

CONFORMED DOCUMENTS

**OFFICIAL CONTRACT
DOCUMENTS
AND
SPECIFICATIONS**

FOR

**West Hickman 7 (WH7) Wet Weather
Storage Facilities Improvements:
Contract No. 2 – Pump Station and Wet
Weather Storage Tank**

**Division of Water Quality
Lexington Fayette Urban County Government**

Remedial Measures Plan ID No. WH-1B

LFUCG Bid No. 140 - 2017

Date: November 2017

PREPARED BY:

HDR Engineering, Inc.

Volume 1



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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) on ~~October 31, 2017~~ until 2:00 PM, local time, 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). Immediately following the scheduled closing time for reception of Bids, all proposals which have been submitted in accordance with the above will be publicly opened and read aloud. Sealed proposals for the following work will be received by the Lexington-Fayette Urban County Government (LFUCG) on **November 2, 2017** until 2:00 PM, local time, 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). Immediately following the scheduled closing time for reception of Bids, all proposals which have been submitted in accordance with the above will be publicly opened and read aloud. (AD #2)

1.02 DESCRIPTION OF WORK

The project includes providing all construction supervision, labor, materials, tools, test equipment necessary for the construction of the **West Hickman 7 (WH7) Wet Weather Storage Facilities Improvements: Contract No. 2 –Pump Station and Wet Weather Storage Tank**. The project includes but is not limited to a LFUCG Class A pumping station with mechanical screening, screenings compactor, four (4) submersible sewage pumps, two (2) sump pumps, diversion structure, building with screening room, dumpster room, odor control room, electrical room and emergency generator all on the Wet Weather Pump Station site. On the Wet Weather Storage Tank site there will be a 5.0 MGD storage tank, flow control structure, mixing pump station, building with odor control room, chemical feed room, blower room, electrical room and emergency generator.

1.03 OBTAINING PLANS, SPECIFICATIONS, AND BID DOCUMENTS

Plans, Specifications, and Contract Documents may be obtained from Lynn Imaging, 328 Old Vine Street, Lexington, KY 40507, (859) 255-1021 or (www.lynnimaging.com) and click on plan room for a non-refundable price of reproduction for each full set of plans and documents. Contract Documents may be examined at the following places:

LFUCG
Division of Central Purchasing
200 East Main Street
Third Floor, Room 338
Lexington, KY 40507
(859) 258-3320

McGraw-Hill Co. / F.W. Dodge
2321 Fortune Drive
Suite 112-A
Lexington, KY 40509

LFUCG
Division of Water Quality
125 Lisle Industrial Avenue
Lexington, KY 40511
(859) 425-2400

Builders Exchange
1035 Strader Drive
Suite 100
Lexington, KY 40505
(859) 288-0011

1.04 METHOD OF RECEIVING BIDS

Bids will be received from Prime contracting firms on a lump sum 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. Sealed Bids shall be clearly marked on the outside of the envelope as follows: Company Name and Address, Bid Invitation Number, and the Project Name. Bids are to remain sealed until official Bid closure time.

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. 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. Bids may be withdrawn in person prior to the closing date of receipt of Bids.

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.

1.08 SUBMISSION OF BIDS

~~Contractors shall submit their Bids to the Lexington-Fayette Urban County Government, Division of Purchasing, Third Floor, 200 East Main Street, Lexington, Kentucky 40507. Bids shall be submitted in a sealed envelope no later than 2:00 p.m. (local time) on October 31, 2017. Sealed proposals shall be marked clearly on the outside of the container "Sealed Proposal for: WH7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank to be opened at 2:00 p.m. Local Time. Bids received after the scheduled closing time for receipt of Bids will not be considered and will be returned unopened.~~ Contractors shall submit their Bids to the Lexington-Fayette Urban County Government, Division of Purchasing, Third Floor, 200 East Main Street, Lexington, Kentucky 40507. Bids shall be submitted in a sealed envelope no later than 2:00 p.m. (local time) on **November 2, 2017**. Sealed proposals shall be marked clearly on the outside of the container "**Sealed Proposal for: WH7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank to be opened at 2:00 p.m. Local Time**". Bids received after the scheduled closing time for receipt of Bids will not be considered and will be returned unopened. (AD #2)

1.09 RIGHT TO REJECT

The Lexington-Fayette Urban County Government reserves the right to reject any and all Bids and to waive all informalities and/or technicalities where the best interest of the Lexington-Fayette Urban County Government may be served.

1.10 NOTICE CONCERNING MWDBE GOAL

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE), Minority-Owned Business Enterprises (MBE), Veteran-Owned Small Businesses (VOSB) and Woman-Owned Business Enterprises (WBE) Contract participation.

LFUCG has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to MWDBEs. The Lexington Fayette Urban County Government also has 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 goal for the utilization of MWDBEs as well as Veteran subcontractors is a recommended goal. Contractor(s) who fail to meet such goal 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 MWDBE goals may apply. For assistance in locating MWDBE Subcontractors contact:

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

1.11 PRE-BID MEETING

A **mandatory pre-Bid meeting** will be held on October 13, 2017 at **10:00 AM local time**, at 125 Lisle Industrial Avenue, North Elkhorn Conference Room, Suite 180, Lexington, KY 40511. **Contractor bid questions must be submitted not later than close of business to Brian Marcum on October 20, 2017.**

~~1.12 STATE REVOLVING LOAN REQUIREMENTS (AD #2)~~

~~This project may be partially or entirely funded by the Kentucky Infrastructure Revolving Loan Fund.~~

~~Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.~~

~~Bidders must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex or national origin.~~

~~Successful Bidder shall comply with 41 CFR 60-4, in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the time tables and goal set forth in 40 CFR 60-4.~~

The procurement and performance of this contract are subject to the requirements of the Davis-Bacon Act.

Successful Bidder shall make positive efforts to use small, minority, women owned and disadvantaged businesses.

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

Successful Bidder is required to employ the six "Good Faith Efforts" as listed in EPA's Disadvantaged Business Enterprise Program when soliciting subcontractors and suppliers. Documentation of these efforts will be a required submittal prior to Contract Award. See Supplemental General Conditions for Clean Water State Revolving Fund (Section 00810, page 30) included in the Contract Documents.

The contract award will be made in writing to 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. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

1.13 CONSENT DECREE REQUIREMENTS

The work to be provided through this Bid will assist the Lexington-Fayette Urban County Government (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.

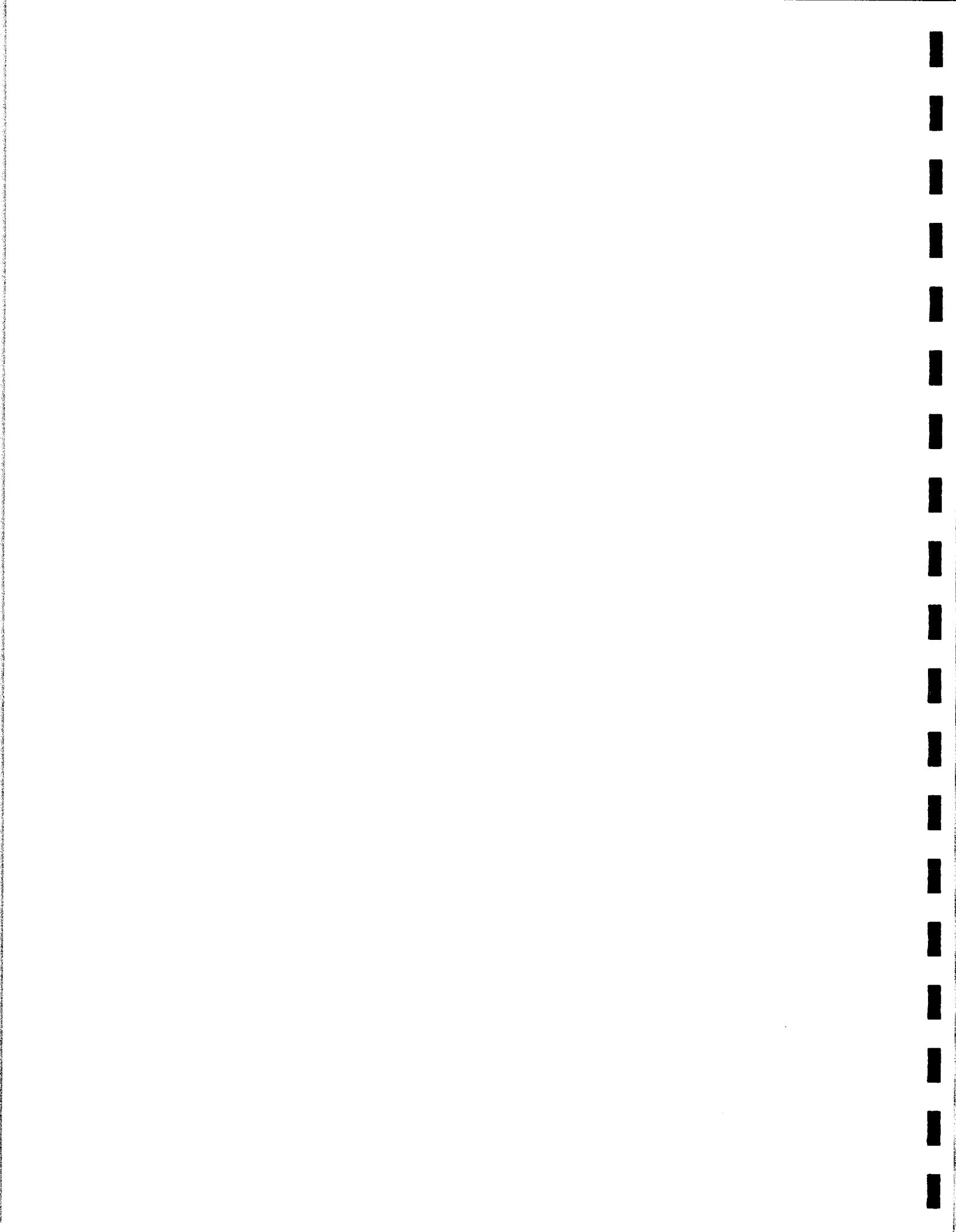
The Bidder shall familiarize itself with and shall at all times comply with the CONSENT DECREE, and all federal, state and local laws, ordinances, and regulations that in any manner affect the Agreement (Contract). Time is of the essence in the performance of Agreement (Contract). Bidder is aware that 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 at the Division of Purchasing, at the time and in the manner set forth in the Advertisement for Bids, and the Bids will then be publicly opened and read aloud. 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 (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 Lexington-Fayette Urban County Government assumes no responsibility for Bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

1.02 PREPARATION OF BID

Each Bid must be submitted on the prescribed Bid Form. All blank spaces for the Bid prices must be filled in, either in ink or typewritten, for both unit prices and extensions. Totals for each Bid item must be added to show the total amount of the Bid. Each Bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, the Bidder's address, the name of the project, the invitation number and time and date for which the Bid is submitted. Bids must be addressed to the Director of Purchasing, Lexington-Fayette Urban County Government, Third Floor, 200 East Main Street, Lexington, Kentucky 40507. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed as specified above.

