement, but which is otherwise complete, will be treated as completed.

9. Pollution

- a. **Bodily injury** or **property damage** arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of **pollutants**:
 - (1) That are, or that are contained in any property that is:

- (a) Being transported or towed by, handled or handled for movement into, onto or from the covered **auto**;
 - (b) Otherwise in the course of transit by or on behalf of the **insured**; or
 - (c) Being stored, disposed of, treated or processed in or upon the covered **auto**;
- (2) Before the **pollutants** or any property in which the **pollutants** are contained are moved from the place where they are accepted by the **insured** for movement into or onto the covered **auto**; or
- (3) After the **pollutants** or any property in which the **pollutants** are contained are moved from the covered **auto** to the place where they are finally delivered, disposed of or abandoned by the **insured**.
- b. Paragraph 9.a.(1) above does not apply to fuels, lubricants, fluids, exhaust gases or other similar **pollutants** that are needed for or result from the normal electrical, hydraulic or mechanical functioning of the covered **auto** or its parts, if:
- (1) The **pollutants** escape, seep, migrate, or are discharged, dispersed or released directly from an **auto** part designed by its manufacturer to hold, store, receive or dispose of such **pollutants**; and
 - (2) The **bodily injury, property damage or covered pollution cost or expense** does not arise out of the operation of any equipment listed in Paragraphs 6.b. and 6.c. of the definition of **mobile equipment**.
- c. Paragraphs 9.a.(2) and 9.a.(3) above do not apply to **accidents** that occur away from premises owned by or rented to an **insured** with respect to **pollutants** not in or upon a covered **auto** if:
- (1) The **pollutants** or any property in which the **pollutants** are contained are upset, overturned or damaged as a result of the maintenance or use of a covered **auto**; and
 - (2) The discharge, dispersal, seepage, migration, release or escape of the **pollutants** is caused directly by such upset, overturn or damage.
- 10. Public or Livery Conveyance**
Bodily injury or property damage arising out of the use of any covered **auto** as a public mode of transportation of people. This exclusion does not apply to car pooling on a share the expense basis.

11. Racing

Bodily injury or property damage arising out of the use of any covered **auto** while participating in any prearranged racing, prearranged high speed driving, prearranged competitive driving or prearranged demolition event. This exclusion also applies while any covered **auto** is preparing for or practicing for any of the previously mentioned events.

12. War or Military Action

Bodily injury or property damage arising directly or indirectly out of:

- a. War, including undeclared or civil war;
- b. Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or
- c. Insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending against any of these.

13. Workers Compensation

Any obligation for which the **insured** or the **insured's** insurer may be held liable under any workers compensation, disability benefits or unemployment compensation law or any similar law.

14. Autos Leased Under Hold Harmless Agreements

Bodily injury or property damage arising out of the use of any covered **auto** (that is not a **trailer**) while:

- a. Leased to **you** in writing in accordance with a written agreement in which the lessor holds **you** harmless; and
- b. Used pursuant to operating rights (permits) granted to **you** by a public authority.

C. LIMIT OF INSURANCE

We will pay damages for **bodily injury, property damage and covered pollution cost or expense** up to the Limit of Insurance shown in the Declarations for this coverage. Such damages shall be paid as follows:

- 1. When combined liability limits are shown in the Declarations, the limit shown for each **accident** is the total amount of coverage and the most we will pay for damages because of or arising out of **bodily injury, property damage and covered pollution cost or expense** in any one **accident**.
- 2. When separate **bodily injury** and **property damage** limits are shown in the Declarations:
 - a. For **bodily injury**:
 - (1) The limit shown for "each person" is the amount of coverage and the most we

- will pay for all damages because of or arising out of **bodily injury** to one person in any one **accident**.
- (2) The limit shown for "each accident" is the total amount of coverage and the most **we** will pay, subject to **2.a.(1)** above, for all damages because of or arising out of **bodily injury** to two or more persons in any one **accident**.
- b. For **property damage**, the limit shown is the amount of coverage and the most **we** will pay for all **property damage** in any one **accident**.
3. The Limit of Insurance applicable to a **trailer**, non-motorized farm machinery or farm wagon which is connected to an **auto** covered by this policy shall be the limit of insurance applicable to such **auto**. The **auto** and connected **trailer**, non-motorized farm machinery or farm wagon are considered one **auto** and do not increase the Limit of Insurance.
4. The Limit of Insurance applicable to a **trailer** covered by this policy but not scheduled in the Declarations:

- a. Which is not connected to an **auto**; or
- b. Which is connected to an **auto** not covered for Covered Autos Liability Coverage by this policy
- shall be the Limit of Insurance applicable to any covered **auto**.
5. The Limit of Insurance for this coverage may not be added to the limits for the same or similar coverage applying to other **autos** insured by this policy to determine the amount of coverage available for any one **accident** or **covered pollution cost or expense**, regardless of the number of:
- a. Covered **autos**;
- b. **Insureds**;
- c. Premiums paid;
- d. Claims made or **suits** brought;
- e. Persons injured; or
- f. Vehicles involved in the **accident**.
- All **bodily injury**, **property damage** and **covered pollution cost or expense** resulting from continuous or repeated exposure to substantially the same conditions will be considered as resulting from one **accident**.