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 Lexington-Fayette Urban County Government of the above 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. Good standing with Public Works Act - any Contractor and/or subcontractors in violation of any wage or work act provisions (KRS 337.510 to KRS 337.550) are prohibited by Statutory Act (KRS 337.990) from bidding on or working on any and all public works contracts, either in their name or in the name of any other company, firm or other entity in which he might be interested. No Bid from a prime contractor in violation of the Act can be considered, nor will any subcontractor in violation of the Act be approved and/or accepted. The responsibility for the qualifications of the subcontractor is solely that of the prime contractor.
- D. 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.
- E. 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.
- F. 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.

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 in writing addressed to the Director of Central Purchasing, **in care of Brian Marcum at brianm@lexingtonky.gov (859) 258-3320**, who in turn will have an addendum issued for the Lexington-Fayette Urban County Government, and to be given consideration must be received prior to the date **shown below** for the opening of Bids. Any

and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications. 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.

All Contractor bid questions shall be submitted to Brain Marcum before close of business on October 20, 2017. Office Phone (859) 258-3320, email: BrianM@lexingtonky.gov.

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.

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

Federal wage rates and regulations, if required for this Project, will be as described in the Section 00820 herein.

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 directed to:

Director, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street, Third Floor
Lexington, KY 40507

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 upon 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 (MWD BE) CONTRACTORS

A. Outreach for MWD BE(s)

The Lexington-Fayette Urban County Government (LFUCG) maintains a database of MWD BE 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 MWD BE contractor database, please contact:

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

1.23 MWDBE PARTICIPATION GOALS

A. 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. The LFUCG has also established a 3% of total procurement costs as a Goal for participation of Veteran-Owned Small Businesses.
4. **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.**

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 EPA forms in section 00410 – Bid Form).
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 EPA forms in section 00410 – Bid 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 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 and operated 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 and operated by one or more Non-Minority Females.
3. A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned and operated 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 and operated by a veteran and/or a service disabled veteran.
5. Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

1. Bidders are required to employ each of the 6 Good Faith Efforts outlined in the bid documents. **These efforts have to be done and documented whether the bidder reached the 10% goal or not.**

2. Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
3. See section 00410 – Bid Form for the MWDBE Participation Policy and 6 Good Faith Efforts.
4. **Failure to submit this information as requested may be cause for rejection of bid.**

1.24 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 167-91—Disadvantaged Business Enterprise (DBE) 10% Goal Plan in July of 1991. The resolution states in part (a full copy is available in Central Purchasing):

"A Resolution supporting adoption of the administrative plan for a ten percent (10%) Minimum goal for disadvantaged business enterprise participation in Lexington-Fayette Urban County Government construction and professional services contracts; Providing that as part of their bids on LFUCG construction contracts, general Contractors shall make a good faith effort to award at least ten percent (10%) of All subcontracts to disadvantaged business enterprises; providing that divisions of LFUCG shall make a good faith effort to award at least ten percent of their Professional services and other contracts to disadvantaged business enterprises..."

A Disadvantaged Business Enterprise is defined as a business that has been certified as being at least 51% owned, operated and managed by a U.S. Citizen of the following groups:

- African-American
- Hispanic-American
- Asian/Pacific Islander
- Native American/Native Alaskan
- Non-Minority Female
- Economically and Socially Disadvantaged

In addition, to that end the city council also adopted and implemented resolution 167-91—Veteran-owned Businesses, 3% Goal Plan in July of 2015. The resolution states in part (a full copy is available in Central Purchasing):

"A resolution adopting a three percent (3%) minimum goal for certified veteran-owned small businesses and service disabled veteran-owned businesses for certain of those Lexington-Fayette Urban County contracts related to construction for professional services, and authorizing the Division of Purchasing to

adopt and implement guidelines and/or policies consistent with the provisions and intent of this resolution by no later than July 1, 2015."

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	Shirie Hawkins, UK SBDC	smack@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@orwbc.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
LaVoz de Kentucky	Andres Cruz	lavozdeky@yahoo.com	859-621-2106
The Key News Journal	Patrice Muhammad	paatricem@keynewsjournal.com	859-373-9428

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.

1.27 BUY AMERICAN PROVISIONS

This project is subject to Division G, Title IV of H.R. 3547 (Appropriations Act) passed by the United States Congress on January 17, 2014. This portion of the act requires that for the construction, alteration, maintenance, or repair of a public water system or treatment works, all of the iron and steel products used in the project be produced in the United States.

In this section, the term "iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

This requirement shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency finds that (1) applying the requirement would be inconsistent with the public interest; (2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or (3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

Bidder shall refer to Section 00815 for additional information.

END OF SECTION



SECTION 00320 – GEOTECHNICAL DATA

(Recommendations in the Geotechnical Report are requirements of the Contract)

END OF SECTION





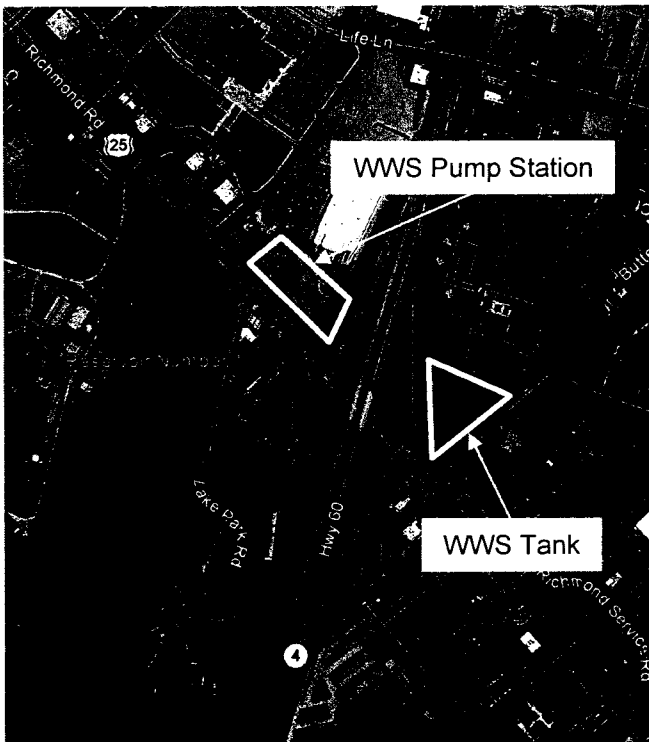
Geotechnical Design Report

West Hickman 7 Wet Weather Storage Tank Improvements (WH7WWS)

Lexington-Fayette Urban County Government (LFUCG)

HDR Job No. 10055008

August 4, 2017





August 4, 2017

Mr. Benton Hanson, P.E.
Project Manager
HDR Engineering, Inc.
2517 Sir Barton Way
Lexington, Kentucky 40509

**RE: Geotechnical Design Report
West Hickman 7 Wet Weather Storage Tank Improvements (WH7WWS)
Lexington-Fayette Urban County Government (LFUCG)**

Dear Mr. Hanson:

HDR, Inc. is pleased to provide the accompanying report, which presents the results of our geotechnical investigation and design of the proposed West Hickman 7 Wet Weather Storage Tank Improvements for the Lexington-Fayette Urban County Government (LFUCG) in Lexington, Kentucky.

This report presents our findings, conclusions, and recommendations for the geotechnical aspects of the proposed construction. It has been our pleasure to serve you on this very important project. Please contact us if you have any questions or comments concerning this information.

Sincerely,

HDR ENGINEERING, Inc.

Bryan Robbins, E.I.T.
Geotechnical Engineer

T. Craig Barnett, P.E.
Geotechnical Section Manager

Enclosure

hdrinc.com

2517 Sir Barton Way, Lexington, KY 40509-2275
(859) 629-4800

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B	Boring Logs and Laboratory Testing Results

1 Introduction

This report presents the results of the geotechnical investigation and design performed for the West Hickman 7 Wet Weather Storage Tank Improvements Project (WH7WWS) for the Lexington-Fayette Urban County Government (LFUCG). This project is located near the interchange of Richmond Road and New Circle Road in Lexington, Kentucky. HDR Engineering, Inc. (HDR) prepared this report for LFUCG. A project location map is included as Figure 1.

This report presents HDR's findings, conclusions and recommendations regarding:

- Geologic and Topographic Setting;
- Laboratory soil and rock testing;
- Site Conditions;
- Subsurface soil, rock, and groundwater conditions;
- Evaluation of the engineering characteristics of the foundation soils and rock; and
- Recommendations for earthwork, foundation design, and construction.

This report was prepared by a civil engineer specializing in geotechnical engineering and reviewed by a registered professional engineer in the state of Kentucky. The recommendations presented herein are based on the applicable standards of the profession at the time of this report within this geographic area. This report has been prepared for the exclusive use of LFUCG for specific application to the proposed project and in accordance with generally accepted foundation engineering practices.

2 Project Description

All wet weather storage (WWS) facilities will be located on LFUCG owned property. The new improvement structures for the project include the following: WWS diversion structure (WWSDS), WWS pump station (WWSPS), WWS tank, WWS force main, and gravity sewers. The force main and gravity sewer are to be installed by means of bore and jack construction. The proposed WWSPS will include variable speed diversion pumps, a trench-type self-cleaning wet well, influent mechanical screening with a transfer conveyor to an open-top dumpster, and an odor control-carbon adsorption unit. In addition, an electrical building to house electrical systems is to be constructed as part of the new WWSPS. The new 5.0 million gallon (MG) WWS tank will be an AWWA D-110 circular, prestressed concrete type II or type III tank. Additional facilities located adjacent to the WWS Tank is an odor control, chemical feed, blower, and electrical room with a generator area. The WWS tank is to be located immediately east of the northbound New Circle on-ramp, and the WWSPS is to be located immediately west of the southbound New Circle off-ramp. The Structural Design Drawings are included as Appendix A.

3 Site Topography and Geologic Conditions

The two subsurface investigation sites are located within the Inner Bluegrass Region of the Bluegrass Physiographic Province as designated in Kentucky. Rock formations within the Bluegrass Region are principally assigned to the Ordovician or Silurian System and are exposed on the crest and flanks of the Cincinnati Arch. Relatively thin soil (overburden) cover is common due to the continued development of the metropolitan Lexington area. Valleys, particularly immediately west of the project site, are utilized to impound the local water supply for Lexington commercial and residential use. At the two investigation sites, construction debris intermixes with and, in places, overlies residual clay and silt soils. The construction debris and/or residual soils overlie interpreted Middle and Upper Ordovician formations. Topography surrounding the subsurface investigation sites is characterized by low relief hills with wide creek and tributary floodplains.

Both investigation sites are located in the southwestern portion of the Lexington East, Kentucky 7.5 minute topographic quadrangle. Published geologic mapping (KGS 1968) indicates the investigation sites are underlain by the Millersburg Member and Upper tongue of the Tanglewood Limestone Member. These members are both of the Lexington Limestone and Clays Ferry Formation (all Middle and Upper Ordovician), in ascending order. The underlying members and formation are interpreted to grade laterally into or intertongue with each other beneath the project site, creating a complex stratigraphic convergence. The estimated thickness of the Millersburg Member at the investigation sites ranges from approximately 25 feet to 35 feet. The thickness of the Upper tongue of the Tanglewood Limestone Member is estimated at 8 feet to 15 feet, while the Clays Ferry Formation thickness in the area ranges from 95 feet to 125 feet. However, only a few feet of the Clays Ferry Formation may be penetrated during the subsurface investigation, if present at all. A bedrock geology map is included as Figure 2.

4 Subsurface Investigation

The subsurface investigation for the project was performed at two sites located immediately east and west of New Circle Road. The total exploration for the project consisted of drilling 15 geotechnical borings. The investigation site located west of New Circle Road consisted of two Standard Penetration Test (SPT) borings with rock coring (B-1 and B-2), two rock core borings (B-3 and B-3A), and one rock line sounding (B-4). The investigation site east of New Circle Road consisted of five SPT sample borings with rock coring (B-8, B-9, B-10, B-11, and B-13), one rock core boring (B-5A), and four rock line soundings (B-5, B-6, B-7, and B-12). The borings advanced at the site west and the site east of New Circle Road were drilled for the proposed WWS Pump Station and WWS Tank, respectively, with borings at both sites advanced for the proposed force main and gravity sewer alignment. The typed boring logs for the 15 borings are included in Appendix B. A boring location map for the site east and west of New Circle Road is included as Figure 3 and Figure 4, respectively.

The borings and soundings were surveyed in the field by HDR to determine their respective locations and elevations. Table 4-1 provides a summary of the northings, eastings, elevations, and depths of each boring and sounding advanced at the project site. All

measurements are expressed in feet and elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88).

Table 4-1. Boring and Sounding Summary

Boring ID	Northing ^(a)	Easting ^(a)	Surface Elevation (feet)	Depth to Groundwater Table (feet) ^(b)	Depth to Bedrock / Refusal (feet)	Length of Rock Core (feet)	Boring Termination Depth (feet)	Bottom of Boring Elev. (feet)
B-1	187387	1580038	983.6	--	11.6	8.4	20.0	963.6
B-2	187329	1580089	981.7	--	9.3	30.7	40.0	941.7
B-3	187183	1580158	987.4	--	3.4	5.0	8.4	979.0
B-3A	187183	1580158	987.7	--	4.0	20.0	24.0	963.4
B-4 ^(c)	187155	1580247	994.3	--	1.7	N/A	1.7	992.6
B-5 ^(c)	186933	1580596	1008.1	--	10.7	N/A	10.7	997.4
B-5A	186933	1580596	1008.1	--	9.0	30.0	39.0	969.1
B-6 ^(c)	186938	1580763	993.9	--	8.4	N/A	8.4	985.5
B-7 ^(c)	186862	1580768	999.3	--	8.8	N/A	8.8	990.5
B-8	186764	1580795	999.6	--	5.2	5.0	10.2	989.4
B-9	186829	1580896	996.6	--	5.5	5.0	10.5	986.1
B-10	186740	1580885	999.9	--	4.9	5.0	9.9	990.0
B-11	186674	1580863	1002.5	--	5.7	5.0	10.7	991.8
B-12 ^(c)	186799	1580987	1000.1	--	10.9	N/A	10.9	989.2
B-13	186720	1580962	1000.5	--	10.0	5.0	15.0	985.5

^a Northing and Easting coordinates referenced to the North American Datum of 1983 and the Kentucky State Plane North Zone.
^b Groundwater level reading taken during drilling.
^c Advanced to auger refusal. Auger refusal refers to using a carbide tipped tooth auger bit and may indicate the presence of weathered bedrock, boulders, rock remnants or competent bedrock. An exact determination cannot be made without rock coring.

HDR performed the drilling and sampling operations for the project on April 10 to April 12, 2017 and June 20, 2017. The drill crew operated either a CME-45 or CME-55 track-mounted drill rig equipped with an automatic hammer and 3.25-inch hollow stem augers (HSA).

Soil samples were collected by means of a driven split-barrel sampler beginning at or near a depth of 5.0 feet and continued thereafter at 5-foot intervals to auger refusal. A split-barrel sampler was driven upon auger refusal for confirmation of refusal. Rock coring was performed in ten of the sample borings at auger refusal. Rock line soundings B-4 to B-7 and B-12 were advanced to auger refusal. The borings and soundings were checked for the presence of groundwater during drilling. Drilling and sampling techniques were accomplished generally in accordance with the American Society for Testing and Materials (ASTM) procedures.

4.1 Laboratory Testing and Results

HDR reviewed the field boring logs to estimate the depth and thickness of the soil and rock strata. A laboratory testing program was developed to evaluate the engineering properties



of the recovered samples and to substantiate the soil classifications determined in the field. The laboratory testing program tested the foundation soils to determine moisture content, Atterberg Limits (plasticity), and grain-size. Nine recovered rock core samples were tested to determine uniaxial compressive strength. Laboratory tests were conducted by HDR in accordance with ASTM test procedures applicable at the time of testing. Laboratory test results are presented in Appendix B of this report.

4.1.1 Uniaxial Compressive Strength Testing of Rock

Nine recovered rock core samples were tested to determine uniaxial compressive strength. The results of the nine uniaxial compressive strength tests performed on the rock cores ranged from 715 pounds per square inch (psi) to 9,233 psi, with an average of 4,742 psi. Rock Quality Designation (RQD) values for recovered cores ranged from 18% to 100%, indicating a very poor to excellent quality bedrock material. The results of the uniaxial compressive strength tests performed on the rock samples are presented in Table 4-2.

Table 4-2. Summary of Uniaxial Compressive Strength Test on Rock

Boring ID	Northing	Easting	Sample Interval (Elevation)	Uniaxial Compressive Strength (psi)	Rock Type
B-1	187387	1580038	966.3-966.7	715	Limestone
B-1	187387	1580038	970.2-970.7	4432	Limestone
B-2	187329	1580089	944.8-945.4	5852	Limestone
B-2	187329	1580089	954.5-955.0	2169	Limestone
B-2	187329	1580089	964.5-965.0	6265	Limestone
B-3	187183	1580158	979.5-979.8	4019	Limestone
B-10	186740	1580885	990.5-990.9	6507	Limestone
B-11	186674	1580863	996.2-996.5	9233	Limestone
B-13	186720	1580962	986.4-986.8	3489	Limestone

5 Subsurface Conditions

A brief description of the geologic strata encountered during the subsurface investigation at each site and their engineering characteristics is provided below.

5.1 WWSPS

The drilling and sampling operations performed near the proposed WWSPS indicate the subsurface materials generally consist of soil deposits less than 12 feet in thickness. Drilling operations suggest the top of bedrock varies marginally from elevation 972.0 feet to 972.4 feet at the proposed structure.

Boring B-1 encountered urban/demolition type fill material described as brown clay and boulders that classified as clayey gravel with sand (GC) to a depth of 5.0 feet (or El. 978.6). Underlying this material was soil described as brown clay with asphalt and rock fragments that classified as clayey gravel with sand (GC) to auger refusal at a depth of 11.6 feet (or

El. 972.0). Rock coring operations were advanced upon auger refusal to a termination depth of 20.0 feet (or El. 963.6). The rock cores recovered were interpreted as limestone belonging to the Millersburg Member. The recovered limestone was described as light to dark gray, fine to medium crystalline, bioclastic, and thinly interbedded with calcareous, fossiliferous, silty shale with occasional clay seams.

Boring B-2 also encountered urban/demolition type fill material described as brown clay with boulders to a depth of 5.0 feet (or El. 976.7). A SPT split-barrel sampler was then driven, recovering brown and gray clay with rock fragments that classified as clayey gravel with sand (GC). This material was also interpreted as urban/demolition type fill material. Continued boring advancement encountered auger refusal at a depth of 9.3 feet (or El. 972.4). Rock coring operations were advanced upon auger refusal at a depth of 9.3 feet. The rock cores recovered to a depth of 20.8 feet (or El. 960.9) consisted of limestone belonging to the Millersburg Member and were described as light to dark gray, fine to medium crystalline, and bioclastic with thinly interbedded fossiliferous, calcareous, silty, shale lenses, partings and interbeds. Continued core advancement to a depth of 25.8 feet (or El. 955.9) intercepted medium gray, silty, and argillaceous shale that is thinly bedded with occasional limestone lenses and clay seams. This stratum was interpreted as a tongue of the Clays Ferry Formation. Continued core advancement performed to boring termination at a depth of 40.0 feet (or El. 941.7) intercepted limestone belonging to the Millersburg Member. The limestone was described as light to dark gray, fine to medium crystalline and bioclastic with thinly interbedded, fossiliferous, calcareous shale partings and occasional clay seams. Two discontinuities within the recovered cores were recorded as 45° to 60° and 90°.