SECTION III - PHYSICAL DAMAGE COVERAGE

A. COVERAGE

1. **We** will pay for **loss** to a covered **auto** or its **equipment or custom furnishings** under:
- a. **Comprehensive Coverage**
From any cause except:
- (1) The covered **auto's** collision with another object; or
- (2) The covered **auto's** overturn.
- However, **we** will pay for:
- (1) Glass breakage from any cause including upset or collision;
- (2) Damage caused by missiles or falling objects; and
- (3) Damage caused by collision with an animal or bird.
- When a deductible is shown in the Declarations for this coverage, **we** will reduce **our** payment by that amount. The deductible shall not apply to the repair of safety or laminated glass contained within the windshield, rear window, a door window or any other side window of a covered **auto** that is a **private passenger auto**, provided both **you** and **we** agree to the repair. However, the deductible will still apply to:
- (1) Any light or any component of any light to such covered **auto**;
- (2) Any glass contained in the roof;
- (3) Removable roof panels of any type;
- (4) Mirrors of any type; or

- (5) Replacement of any safety or laminated glass.
- b. **Collision Coverage**
Caused by:
- (1) The covered **auto's** collision with another object; or
- (2) The covered **auto's** overturn.
- When a deductible is shown in the Declarations for this coverage, **we** will reduce **our** payment by that amount. The deductible shall not apply when a covered **auto** that is a **private passenger auto** is:
- (1) In a collision with another **auto**:
- (a) **We** insure and which **you** do not own, rent or have in **your** care, custody or control; or
- (b) Whose owner or operator has been identified; and
- 1) Is legally responsible for the entire amount of the damage; and
- 2) Is covered by a **property damage** liability policy or bond but only if the damage exceeds the deductible amount.
- (2) Legally parked and is accidentally struck by another of **your private passenger autos**, provided Collision Coverage applies to both **autos**.

2. Road Trouble Service

We will pay up to the amount shown in the Declarations for this coverage each time a covered **auto** that is a **private passenger auto** is disabled:

- a. For towing to the nearest available garage; and
- b. For the cost of labor performed at the place of disablement.

3. Coverage Extensions

a. Trailers

The Comprehensive Coverage and Collision Coverage provided to a covered **auto** will extend to certain **trailers you** do not own.

The trailer must:

- (1) Have a load capacity of 2,000 pounds or less;
- (2) Be used with **your private passenger auto**; and
- (3) Be other than a **trailer** of the home, office, store, display or passenger type.

Our limit of insurance under this coverage extension is \$500 in any one **loss**. No deductible applies.

b. Transportation Expenses Following Theft

If Comprehensive Coverage is shown in the Declarations for a **private passenger auto** scheduled in the Declarations, we will pay up to \$30 per day but not more than \$900 in any one **loss** for transportation expenses incurred if such **auto** is stolen. We will pay such expenses incurred during the period beginning 48 hours after an **insured** reports the theft to **us** and to the police and ending when such **auto** is returned to use or we pay for its **loss**.

c. Personal Property

The Comprehensive Coverage and Collision Coverage provided to a covered **auto** that is a **private passenger auto** will extend to **loss** to personal property contained in or on such **auto** as follows:

- (1) Comprehensive Coverage because of:
 - (a) Fire;
 - (b) Lightning; or
 - (c) Theft or attempted theft if there are visible signs of someone breaking into such **auto** or the entire **auto** is stolen; or
- (2) Collision Coverage.

The personal property must be owned by **you**, a **family member** or **your employee**. This coverage extension does not apply to:

- (1) Property used in a business, trade or profession.
- (2) Money or jewelry.
- (3) Property specifically insured.

- (4) Anything that is otherwise excluded by this policy.

Our limit of insurance under this coverage extension is \$300 in any one **loss**. No deductible applies.

d. Air Bag Replacement

The Comprehensive Coverage provided to a **private passenger auto** scheduled in the Declarations will extend to replacement of an air bag that inflates without such **auto** having been involved in a Comprehensive or Collision **loss**. No deductible applies.

e. Loss of Use - Rental Fee Reimbursement

(1) We shall provide the following extension of coverage when **you** become legally responsible to pay for loss of use of:

- (a) A **private passenger auto** rented or hired without a driver under a written rental contract or agreement and a covered **auto** under this policy is a **private passenger auto** with Comprehensive and Collision Coverages which extend to such rented or hired **private passenger auto**; or
- (b) An **auto** (that is not a **private passenger auto**) rented or hired without a driver under a written rental contract or agreement and such **auto** is provided Hired Auto Physical Damage coverage under this policy.

(2) We shall reimburse **you** or pay on **your** behalf:

- (a) The rental fee that would have been paid if such **auto** (that is a **private passenger auto**); or
- (b) Up to \$30 per day but not more than \$900 in any one **loss**, of the rental fee that would have been paid, if such **auto** (that is not a **private passenger auto**)

had not sustained **loss**.