Borings B-3 and B-3A encountered topsoil (0.4 foot) and brown clay with rock fragments interpreted as fill from previous construction to auger refusal at a depth of 3.4 feet (or El. 984.0) and 4.0 feet (or El. 983.4), respectively. The rock cores recovered to a depth of 6.9 feet (or El. 980.5) within B-3 and 8.2 feet (or El. 979.2) within B-3A consisted of limestone interpreted as the Upper tongue of the Tanglewood Limestone Member and was described as gray to blue-gray, fine to coarse grained with very thin to thinly bedded, calcareous shale laminations, clay seams, and beds of whole fossils. Continued core advancement performed to boring termination at a depth of 8.4 feet (or El. 797.0) within B-3 and 24.0 feet (or El. 963.4) within B-3A recovered limestone described as black, dark gray, gray, and medium to coarse grained with a silty, calcareous shale matrix containing pebbles and beds of limestone. This stratum was interpreted as the Millersburg Member.

Rock line sounding B-4 penetrated topsoil (0.3 foot) overlying brown clay with rock fragments interpreted as fill from previous construction to auger refusal and termination at a depth of 1.7 feet (or El. 992.6).

Rock core recovery (REC) values ranged from 94% to 100% and rock quality designation (RQD) values ranged from 35% to 90% for recovered rock cores. Select rock core samples were subjected to unconfined compression testing, which resulted in values ranging from 2,169 psi to 6,265 psi. One unconfined compression test value of 715 psi was recorded; however, examination of the break suggests the failure occurred along a shale lamination. Therefore, this test result is not considered representative of a valid result.



5.2 WWS Tank

The drilling and sampling operations performed near the proposed WWS tank indicate the subsurface materials generally consist of soil deposits less than 11 feet in thickness. Drilling operations suggest the top of bedrock varies from elevation 985.5 feet to 996.8 feet at the proposed structure.

Borings B-8, B-9, B-10, B-11 and B-13 encountered material described as brown clay and boulders interpreted as urban/demolition type fill material. This material was encountered at depths ranging from 4.7 feet (or El. 994.9) at B-8 to 5.0 feet (or El. 995.5) at B-13. Boring B-10 experienced auger refusal on bedrock within the fill material and at a depth of 4.9 feet (or El. 995.0). The remaining rock core borings intercepted very thin accumulations of detritus or residual material prior to auger refusal on bedrock. The very thin accumulations of material consisted of brown clay with rock fragments classifying as poorly graded gravel with clay and sand at B-8 (detritus); brown clay with rock fragments classifying as sandy elastic silt at B-9 (residual soils); gray limestone fragments at B-11 (residual rock fragments); and brown clay with rock fragments and boulders classifying as elastic silt with gravel at B-13 (residual soils). Auger refusal within Borings B-8, B-9, B-11 and B-13 occurred at depths ranging from 5.2 feet (or El. 994.4) at B-8 to 10.0 feet (or El. 990.5) at Boring B-13.

Rock coring operations were conducted within Borings B-8, B-9, B-10, B-11 and B-13 encountering thin seams and beds of limestone interpreted as the Clays Ferry Formation, Upper tongue of the Tanglewood Limestone Member, and the Millersburg Member. The Clays Ferry Formation was described as gray, dark gray, medium to coarse grained, very thin to thinly bedded, and bioclastic with calcareous and fossiliferous shale beds and laminae. Clay seams were present within this Formation at B-11. The Upper tongue of the Tanglewood Limestone Member was described as gray, brown, scattered dark gray or blue-gray, medium to coarse grained, very thin bedded and bioclastic with calcareous, fossiliferous clay beds and seams. The Millersburg Member was described as gray, dark gray, occasionally gray-blue or olive gray, fossiliferous, and fine to medium grained with traces of small vugs and clay seams. The Millersburg Member was also characterized by limestone beds, cobbles, and pebbles in a silty, calcareous shale matrix.

The Clays Ferry Formation was encountered within Boring B-11 underlying residual limestone fragments and overlying the Upper tongue of the Tanglewood Limestone Member. The Upper tongue of the Tanglewood Limestone Member was present at auger refusal within B-8, B-9, B-10 and B-13 and extended to termination within Borings B-8 and B-10. The Upper Tongue of the Tanglewood Limestone Member was encountered overlying the Millersburg Member within Borings B-9 and B-13. Borings B-9 and B-13 were both terminated within the Millersburg Member. Termination depths for Borings B-8, B-9, B-10, B-11 and B-13 were 10.2 feet (or El. 989.4), 10.5 feet (or El. 986.1), 9.9 feet (or El. 990.0), 10.7 feet (or El. 991.8), and 15.0 feet (or El. 985.5), respectively.

Boring B-5A encountered 0.5 feet of topsoil material overlying urban/demolition type fill material described as brown clay with rock fragments that extended to auger refusal at a depth of 9.0 feet (or El. 999.1). Rock coring operations were advanced upon auger refusal to a termination depth of 39.0 feet (or El. 969.1). The rock core recovered to a depth of 22.7 feet (or El. 985.4) was described as fill material consisting of a 0.7-foot of fossiliferous limestone cobbles overlying brown-orange-red clay with grains and granules to a depth of

21.7 feet. One foot of coarse limestone gravel and cobbles with clay was encountered underlying the clay. Continued core advancement to a depth of 38.2 feet (or El. 969.9) recovered limestone described as fresh, fine to coarse-grained, gray, dark gray, black, and in a calcareous and fossiliferous shale matrix with clay seams. Continued core advancement performed to boring termination at a depth of 39.0 feet (or El. 969.1) encountered shale described as dark gray, calcareous, fresh to moderately weathered, and fossiliferous.

Rock line soundings B-6, B-7 and B-12 intercepted materials described as brown clay with boulders that was interpreted as urban/demolition type fill. Depths to auger refusal ranged from 8.4 feet (or El. 985.5) at B-6 to 10.9 feet (or El. 989.2) at B-12. Rock line sounding B-5 intercepted topsoil (0.5 foot) overlying material described as brown clay with rock fragments interpreted as roadway embankment fill to auger refusal and boring termination at a depth of 10.7 feet (or El. 997.4).

Rock core recovery (REC) values ranged from 94% to 100% and rock quality designation (RQD) values ranged from 18% to 100%. Select rock core samples were subjected to unconfined compression testing, which resulted in values ranging from 3,489 psi to 9,233 psi.

5.3 Groundwater

Groundwater depth measurements obtained during the drilling of rock line soundings B-4, B-5, B-6, B-7, and B-12 were reported as dry at termination depth. Groundwater was not noted within sample Borings B-1, B-2, B-3, B-3A, B-5A, B-8, B-9, B-10, B-11, and B-13 due to the introduction of water for rock coring operations. However, fluctuations in the level of the groundwater may occur due to seasonal variations in precipitation and other factors not evident at the time of measurement.

6 Geologic Hazards

The following paragraphs provide an assessment of potential geologic hazards in the vicinity of the project.

6.1 Karst Features

Upon review of the interactive Karst Potential Index Map (KPI) from the Kentucky Geological Survey (KGS), the proposed WWS Pump Station is located within a very high karst potential area and the WWS Tank is located within a low karst potential area in Fayette County. A KPI map of the project site is included as Figure 5. KGS defines a low karst potential area as an area exhibiting no or poorly developed karst features. KGS defines a very high karst potential area as an area underlain by thick-bedded, typically fine-grained and pure limestone units with little or no insoluble content. Areas considered very high risk will exhibit mature karst features, including caves, sinkholes, and springs where they crop out.

Published mapping and imagery data obtained from Google Earth do not indicate the presence of depressions, sinking streams, or other features that may suggest karst feature



development. However, extensive land development, both past and ongoing, at the investigation sites may disguise or conceal any such karst features.

6.2 Faults/Seismic Activity

Upon review of the interactive geologic map from the Kentucky Geological Survey (KGS) and the geologic map of the Lexington East Quadrangle, faults or other detrimental geologic features are not noted to be present within the immediate vicinity of the proposed structures. Regional structural dip is approximately 45 feet per mile downward to the northwest and into the Bryan Station Fault Zone. Published mapping indicates the Bryan Station Fault Zone is located approximately 3,500 feet northwest of the investigation sites.

Only moderate earthquake activity has been experienced in Kentucky since the beginning of seismic records. Most of the seismic activity in Kentucky has occurred in the western part of the State, near the New Madrid Seismic Zone. In 2003, the town of Bardwell in western Kentucky (approximately 260 miles southwest of project site) recorded an earthquake with a VI intensity (Modified Mercalli Scale). Maysville, Kentucky (approximately 60 miles northeast of the project site) recorded an earthquake with a VII intensity (Modified Mercalli Scale) in 1980, which is the strongest recorded earthquake in Kentucky's seismic recording history. However, most notable of Kentucky's seismic activity originated in other states. The New Madrid Seismic Zone recorded several earthquakes felt in the state with reported magnitudes from 7.5 to 7.7 during a period from 1811 to 1812. The New Madrid Fault is the most likely source for seismic events at the proposed structures. Based on the American Society of Civil Engineers (ASCE) Standard SEI7-05 guidelines, the site classifies as Site Class C for seismic design (See Section 7.1).

6.3 Soil Corrosion Potential

The risk of corrosion of concrete and steel were considered for soils within the proposed project limits. According to a customized soil report for the site from the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), the site is rated as a moderate to high risk of corrosion of uncoated steel and a low to moderate risk of corrosion of concrete. However, additional laboratory tests would be necessary to determine the soils actual potential for corrosion of uncoated steel and concrete.

7 Engineering Analyses and Design Recommendations

HDR has performed analyses for rock bearing foundation types only for the proposed WWS Pump Station, WWS Tank, and facility buildings. The Structural Design Drawings indicate that a combination of continuous spread footings and rectangular mat foundations are to be utilized as the foundation elements for the various proposed structures at the project site. This report provides recommendations for allowable bearing capacity of the rock bearing foundation options for support of the proposed structures. The methods utilized in the design recommendations were developed by Kulhawy and Goodman (1987). Dimensions and elevations of the proposed structures utilized in the engineering analyses were estimated from the Structural Design Drawings included in the appendix.

7.1 Seismic Design Considerations

The American Society of Civil Engineers (ASCE) Standard SEI7-05, Minimum Design Loads for Buildings and Other Structures provides guidelines for determining the seismic hazard. The seismic hazard is characterized by the acceleration response spectrum and the site factors associated with the relevant site classification. Based on these guidelines and Table 20.3-1, the site classifies as a Site Class C for seismic design.

USGS probabilistic seismic hazard deaggregation plots (BC Rock) for the project site were utilized to approximate the peak ground acceleration for seismic events with return periods of 475, 975 and 2475 years. The peak ground accelerations for each return period are provided in Table 7-1. These values should be scaled appropriately for the project Site Class C for seismic design.

Table 7-1. Peak Ground Accelerations

Return Period (years)	Peak Ground Acceleration (g)
100	0.03
475	0.05
2475	0.09

7.2 Bearing Capacity of Rock Bearing Foundations

The Structural Design Drawings and the drilling operations indicate that a marginal amount of uncharacterized fill material and potentially expansive soils are present from the top of bedrock to the bottom of the proposed footings at the facility buildings for the WWS Pump Station and WWS Tank. The Drawings also indicate the proposed bearing elevation for the Pump Station, Screening Room, and WWS Tank are below the top of bedrock elevation. **Based on the shallow overburden thickness, the potentially expansive nature of on-site soils, the presence of uncharacterized fill material, and the shallow soil depth from the top of bedrock to the bottom of the proposed footing elevations, HDR recommends a foundation bearing on bedrock for all of the proposed structures.**

Foundations should be placed at a depth adequate enough to protect the foundations from the effects of frost. According to KBC (2013) Table 1809.5, the minimum depth for frost protection at the project site in Fayette County is 24 inches (2 feet) below surface elevation. Therefore, a minimum foundation embedment depth of 2 feet below proposed final grade is recommended.

The drilling and laboratory testing program supported the engineering analyses required for foundations bearing on bedrock. The soil thickness ranges from approximately 9.3 feet to 11.6 feet near the WWS Pump Station and 4.9 feet to 10.9 feet near the WWS Tank before encountering competent bedrock or auger refusal. The underlying bedrock is described predominately as limestone with lesser occurrences described as shale. Uniaxial compression testing was performed on a total of nine rock core samples collected within borings from both investigation sites. Table 7-2 summarizes the recommended



bearing elevations and the estimated allowable bearing capacity of the bedrock at the substructure location for each proposed structure.

Table 7-2. Recommendations for Rock Bearing Foundations

Structure	Rock Type	Top of Rock Elevation (feet) ^(a)	Bottom of Rock Layer Elevation (feet) ^(b)	Estimated Allowable Bearing Capacity (ksf)
WWS Pump Station and Facility Building	Limestone	972.2	941.7	40
Screening Room	Limestone	972.2	941.7	40
WWS Tank and Facility Building	Limestone	Varies	985.5	40

^a Top of bedrock elevation varies within the borings near the proposed WWS Tank from approximately elevation 985.5 feet to 996.8 feet. Top of bedrock elevation at the WWS Pump Station, Facility Building, and Screening room is the average top of bedrock elevation encountered within B-1 and B-2.

^b Bottom of bedrock layer elevation at the WWS Pump Station and WWS Tank based on the bottom of boring elevation at B-2 and B-13, respectively.

It is our understanding that the foundations of some of the proposed structures may bear on crushed stone overlying competent bedrock. If the overburden soils are over excavated to the top of competent bedrock and backfilled with crushed stone or gravel, the allowable bearing capacity to be utilized in design is presented in Table 7-3.

Table 7-3. Recommendations for Foundations Bearing on Crushed Stone Overlying Bedrock

Bearing Stratum	Estimated Allowable Bearing Capacity (ksf)
Crushed Stone/Gravel Overlying Bedrock	8

The proposed WWS Pump Station is located within what KGS classifies as a very high karst potential area (see Section 6.1). KGS defines a very high karst potential area as an area underlain by thick-bedded, typically fine-grained and pure limestone units with little or no insoluble content. Karst topography could result in an uneven and undulating top of bedrock that can result in highly variable top of bedrock elevations and inconsistent bearing conditions over a very short distance. However, karst features were not encountered during the subsurface investigation at the project site. If conditions change during construction, HDR Inc. should be contacted to make additional recommendations.

7.2.1 Settlement of Rock Bearing Foundations

Settlement for foundations bearing on bedrock are considered negligible.

8 Recommendations for Construction

Based on the shallow overburden thickness, the potentially expansive nature of on-site soils, the presence of uncharacterized fill material, and the shallow soil depth from the top of bedrock to the bottom of proposed footing elevations, HDR recommends a foundation bearing on bedrock for all of the proposed structures. The results of the subsurface investigation indicate that the underlying bedrock is predominately limestone with lesser occurrences of shale. Any excavation terminating in shale bedrock should not be left open for more than 24 hours due to the potential for deterioration or loss of support capabilities when exposed to environmental changes. It is recommended that the new foundations be

placed at depth of at least 2 feet below the final grade to provide adequate frost protection. If these recommendations are implemented and the new foundations bear directly on bedrock, the allowable bearing capacity values shown in Table 7-2 can be implemented in design.

If the overburden soils are over excavated to the top of competent bedrock and backfilled with crushed stone or gravel at any of the substructure locations, the allowable bearing capacity value presented in Table 7-3 can be implemented in design. Settlement for foundations bearing on bedrock are considered negligible.

8.1 Construction Considerations

The estimated foundation bearing elevations are based on visual examinations of recovered rock core and supplemental sample boring information. Final bearing elevations of selected foundation systems may vary at locations where rock cores or sample borings were not performed. The bearing surfaces of the foundations should be level, and free of loose, soft or excessively wet material. Additional rock excavations may be required within the footprint of each footing to achieve level surfaces. Soft compressible materials should be removed prior to placement of reinforcing steel and concrete.

Based on the recovered rock cores, the underlying bedrock is predominately limestone with lesser occurrences of shale. Shale can deteriorate or lose a significant amount of its support capabilities when exposed to environmental changes or construction activity. As a result, any excavation terminating in shale bedrock should not be left open for more than 24 hours. It is recommended that concrete be placed within excavations terminating in shale the same day the excavation is completed.

The rock surface should be dry when concrete is placed or the water in the excavations properly controlled during concrete placement. If there is 1 inch or less of water, which cannot be practically removed, about 3 inches of dry concrete mortar with extra cement should be placed in the excavation prior to placing concrete. If there is more than 1 inch of water in the excavation, a small sump should be excavated from which excess water should be bailed or pumped. If pumping is utilized to maintain the water level in the excavation, the pump should be operated until immediately prior to concrete placement.

8.2 Concrete Aprons and Slabs

For concrete slabs/aprons placed directly on compacted fill, a typical subgrade reaction modulus of 75 to 100 pounds per cubic inch (pci) may be utilized for design purposes.

The modulus of subgrade reaction for a foundation on soil is defined as follows:

$$k_v = \frac{q}{\delta}$$

Where:

K_v = Modulus of vertical subgrade reaction (pci)

q = Applied pressure acting on footing (psi)

δ = Settlement of footing under the applied pressure (in)



The value is applicable to a 1 ft² plate, which is the standard basis of reference. The following formulas are used for footings with larger dimensions:

For clayey soils:

$$k_{vb} = \frac{k_{v1}}{b} \left(\frac{m + 0.5}{1.5m} \right)$$

Where:

K_{vb} = Modulus of vertical subgrade reaction for actual footing

K_{v1} = Modulus of vertical subgrade reaction for a 1 ft² plate

b = Foundation width

m = Ratio of length to width of footing

For sandy soils:

$$k_{vb} = (k_{v1}) \left(\frac{b + 0.3}{2b} \right)^2$$

Where:

K_{vb} = Modulus of vertical subgrade reaction for actual footing

K_{v1} = Modulus of vertical subgrade reaction for a 1 ft² plate

b = Foundation width

The settlement estimates are for individual foundation elements and do not consider the influence of adjacent foundations or surface loads.

It is recommended that floor slabs be isolated from facility building foundation systems to avoid potential floor slab distress due to differential loading and movement. It is also recommended that the Structural Engineer consider a closer than normal spacing of construction and control joints to minimize the probability of floor slab cracking as a result of differential soil movement. Consideration can also be given to stiffen the slab by additional steel reinforcement or other means.

A moisture vapor retarder such as a 6 mil polyethylene sheet should be placed on top of the prepared building/foundation pad. The sheet will reduce the migration of moisture up to and through the slab, and will serve as a separator between the base material and fresh concrete. If moisture sensitive floor coverings are planned, such as vinyl composition tile or epoxy terrazzo, then a 10 mil polyethylene sheet should be utilized.

8.3 Below Grade Walls

The below grade concrete walls of the WWS Tank should be backfilled with clean gravel material (e.g. ASTM C33 -No. 57, -No. 67, or -No. 8 stone) or off-site cohesive soils meeting the requirements outlined in Section 8.6. The material should be placed in even lifts not exceeding 8 inches in loose thickness and vibrated to a density greater than or equal to 95 percent of the maximum dry density, as determined by the Modified Proctor Test, ASTM D 1557.



The compaction effort should be controlled during backfill operations. Over-compaction can produce excessive lateral earth pressures. Compaction levels adjacent to below-grade walls should be maintained between 95 and 100 percent of the maximum dry density, as determined by the Modified Proctor Test, ASTM D 1557.

The lateral earth pressure distribution on below-grade walls may be determined using the following equivalent fluid unit weights:

For soils above any free water surface, recommended equivalent fluid pressures are:

- Active:

Cohesionless soil backfill (stone)	35 psf/ft
Cohesive soil backfill (clay)	45 psf/ft
- Passive:

Cohesionless soil backfill (stone)	375 psf/ft
Cohesive soil backfill (clay)	330 psf/ft
- At-rest:

Cohesionless soil backfill (stone)	55 psf/ft
Cohesive soil backfill (clay)	65 psf/ft

The following soil strengths were utilized to estimate the equivalent fluid pressures:

	Total Unit Weight	Angle of Internal Friction
Cohesionless soil backfill (stone)	115 pcf	32 degrees
Cohesive soil backfill (clay)	120 pcf	28 degrees

The lateral earth pressures do not include any factor of safety and are not applicable for hydrostatic loading. It should be noted that the equivalent fluid pressures indicated above assume that the imported fill is compacted and tested in accordance with Section 8.7 of this report. Additional recommendations may be necessary if submerged conditions are to be included.

The above values do not include a ground level surcharge component. The effect of surcharge loads, where applicable, should be incorporated into the wall pressure diagram by adding a pressure component equal to the 0.50 times the surcharge load to the full height of the wall.

A drain is recommended for the wall to collect and remove water that has migrated or percolated behind the wall(s). If used, the lower equivalent fluid pressure (drained) may be used for design purposes.