(3) This coverage begins the day following the **loss** and ends, regardless of the policy expiration date, at the earliest of the following:

- (a) The day repairs to the rental **auto** are completed, not to exceed a period longer than required to repair such **auto**, exercising due diligence and dispatch;
- (b) The day we make payment for replacement of the rental **auto**; or
- (c) Thirty (30) days after the date coverage begins.

(4) **You** or the rental agency must submit proper receipts to **us** for all expenses claimed under this coverage extension.

f. Diminished Value

When Diminished Value Coverage is shown in the Declarations for an **auto**, we shall pay:

- (1) An additional 15% of the settlement amount if the model year of such **auto** is no older than the model year of the date of the **loss** and the two prior model years; or
- (2) An additional 10% of the settlement amount for prior model years for damage to such **auto** because of **diminished value**, only if such **auto** is repaired. This provision does not apply to damage to glass.

B. EXCLUSIONS

Comprehensive and Collision Coverages do not apply to:

1. Audio, Visual or Data Electronic Equipment
Loss to any of the following:

- a. Any electronic equipment that reproduces, receives or transmits audio, visual, global positioning or data signals. However, such equipment is covered if:
 - (1) Standard or optional equipment for the manufacturer of a covered **auto** for that make, model and model year;
 - (2) Permanently installed in a covered **auto** and was not standard or optional equipment for the manufacturer of such covered **auto** for that make, model and model year; or
 - (3) Scheduled in the Declarations and a premium charged.

Our limit under a.(2) above shall not exceed \$1,000 in any one **loss**. No deductible applies to the coverage extension in a.(2) above.
- b. Tapes, discs or other similar media designed for use with equipment described in a. above.
- c. Any accessories used with the media or equipment described in a. or b. above.

2. Diminished Value

Loss to a covered **auto** because of or arising out of **diminished value**. This exclusion does not apply to the extent that coverage is provided when Diminished Value Coverage is shown in the Declarations.

3. Expected or Intentional Act

Loss to a covered **auto** because of or arising out of **your** intentional act or an intentional act committed at **your** direction or with **your** knowledge.

4. Conversion, Embezzlement or Secretion

Loss to a covered **auto** because of or arising out of conversion, embezzlement or secretion by any person lawfully having a covered **auto** under a sale, lease or similar agreement.

5. Illegal Activities

Loss to a covered **auto** because of confiscation or destruction by any civil or governmental authorities because of illegal activities engaged in by **you** or a **family member**.

6. Loss of Use

Loss of use of a covered **auto**, except as provided in Coverage Extensions.

7. Nuclear Hazard

Loss caused by or resulting from:

- a. The explosion of any weapon employing atomic fission or fusion; or
- b. Nuclear reaction or radiation, or radioactive contamination, however caused.

8. Racing

Loss to any covered **auto** while participating in any prearranged racing, prearranged high speed driving, prearranged competitive driving or prearranged demolition event. This exclusion also applies while any covered **auto** is preparing for or practicing for any of the previously mentioned events.

9. Radar Detectors

Loss to any device designed or used to:

- a. Detect speed-measuring equipment such as radar or laser detectors; or
- b. Elude or disrupt speed-measuring equipment such as a jamming apparatus.

10. Tires

Loss to tires, unless the **loss** is caused by:

- a. Fire;
 - b. Theft; or
 - c. Malicious mischief; or
- is part of other **loss** covered by this policy.

11. Truck Campers

Loss to:

- a. A truck camper; or
- b. A pickup cover with built-in cooking and sleeping equipment unless scheduled in the Declarations and a premium charged.

12. War or Military Action

Loss caused by or resulting from:

- a. War, including undeclared or civil war;
- b. Warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or
- c. Insurrection, rebellion, revolution, usurped power or action taken by governmental

authority in hindering or defending against any of these.

13. Wear and Tear

Loss to a covered **auto** because of and confined to:

- a. Wear and tear;
- b. Freezing; or
- c. Mechanical or electrical breakdown, other than burning of wiring.

This exclusion does not apply to such **loss** following and resulting from other **loss** covered by this policy.

C. LIMIT OF INSURANCE

1. The most **we** will pay for **loss** to any one covered **auto** is the lesser of:
 - a. The actual cash value of damaged or stolen property at the time of the **loss**;
 - b. The cost, at local prices, to repair or replace damaged or stolen property with other property of like kind and quality; or
 - c. The Limit of Insurance shown in the Declarations.
2. **We** will, at **our** option, replace an **auto** scheduled in the Declarations with a new one of equal value or pay **you your** original purchase price if:
 - a. Such **auto** is a **private passenger auto**;
 - b. **You** purchased it new;
 - c. **We** determine the **loss** cannot be repaired; and
 - d. The **loss** occurs within 90 days of the purchase date.

3. If a **loss** to an **auto** scheduled in the Declarations can be paid under either Comprehensive Coverage or Collision Coverage, payment will be made under the coverage that pays the most.

4. Coinsurance

If a scheduled **auto** has been altered, remodeled, converted or modified so that its value is substantially increased over that of a standard **auto** of the same make and model, and such modifications affect the amount of the **loss**, **we** will pay only the proportion that the value of a standard **auto** bears to the value of the scheduled **auto**. This does not apply when an additional premium is charged based on the increased value.

5. Deductible - Hired Auto Physical Damage Coverage

If other insurance is available to **you** or the owner of a covered **auto** (that is a hired **auto**) and such insurance is subject to a deductible greater than the deductible which applies to this coverage, **we** shall pay the difference between the two deductibles.

SECTION IV - INDIVIDUAL NAMED INSURED

If a Named Insured shown in the Declarations is an individual and any **auto** scheduled in the Declarations is a **private passenger auto**, the following extensions of coverage apply:

- A. The Covered Autos Liability Coverage provided for any scheduled **auto** (that is not a **trailer**) also applies to an **auto** (that is not a **trailer**):
 1. Not owned by **you** or anyone living with **you**.
 2. Not furnished or available for regular use to **you** or anyone living with **you**. However, **we** will afford **you** Covered Autos Liability Coverage for **your** use of an **auto** (that is not a **trailer**) owned by or furnished for the regular use of a **family member**.
 3. Not used in a business **you** own or operate selling, servicing, repairing, parking or storing **autos**.
 4. Not used by **you**, a **family member** or the chauffeur or **domestic employee** of either while

working in **your** business or occupation or that of a **family member**, unless the **auto** is a **private passenger auto**.

5. Not used by **you** or a **family member** without a reasonable belief of permission to do so.

We only extend this coverage to and while used by:

1. **You**, if an individual; and
2. **Family members**:
 - a. Who do not own an **auto** (that is not a **trailer**); or
 - b. Who own an **auto** (that is not a **trailer**) if scheduled in the Declarations.

We also extend this coverage to anyone legally responsible for the use of the **auto** (that is not a **trailer**) by the persons described in 1. and 2. immediately above.

- B. The Physical Damage Coverage provided for any scheduled **auto** (that is not a **trailer**) also applies to an **auto** (that is not a **trailer**):
 1. Not owned by **you** or anyone living with **you**.

2. Not furnished or available for regular use to **you** or anyone living with **you**.
3. Not used in a business **you** own or operate selling, servicing, repairing, parking or storing **autos**.
4. Not used by **you**, a **family member** or the chauffeur or **domestic employee** of either while working in **your** business or occupation or that of a **family member**, unless the **auto** is a **private passenger auto**.
5. Not used by **you** or a **family member** without a reasonable belief of permission to do so.

We only extend this coverage to and while used by:

1. **You**, if an individual; and
2. **Family members**:
 - a. Who do not own an **auto** (that is not a **trailer**); or
 - b. Who own an **auto** (that is not a **trailer**) scheduled in the Declarations.

These extensions do not apply when there is other insurance covering **your** interest or the interest of the owner. However, they do apply if **you** are legally liable.

SECTION V - CONDITIONS

A. LOSS CONDITIONS

1. Duties in the Event of Accident, Claim, Suit or Loss

We have no duty to provide coverage under this policy unless there has been full compliance with the following duties:

- a. In the event of **accident**, claim, **suit** or **loss**, an **insured** must give **us** or **our** authorized representative prompt notice of the **accident** or **loss**, including:
 - (1) How, when and where the **accident** or **loss** occurred;
 - (2) The **insured's** name and address; and
 - (3) To the extent possible, the names and addresses of any injured persons and witnesses.
- b. Additionally, the **insured** and any other involved **insured** must:
 - (1) Immediately send **us** copies of any request, demand, order, notice, summons or legal paper received concerning the claim or **suit**.
 - (2) Cooperate with **us** in the investigation or settlement of the claim or defense against the **suit**.
 - (3) Authorize **us** to obtain medical records or other pertinent information.
 - (4) Submit to examination, at **our** expense, by physicians of **our** choice, as often as **we** reasonably require.
 - (5) Assume no obligation, make no payment or incur no expense without **our** consent, except at the **insured's** own cost.
 - (6) Agree to examinations under oath at **our** request and give **us** a signed statement of such answers.
- c. If there is **loss** to a covered **auto** or its **equipment or custom furnishings**, an **insured** must also do the following:

- (1) Promptly notify the police if the covered **auto** or any of its **equipment or custom furnishings** is stolen.
- (2) Take all reasonable steps to protect the covered **auto** from further damage. Also keep a record of expenses for consideration in the settlement of the claim.
- (3) Permit **us** to inspect the covered **auto** and records proving the **loss** before its repair or disposition.

2. Legal Action Against Us

No legal action may be brought against **us** until there has been full compliance with all the terms of this policy. Further, under the Covered Autos Liability Coverage, no legal action may be brought until **we** agree a person entitled to coverage has an obligation to pay or until the amount of that obligation has been determined by judgment after trial. No one has any right under this policy to bring **us** into any action to determine the liability of any person **we** have agreed to protect.