8.4 Site Preparation and Excavations

In preparing the site for construction, all topsoil and any other deleterious materials should be completely removed from the construction area and any other areas which are to be cut or receive fill. It is recommended that any deleterious material that was previously hauled and dumped at the project site be removed prior to the start of construction. Topsoil should be removed from the site or used as top-dressing in areas to be vegetated. In most places, trees, including root balls, should be removed in their entirety to a minimum depth



of two feet below the subgrade elevation. After clearing and stripping is complete, the area should be checked by a representative of the Engineer to determine that the clearing and stripping has been sufficient to remove the topsoil and vegetation.

All openings remaining after the clearing and stripping of vegetation and other deleterious materials should be backfilled and compacted and the entire area bladed to provide drainage, except, in areas to be immediately excavated. The Engineer may direct that the openings not be backfilled.

8.5 Proof Rolling

It is recommended that grading be started during periods of warm, dry weather. All exposed subgrade surfaces should be systematically proof-rolled with a fully loaded, tandem-axle, dump truck, or other heavy construction equipment with a high contact pressure. Proof-rolling of the exposed subgrade should also be monitored full time by an experienced geotechnical engineer or technician to identify areas that require treatment or replacement prior to further construction activities. Soft areas of the subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch should be removed and replaced with suitable material or reworked prior to placement of fill. Some rework of the natural soil present after stripping of the subgrade will be required. The upper 1 foot to 5 feet of overburden soil will likely be loose/soft and highly sensitive to weather conditions. Stabilization of the subgrade may likely be required prior to placement of fill.

8.6 Fill and Backfill Materials

All soil fill and backfill materials should be approved by the geotechnical engineer before use regardless if it is an on-site soil or brought from an off-site borrow location.

ON-SITE SOILS

On-site soils near the proposed WWS Pump Station consist mostly of fill material classifying as clayey gravel (GC) with sand. On-site soil near the WWS Pump Station are not suitable for use as structural fill and backfill.

On-site soils near the proposed WWS Tank consist mostly of fill material with very thin accumulations of detritus or residual material classifying as elastic silt (MH) and poorly graded gravel with silt and sand (GP-GC). On-site soil near the WWS Tank are not suitable for use as structural fill and backfill.

OFF-SITE MATERIALS

Any material brought from off-site borrow areas should be approved prior to delivery at the project site, and shall be clean and free of any contaminated and hazardous materials. In general, acceptable backfill materials include crushed rock, well-graded sand and gravel, and lean clay exhibiting a liquid limit of less than 45 percent and a plasticity index of less than 20 percent. Satisfactory soil materials for structural fill are defined as those complying with ASTM D 2487 soil classification groups GW, GM, SM, SW, ML, and CL and may include GP, GC, SP, and SC soils. Unsatisfactory soils include those complying with ASTM D 2487 soil classification groups MH, CH, OL, OH, and Peat. Soil fill should not include any rocks larger than 4 inches in diameter or any significant amount of organics or debris. Any rocks in a cohesive fill should be completely contained within a soil matrix.

Material other than soil, sand, and gravel should be considered deleterious material unless HDR personnel state otherwise after visual inspection of the material. Deleterious material should not be used in site fills, regardless of whether it is from an on-site source or delivered to the site. Deleterious material will include any organic matter, wood, metal, and metal or plastic piping.

8.7 Placement and Compaction of Fill and Backfill

Cohesive structural fill should be compacted to at least 95 percent of the maximum dry density as determined by the Modified Proctor Test, ASTM D 1557 for field tests. The moisture content of fill materials should be controlled to within 3 percent of the optimum water content as determined by the Modified Proctor Test, ASTM D 1557.

All soil fill should be placed in lifts 8 inches or less in loose thickness for machine compactors and 4 inches or less in loose thickness for hand compactors. Thicker lifts should only be used with the permission of the geotechnical engineer or his representative, provided that compaction requirements are met. After proof-rolling, the exposed subgrade should be scarified to a minimum depth of 6 inches and properly moistened and recompacted to site standards before placing fill.

Fill placement and proof-rolling of the exposed subgrades should be monitored by the geotechnical engineer to verify that unsuitable materials are not present and that proper placement and compaction of materials has been accomplished. All exposed subgrade surface should be systematically proof-rolled before placement of structural fill. Compaction of rock fill and other fill that will be subject to performance criteria should be observed by the geotechnical engineer.

In addition, any material that is to be used as fill should not be placed on top of a frozen surface. All layers of frozen ground and frozen materials shall be removed in order to prepare a proper foundation for construction. Furthermore, the material being placed for fill and backfill should not contain any frozen material.

Construction specifications should require at least one in-place density test of the compacted fill for every 5,000 square feet of fill with a minimum of one test for each lift. For backfill around structures, construction specifications should require at least one in-place density test of the compacted fill for every 150 feet of trench with a minimum of one test for each lift. Each lift shall be tested for compaction compliance before the next lift is placed.

Before fill operations begin, representative samples of proposed fill materials should be tested for determination of laboratory compaction characteristics in accordance with ASTM D 1557. Gradation testing should be conducted in accordance with ASTM D 422. Liquid and plastic limit determinations should also be accomplished in accordance with ASTM D 4318 to verify material classification and evaluate shrink/swell potential.

8.8 Cut and Fill Slopes

TEMPORARY SLOPES

All temporary construction excavations (such as those required for footings, utility trenches, etc.) should be constructed in accordance with OSHA regulations, as a



minimum. All excavations should be evaluated and classified by a competent person. Near surface soils in the borings generally classify as OSHA Type B. Excavations extending into Type B soils should be cut on a slope no steeper than 1 horizontal (H) to 1 vertical (V). However, due to the presence of uncharacterized existing fill soils, it is recommended that all temporary construction excavations be cut on a slope no steeper than 2H to 1V. Flatter slopes may be required and all operations should be performed under the supervision of qualified site personnel in accordance with OSHA regulations.

Exposed excavation slopes should be protected from erosion and saturation by rainfall and runoff using berms, diversion ditches, and/or plastic sheeting. Caution should still be exercised as slopes cut in accordance with OSHA regulations may still experience sloughing, raveling, and sliding which may necessitate the use of flatter slopes. Adequately designed bracing may also be used or required to support excavations next to existing structures.

Soil removed from excavations should not be stockpiled next to cut slopes. A minimum setback equal to the depth of the excavation should be maintained between the top of the cut slope and the toe of the soil stockpile.

PERMANENT SLOPES

Permanent cut and fill slopes of soils should be constructed at 2 horizontal (H) to 1 vertical (V) or flatter slopes. Cut and fill slopes that may require routine maintenance (e.g. mowing) should be constructed at a slope of 4 horizontal (H) to 1 vertical (1) or flatter to allow for maintenance equipment to safely access the slopes.

8.9 Erosion Control

Erosion control will be necessary to minimize erosion caused by wind and by intense rainfall events. Erosion control measures should be utilized during construction and adhere to all requirements developed and expressed by federal, state, and local entities. Exposed soil along cut slopes and new embankments must be properly protected from surface erosion using best management and state-of-the-practice methods. Following the completion of grading of cut slopes and new embankments, seed and straw should be applied to the finished slopes to minimize erosion. Erosion control matting may be required to limit erosion of exposed slopes where a 2H to 1V slope is to be constructed and maintained. All locations should be evaluated in the field prior to construction to establish appropriate erosion control methods.

8.10 Control of Surface Water

The control of surface runoff will be necessary to prevent and control erosion of exposed soils, especially on slopes, and the softening of exposed subgrades in excavations. Surficial drainage of slopes, berms, ditches, trench drains, and pumping from sumps should be used as needed to readily remove any surface water, where needed. A drainage plan to collect and control the flow of surface runoff around the construction area should be carefully thought out and implemented before site grading begins.

8.11 Construction Monitoring of Existing Structures

Existing nearby structures should be monitored during construction of the proposed foundations. The monitoring program may consist of surveying points positioned along nearby existing structures. If the monitoring program demonstrates that the new construction is adversely impacting nearby existing structures, then it may be necessary for the contractor to adjust the construction methods as needed to minimize any impact to existing structures.

8.12 Foundation Monitoring Requirements

A representative of HDR should review the project plans and specifications, including any revisions or modifications. If changed site conditions affect the recommendations presented herein, HDR should be retained to perform a supplemental evaluation and to issue a revision to our original report.

The foundation design recommendations are based on a requirement for field observations of foundation installation. The geotechnical engineer of record or his/her representative should be present to observe the excavation, examine the bottom of the excavation, and determine if conditions within the excavation are consistent with those identified in the site explorations and that the subgrade material along the base of the excavation appears adequate for the design bearing pressure. If inadequate bearing material is present at the design bearing level, the foundation should be widened or deepened as directed by the project geotechnical engineer until adequate bearing is reached. Records should be kept to document observations and record quantities.

9 Limitations

This report presents the findings, conclusions and recommendations for the geotechnical aspects of the proposed West Hickman 7 Wet Weather Storage Tank Improvements Project (WH7WWS) in Lexington, Kentucky. It has been prepared in accordance with generally accepted engineering practice and in a manner consistent with the level of care and skill for this type of project within this geographic area. No warranty, expressed or implied, is made.

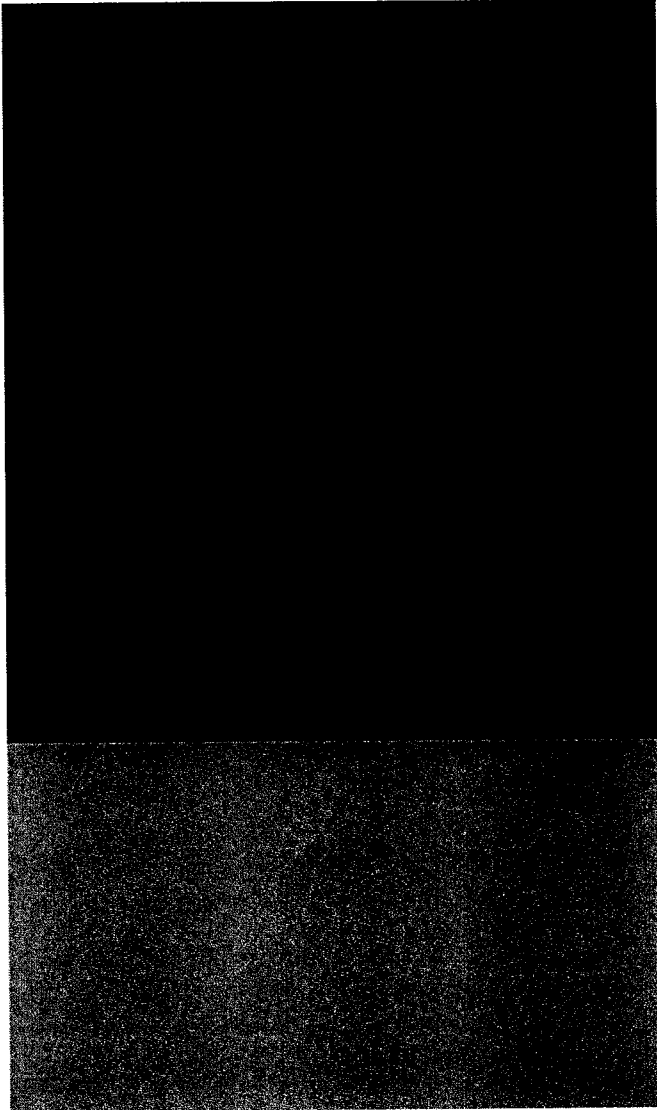
The conclusions and recommendations presented herein are based on field reconnaissance, research and available literature, the results of field exploration and laboratory materials testing, and the results of engineering analyses. HDR should be immediately contacted should subsurface conditions be encountered that are materially different than identified at the boring locations. Subsurface conditions that are materially different may require further investigation and supplemental recommendations.