3. Appraisal for Physical Damage Loss

If **you** and **we** disagree on the amount of **loss**, either may demand an appraisal of the **loss**. In this event, each party will select a competent and impartial appraiser. The two appraisers will select a competent and impartial umpire. The appraisers will state separately the actual cash value and amount of **loss**. If they fail to agree, they will submit their differences to the umpire. A decision agreed to by any two will be binding. Each party will:

- a. Pay its chosen appraiser; and
- b. Bear the other expenses of the appraisal and umpire equally.

If **we** submit to an appraisal, **we** will still retain **our** right to deny the claim.

4. Loss Payment - Physical Damage Coverage

At our option, we may:

- a. Pay for, repair or replace damaged or stolen property;
 - b. Return stolen property at our expense. We will pay for any damage that results to the auto from the theft; or
 - c. Take all or any part of damaged or stolen property at an agreed or appraised value.
- If we pay for the loss, our payment will include, where required by law, the applicable sales tax for damaged or stolen property. We may adjust the loss for an auto you lease, hire, rent or borrow with either you or the owner of such auto, whomever we choose.

5. Our Right to Recover Payments

If we make a payment under this policy and the person or organization to or for whom payment is made has a right to recover damages from another, we will be entitled to that right. That person or organization shall do everything necessary to transfer that right to us and do nothing to prejudice it.

6. Motor Carriers

- a. When this policy is amended by an endorsement prescribed in compliance with any law for the regulation of:
 - (1) Common carriers;
 - (2) Contract carriers; or
 - (3) Private carriers
 of passengers or property, all amended policy terms and conditions remain in full force and are binding between you and us.
- b. If as a result of that endorsement, we are obligated to make a payment that we would not make except for that endorsement, you agree to reimburse us for any payment, including payment for defense costs, we must make as a result of that endorsement.

B. GENERAL CONDITIONS**1. Policy Term and Territory**

Under this policy, we cover accidents and losses occurring:

- a. During the policy term shown in the Declarations; and
- b. Within the coverage territory.
The coverage territory is:
 - (1) The United States of America;
 - (2) The territories and possessions of the United States of America;
 - (3) Canada; and
 - (4) Anywhere in the world if a covered auto that is a private passenger auto is leased, hired, rented or borrowed

without a driver for a period of 30 days or less, provided that the insured's responsibility to pay damages is determined in a suit on the merits in any of the coverage territories described in b.(1), b.(2) or b.(3) above or in a settlement to which we agree.

We also cover loss to, or accidents involving, a covered auto while being transported between any of these places.

2. Other Insurance

- a. For any covered auto that is scheduled in the Declarations, this policy provides primary insurance. For any covered auto which is not scheduled in the Declarations, the insurance provided by this policy is excess over any other collectible insurance. However, this coverage shall be primary when any covered auto (that is a trailer) is connected to an auto that is scheduled in the Declarations and this coverage shall be excess when any covered auto (that is a trailer) is connected to an auto that is not scheduled in the Declarations.
- b. Regardless of the provisions of Paragraph a. above, the Covered Autos Liability Coverage of this policy is primary for any liability assumed under an insured contract.
- c. When this policy and any other coverage form or policy covers on the same basis, either excess or primary, we will pay only our share. Our share is the proportion that the Limit of Insurance of our policy bears to the total of the limits of all the coverage forms and policies covering on the same basis.

3. Assignment

No interest in this policy may be assigned without our written consent. However, if you are an individual and you die within the policy term, the policy will cover as though named in the Declarations:

- a. Your spouse;
- b. Your legal representative, but only with respect to his or her legal responsibility for the maintenance or use of a covered auto; and
- c. Any person having proper temporary custody of a covered auto until a legal representative is appointed

provided we are given written notice of your death within 60 days of the date of your death or by the expiration of the policy term in which you die, whichever is greater. This requirement does not apply with regard to your spouse.

4. Bankruptcy

Bankruptcy or insolvency of an **insured** or an **insured's** estate will not relieve **us** of any obligation under the terms of this policy.

5. Changes

- a. This policy contains all the agreements between **you** and **us** or any of **our** agents, concerning the insurance afforded. The terms of this policy can be amended or waived only by endorsement issued by **us** and made part of this policy.
- b. The first Named Insured shown in the Declarations is authorized to make changes in the terms of this policy with **our** consent. **We** may adjust **your** policy premium because of changes made to the policy.
- c. **We** may adjust **your** premium during the policy term because of changes in the factors that were used to determine such premium. These factors include but are not limited to:
 - (1) The principal place of garaging a covered **auto**;
 - (2) Coverages, limits of insurance and deductibles;
 - (3) The type, make and model of a covered **auto** and its use; and
 - (4) The operators of a covered **auto**.
 Premium adjustments will be made at the time of such changes or when **we** become aware of the changes, if later. **We** will use the governing rules and rates in effect on the inception date of the policy term.

6. Concealment, Misrepresentation or Fraud

This policy is void in any case of fraud by **you** at any time as it relates to this policy. It is also void if **you** or any other **insured**, at any time, intentionally conceals or misrepresents a material fact concerning:

- a. This policy;
- b. The covered **auto**;
- c. **Your** interest in the covered **auto**; or
- d. A claim under this policy.

7. Duplication of Coverage

- a. If this policy and any other policy or coverage form provided by **us** or a company affiliated with **us**, provides coverage for the same **accident** or **loss**, **our** maximum limit of insurance under all the policies or coverage forms shall not exceed the highest limit of insurance under any single policy or coverage form applicable to the **accident** or **loss**.
- b. This condition does not apply to any policy or coverage form issued by **us** or a

company affiliated with **us** to specifically provide excess insurance over this policy.

8. Examination of Your Books and Records

We may examine and audit **your** books and records as they relate to this policy at any time during the policy term and up to one year afterward.

9. Inspections

- a. **We** have the right to:
 - (1) Make inspections at any time;
 - (2) Give **you** reports on the conditions **we** find; and
 - (3) Recommend changes.
- b. **We** are not obligated to make any inspections, reports or recommendations and any such actions **we** do undertake relate only to insurability and the premiums to be charged. **We** do not make safety inspections. **We** do not undertake to perform the duty of any person or organization to provide for the health or safety of workers or the public. **We** do not warrant that conditions:
 - (1) Are safe or healthful; or
 - (2) Comply with laws, regulations, codes or standards.
- c. Paragraphs **9.a.** and **9.b.** of this condition apply not only to **us**, but also to any rating, advisory, rate service or similar organization which makes insurance inspections, reports or recommendations.

10. Liberalization

If **we** revise this policy to provide more coverage without additional premium charge, **your** policy will automatically provide the additional coverage as of the day the revision is effective in **your** state.

11. No Benefit to Bailee - Physical Damage Coverage

We will not recognize any assignment or grant any coverage for the benefit of any person or organization holding, storing or transporting property for a fee regardless of any other provision of this policy.

12. Premiums

The first Named Insured shown in the Declarations:

- a. Is responsible for the payment of all premiums; and
- b. Will be the payee for any return premiums **we** pay.

13. Premium Audit

The estimated premium for this policy is based on the exposures **you** told **us** **you** would have when this policy began. **We** will compute the final premium due when **we** determine **your**

actual exposures. The estimated total premium will be credited against the final premium due, and the first Named Insured will be billed for the balance, if any. The due date for the final premium is the date shown as the due date on the bill. If the estimated total premium exceeds the final premium due, a return premium will be paid. Failure to pay any premium, including the

final premium, by the due date shown on the bill will be considered to be non payment of premium.

14. Severability

Except as to the Limit of Insurance, the coverage provided by this policy applies separately to each person against whom claim is made or suit is brought.

SECTION VI - DEFINITIONS

A. Accident includes continuous or repeated exposure to the same conditions resulting in **bodily injury** or **property damage**.

B. Auto means:

1. A land motor vehicle, designed for travel on public roads;
2. A **trailer**; or
3. Any other land vehicle that is subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged.

However, **auto** does not include **mobile equipment**.

C. Bodily injury means physical injury, sickness or disease sustained by a person, including resulting death of that person.

D. 1. Covered pollution cost or expense means any cost or expense arising out of:

- a. Any request, demand, order or statutory or regulatory requirement that an **insured** or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of, **pollutants**; or
- b. Any claim or **suit** by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of, **pollutants**.

2. Covered pollution cost or expense does not include any cost or expense arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of **pollutants**:

- a. That are, or that are contained in any property that is:
 - (1) Being transported or towed by, handled or handled for movement into, onto or from the covered **auto**;
 - (2) Otherwise in the course of transit by or on behalf of an **insured**; or
 - (3) Being stored, disposed of, treated or processed in or upon the covered **auto**;
- b. Before the **pollutants** or any property in which the **pollutants** are contained are

moved from the place where they are accepted by an **insured** for movement into or onto the covered **auto**; or

c. After the **pollutants** or any property in which the **pollutants** are contained are moved from the covered **auto** to the place where they are finally delivered, disposed of or abandoned by an **insured**.

Paragraph 2.a. above does not apply to fuels, lubricants, fluids, exhaust gases or other similar **pollutants** that are needed for or result from the normal electrical, hydraulic or mechanical functioning of the covered **auto** or its parts, if:

- (1) The **pollutants** escape, seep, migrate or are discharged, dispersed or released directly from an **auto** part designed by its manufacturer to hold, store, receive or dispose of such **pollutants**; and
- (2) The **bodily injury, property damage or covered pollution cost or expense** does not arise out of the operation of any equipment listed in Paragraph 6.b. or 6.c. of the definition of **mobile equipment**.

Paragraphs 2.b. and 2.c. above do not apply to **accidents** that occur away from premises owned by or rented to an **insured** with respect to **pollutants** not in or upon a covered **auto** if:

- (1) The **pollutants** or any property in which the **pollutants** are contained are upset, overturned or damaged as a result of the maintenance or use of a covered **auto**; and
- (2) The discharge, dispersal, seepage, migration, release or escape of the **pollutants** is caused directly by such upset, overturn or damage.

E. Diminished value means the actual or perceived reduction in market value or resale value of a covered **auto** as the result of a covered **loss**.

F. Domestic employee means a person engaged in household or domestic work performed principally in connection with a residence premises.

G. Employee includes a **leased worker**. **Employee** does not include a **temporary worker**.

H. Equipment or custom furnishings means:

1. An apparatus or device (that is not a **trailer**):
 - a. Permanently attached to or installed in or upon a covered **auto**; or
 - b. Designed for use with, but detached from, a covered **auto**.
2. Keys and key fobs designed for a covered **auto**.
3. Custom paint, decals, wraps or other interior or exterior modifications to a covered **auto**.

Equipment or custom furnishings does not include:

1. Anything attached to real estate; or
2. Removable child seats.

I. Executive officer means a person holding any of the officer positions created by **your** charter, constitution, by-laws or any other similar governing document.**J. Family member** means a person who resides with **you** and who is related to **you** by blood, marriage or adoption. **Family member** includes a ward or foster child who resides with **you**.**K. Insured** means any person or organization qualifying as an insured in the Who Is An Insured provision of the applicable coverage.**L. Insured contract** means:

1. A lease of premises;
2. A sidetrack agreement;
3. Any easement or license agreement, except in connection with:
 - a. Construction; or
 - b. Demolition operations on or within 50 feet of a railroad;
4. An indemnification of a municipality as required by ordinance, except in connection with work for a municipality;
5. That part of any other contract or agreement pertaining to **your** business (including an indemnification of a municipality in connection with work performed for a municipality) under which **you** assume the tort liability of another to pay damages because of **bodily injury or property damage** to a third person or organization. Tort liability means liability that would be imposed by law in the absence of any contract or agreement; or
6. That part of any contract or agreement entered into, as part of **your** business, pertaining to the rental or lease, by **you** or any of **your employees**, of any **auto**. However, such contract or agreement shall not be considered an **insured contract** to the extent that it obligates **you** or any of **your employees** to pay for **property damage** to any **auto** rented or leased by **you** or any of **your employees**.

An **insured contract** does not include that part of any contract or agreement that:

1. Indemnifies a railroad for **bodily injury or property damage** arising out of:
 - a. Construction; or
 - b. Demolition operations on or within 50 feet of any railroad property and affecting any railroad bridge or trestle, tracks, roadbeds, tunnel, underpass or crossing;
2. Pertains to the loan, lease or rental of an **auto** to **you** or any of **your employees**, if the **auto** is loaned, leased or rented with a driver; or
3. Holds a person or organization engaged in the business of transporting property by **auto** for hire harmless for **your** use of a covered **auto** over a route or territory that person or organization is authorized to serve by public authority.

M. Leased worker means a person leased to **you** by a labor leasing firm under an agreement between **you** and the labor leasing firm to perform duties related to the conduct of **your** business. **Leased worker** does not include a **temporary worker**.**N. Loss** means direct and accidental loss or damage.**O. Mobile equipment** means any of the following types of land vehicles, including any attached machinery or equipment:

1. Bulldozers, farm machinery, forklifts and other vehicles designed for use principally off public roads;
2. Vehicles maintained for use solely on or next to premises **you** own or rent;
3. Vehicles that travel on crawler treads;
4. Vehicles, whether self-propelled or not, maintained primarily to provide mobility to permanently mounted:
 - a. Power cranes, shovels, loaders, diggers or drills; or
 - b. Road construction or resurfacing equipment such as graders, scrapers or rollers;
5. Vehicles not described in Paragraph 1., 2., 3. or 4. above that are not self-propelled and are maintained primarily to provide mobility to permanently attached equipment of the following types:
 - a. Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting and well-servicing equipment; or
 - b. Cherry pickers and similar devices used to raise or lower workers; or
6. Vehicles not described in Paragraph 1., 2., 3. or 4. above maintained primarily for purposes other than the transportation of persons or cargo. However, self-propelled vehicles with the following types of permanently attached equipment are not **mobile equipment** but will be considered **autos**:
 - a. Equipment designed primarily for:

- (1) Snow removal;
- (2) Road maintenance, but not construction or resurfacing; or
- (3) Street cleaning;
- b. Cherry pickers and similar devices mounted on automobile or truck chassis and used to raise or lower workers; and
- c. Air compressors, pumps and generators, including spraying, welding, building cleaning, geophysical exploration, lighting or well-servicing equipment.

However, **mobile equipment** does not include land vehicles that are subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged. Land vehicles subject to a compulsory or financial responsibility law or other motor vehicle insurance law are considered **autos**.

- P. **Pollutants** means any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.
- Q. **Private passenger auto** means:
 - 1. A passenger or station wagon type **auto** with four or more wheels;
 - 2. A pickup or van type **auto** with a gross weight of 15,000 pounds or less which is not used in the business of carrying passengers for hire; or
 - 3. A motorhome.
- R. **Property damage** means damage to or destruction of tangible property including resulting loss of use of that property.
- S. **Suit** means a civil proceeding in which:
 - 1. Damages because of **bodily injury** or **property damage**; or

- 2. A **covered pollution cost or expense** to which this insurance applies, are alleged.

Suit includes:

- 1. An arbitration proceeding in which such damages or **covered pollution costs or expenses** are claimed and to which the **insured** must submit or does submit with **our** consent; or
- 2. Any other alternative dispute resolution proceeding in which such damages or **covered pollution costs or expenses** are claimed and to which the **insured** submits with **our** consent.
- T. **Temporary worker** means a person who is furnished to **you** to substitute for a permanent **employee** on leave or to meet seasonal or short-term workload conditions.
- U. **Trailer** means a vehicle which is designed:
 - 1. For travel on public roads; and
 - 2. To be connected to and towed by a power unit.**Trailer** does not include non-motorized farm machinery or farm wagons. A **trailer** is not **equipment** or **custom furnishings**.
- V. **Volunteer worker** means a person who is not **your employee**, and who donates his or her work and acts at the direction of and within the scope of duties determined by **you**, and is not paid a fee, salary or other compensation by **you** or anyone else for their work performed for **you**.
- W. **We, us** or **our** means the Company providing this insurance.
- X. **You** or **your** means the Named Insured shown in the Declarations and if an individual, **your** spouse who resides in the same household.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**AMENDED WAIVER OF TRANSFER OF RIGHTS
OF RECOVERY AGAINST OTHERS TO US**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART
ERRORS AND OMISSIONS LIABILITY COVERAGE PART
THIRD PARTY POLLUTION LIABILITY COVERAGE PART
ONSITE CLEANUP COVERAGE PART

SCHEDULE

Name of Person(s) or Organization(s)
Blanket when specifically required in a written contract with the named insured.

SECTION VI – COMMON CONDITIONS, item 17. Transfer Of Rights of Recovery Against Others To Us within the Common Provisions is amended by the addition of the following:

Solely as respects the person(s) or organization(s) indicated in the Schedule shown above, we waive any right of recovery we may have against the person(s) or organization(s) indicated in the Schedule shown above because of payments we make for "damages" arising out of your ongoing operations or "your work" performed under a written contract with that person(s) or organization(s) and included in the "products-completed operations hazard".

However, this waiver shall not apply to "damages" resulting from the sole negligence of the person(s) or organization(s) indicated in the Schedule shown above.

ALL OTHER TERMS AND CONDITIONS OF THE POLICY REMAIN UNCHANGED.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART
ERRORS AND OMISSIONS LIABILITY COVERAGE PART
THIRD PARTY POLLUTION LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) or Organization(s)
Blanket when specifically required in a written contract with the named insured.

SECTION III – WHO IS AN INSURED within the Common Provisions is amended to include as an additional insured the person(s) or organization(s) indicated in the Schedule shown above, but solely with respect to "claims" caused, in whole or in part, by "your work" or out of premises owned by or rented to you.

ALL OTHER TERMS AND CONDITIONS OF THE POLICY REMAIN UNCHANGED.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION-
ONGOING OPERATIONS**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART
ERRORS AND OMISSIONS LIABILITY COVERAGE PART
THIRD PARTY POLLUTION LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) or Organization(s)
Blanket when specifically required in a written contract with the named insured.

SECTION III – WHO IS AN INSURED within the Common Provisions is amended to include as an additional insured the person(s) or organization(s) indicated in the Schedule shown above, but solely with respect to "claims" caused in whole or in part, by your ongoing operations performed for that insured by you, or by those acting on your behalf.

ALL OTHER TERMS AND CONDITIONS OF THE POLICY REMAIN UNCHANGED.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**PRIMARY AND NON-CONTRIBUTORY ADDITIONAL INSURED
WITH WAIVER OF SUBROGATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART
ERRORS AND OMISSIONS LIABILITY COVERAGE PART
THIRD PARTY POLLUTION LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) or Organization(s)
Blanket when specifically required in a written contract with the named insured.

- A. **SECTION III – WHO IS AN INSURED** within the Common Provisions is amended to include as an additional insured the person(s) or organization(s) indicated in the Schedule shown above, but solely with respect to "claims" caused in whole or in part, by "your work" for that person or organization performed by you, or by those acting on your behalf.

This insurance shall be primary and non-contributory, but only in the event of a named insured's sole negligence.
- B. We waive any right of recovery we may have against the person(s) or organization(s) indicated in the Schedule shown above because of payments we make for "damages" arising out of "your work" performed under a designated project or contract with that person(s) or organization(s).
- C. This Endorsement does not reinstate or increase the Limits of Insurance applicable to any "claim" to which the coverage afforded by this Endorsement applies.

ALL OTHER TERMS AND CONDITIONS OF THE POLICY REMAIN UNCHANGED.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Additional Person(s) or Organization(s):	Location And Description Of Completed Operations
Blanket when specifically required in a written contract with the named insured.	Blanket when specifically required in a written contract with the named insured.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Section III – Who Is An Insured within the Common Provisions is amended to include as an insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location(s) of Covered Operations
Blanket when specifically required in a written contract with the named Insured.	Blanket when specifically required in a written contract with the named insured.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Section III – Who Is An Insured within the Common Provisions is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" cause, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

3. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
4. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.