Geotechnical engineering and the geologic sciences are characterized by uncertainty. Professional judgments presented herein are based partly on our understanding of the proposed construction, partly on our general experience, and on the state-of-the-practice at the time of this writing.



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Figures







WWS Pump Station

WWS Tank

Google Earth

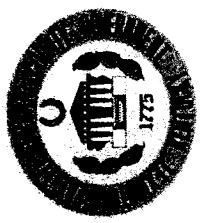
© 2016 Google

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Project No: 10055008
Location: Lexington, KY
Approved:
Drawn By: BAR
Date: 05/04/2017

Rev. Date: --
Scale: As Shown
Figure No. 1

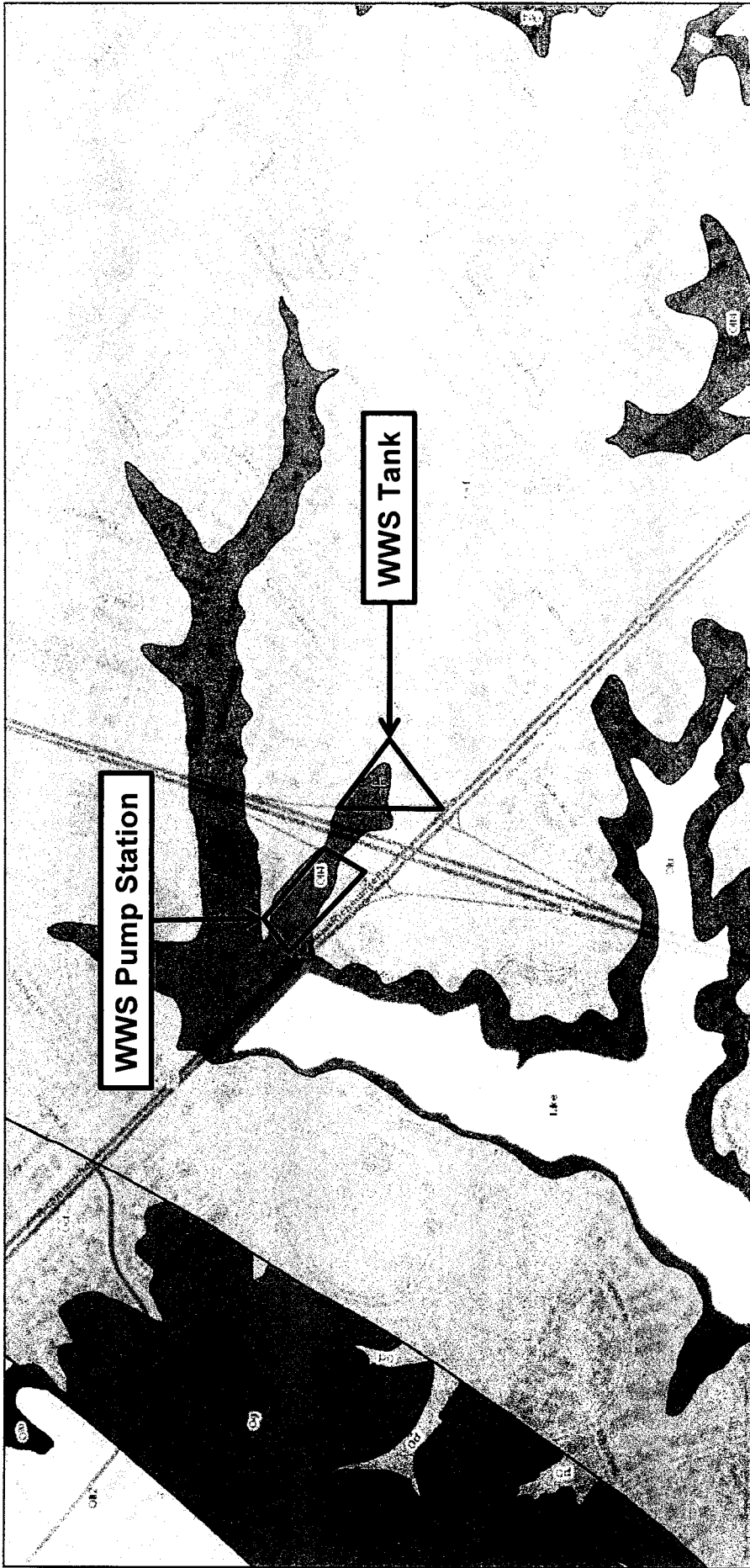
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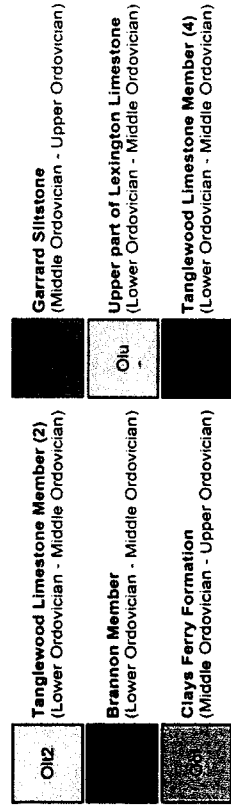


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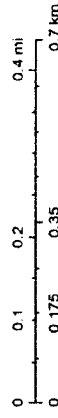




May 4, 2017



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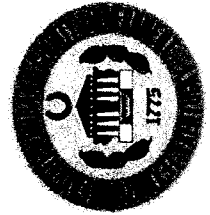
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author: Kentucky Geological Survey
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Prepared by:



Prepared for:



Bedrock Geology Map

Project: LFUCG WH7WWS

Project No: 10055008

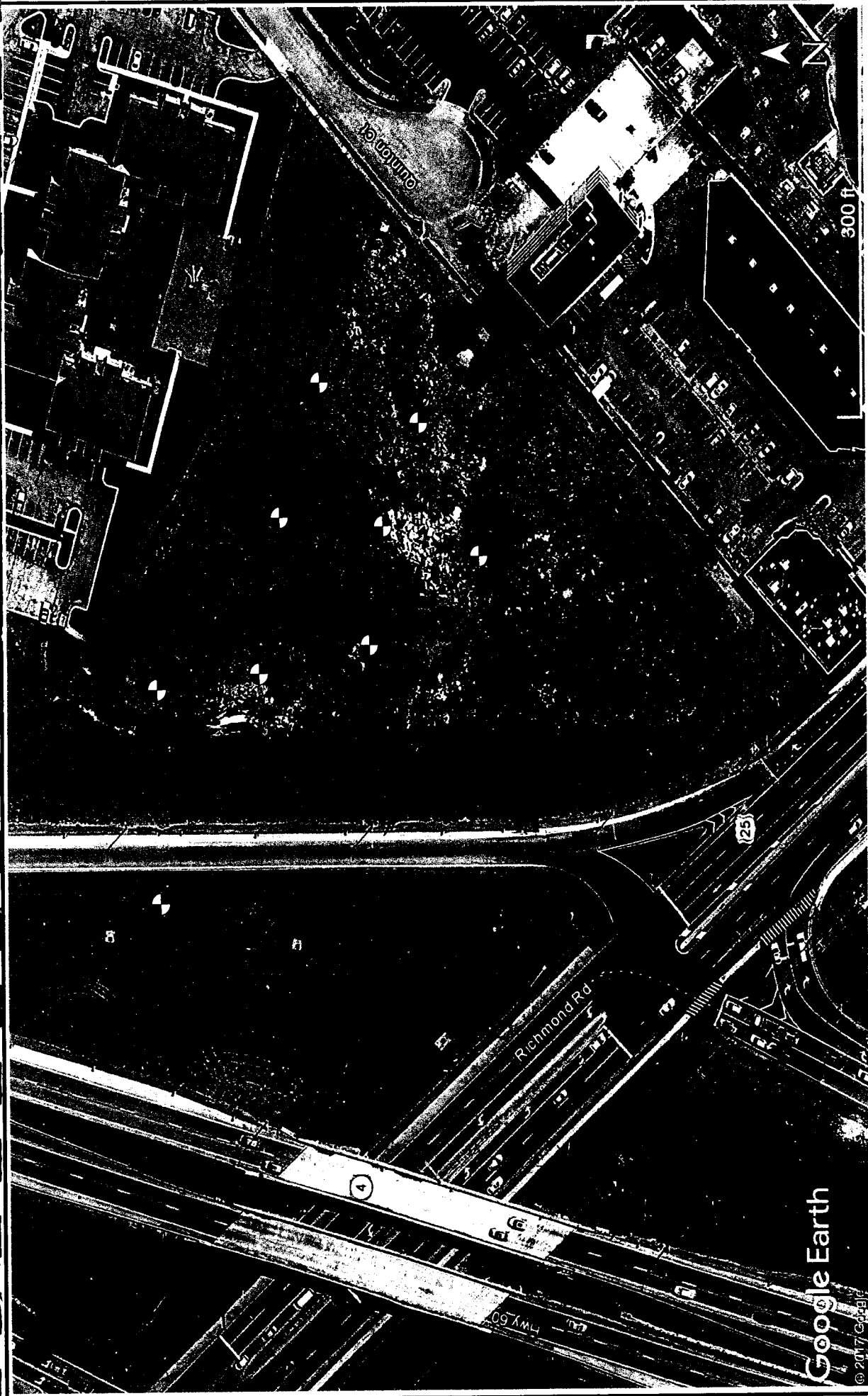
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Approved:

Drawn By: BAR

Date: 05/04/2017

Rev. Date: --
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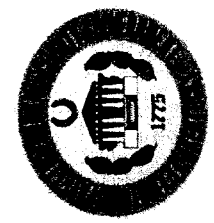


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 Approved:
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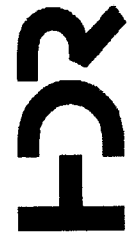
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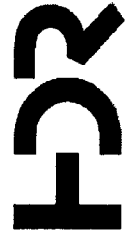
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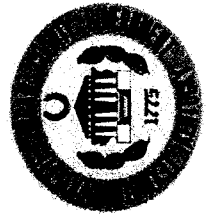
Google Earth



Prepared by:



Prepared for:



Boring Location Map (West of New Circle Rd)

Project: LFUCG WH7WWS

Project No: 10055008

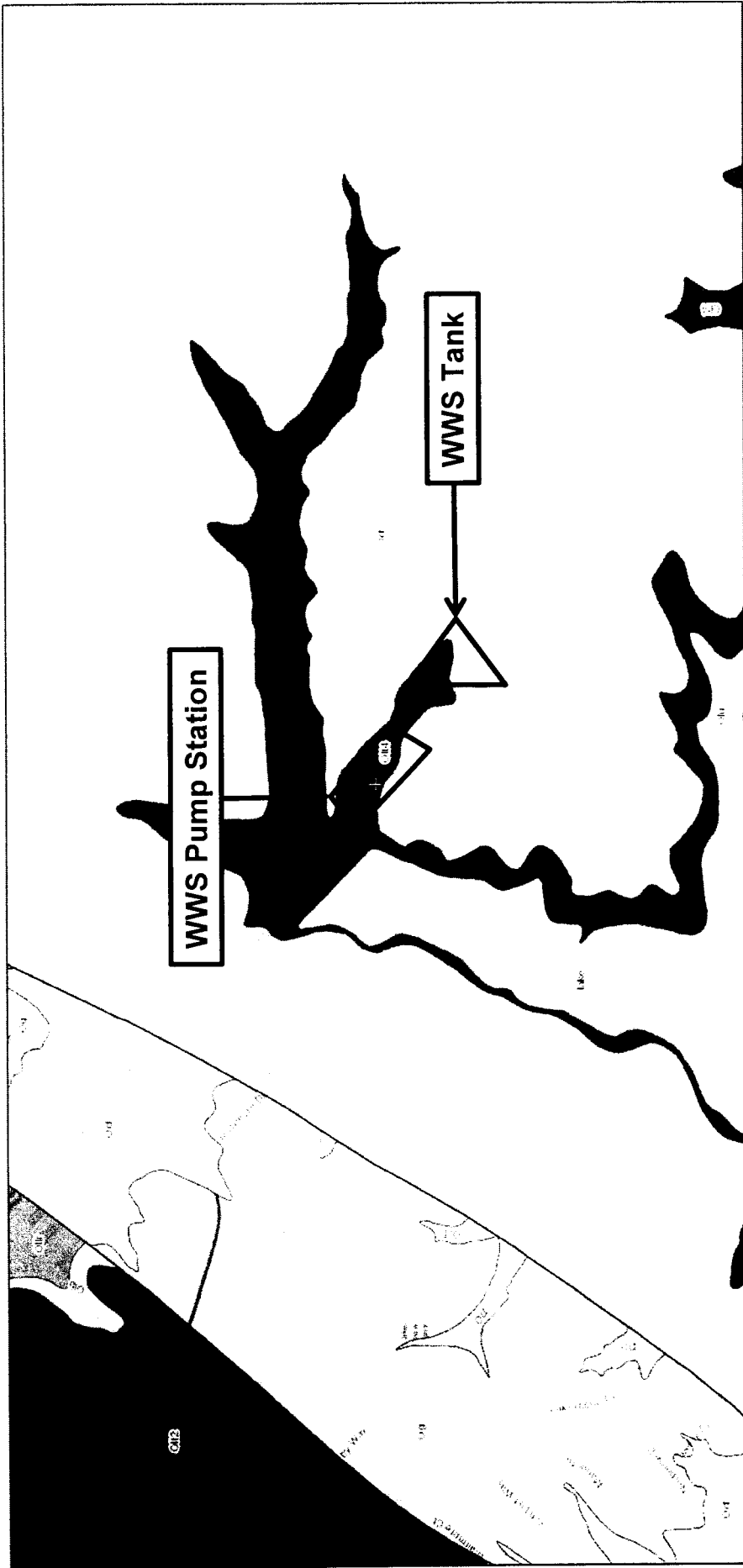
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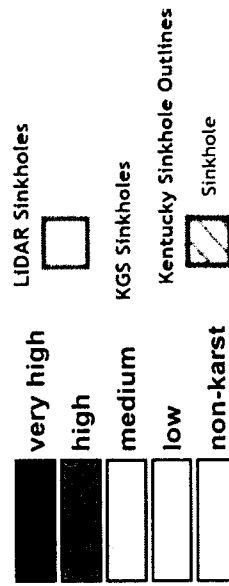
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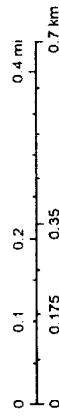
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May 4, 2017



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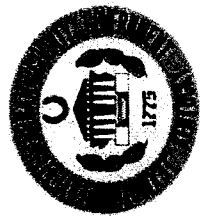
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author: Kentucky Geological Survey
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Prepared by:



Prepared for:



Karst Potential Map

Project: LFUCG WH7WWS

Project No: 10055008

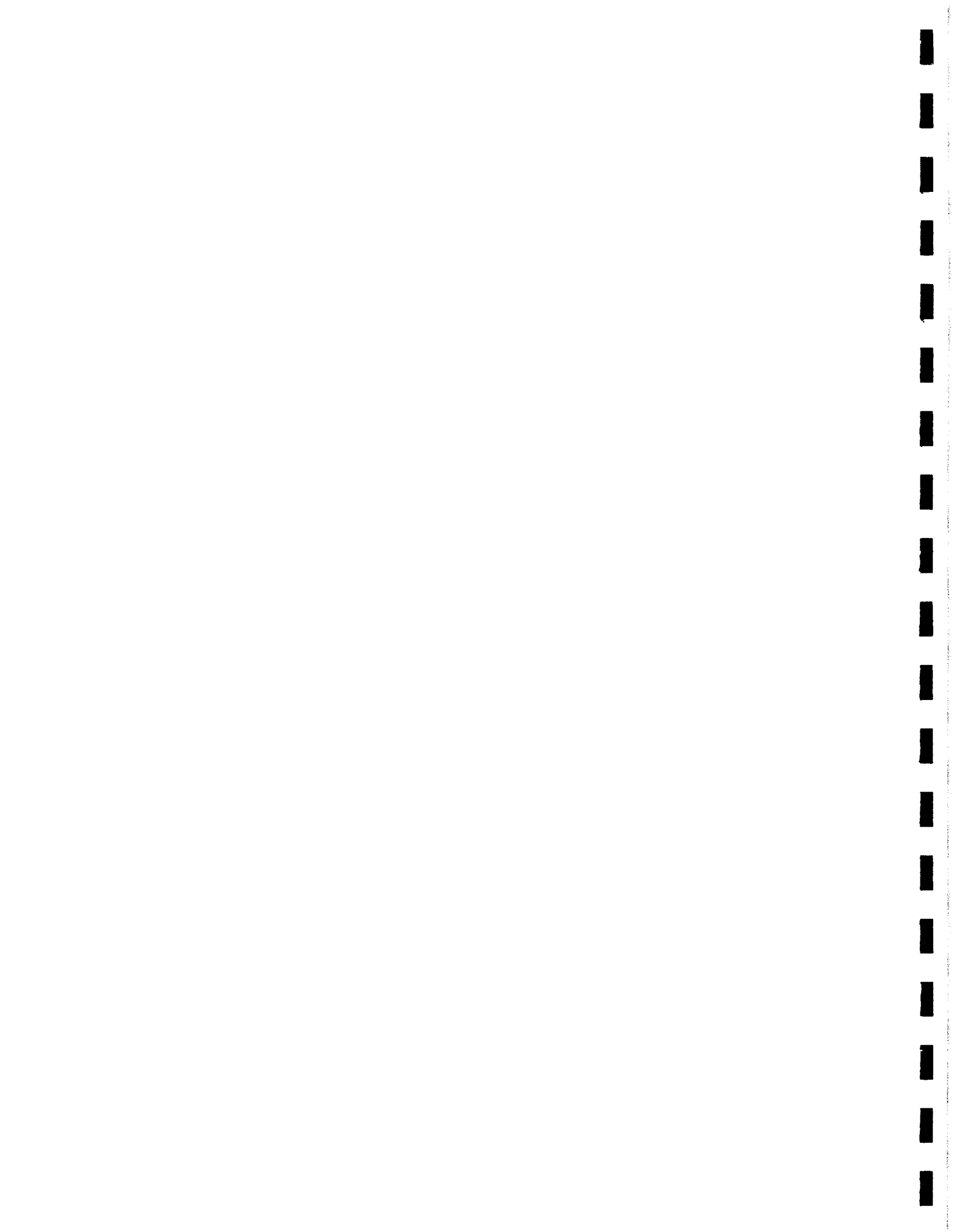
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Approved:

Drawn By: BAR

Date: 05/04/2017

Rev. Date: --
Scale: As Shown
Figure No. 5





Appendix A
Structural Design
Drawings



G1 GENERAL

- 1. ALL NOTES AND DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
- 2. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO THE START OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY UPON DISCOVERY. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
- 3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
- 4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
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- 9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
- 10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.

G2 APPLICABLE SPECIFICATIONS AND CODES

- 1. APPLICABLE SPECIFICATIONS: 2018 INTERNATIONAL BUILDING CODE (IBC), INTERNAL DRAMA BUILDING CODE, 2017 INCLUDING LOCAL AMENDMENTS.
- 2. IBC 1601.0
- 3. IBC 1602.0
- 4. IBC 1603.0
- 5. IBC 1604.0
- 6. IBC 1605.0
- 7. IBC 1606.0
- 8. IBC 1607.0
- 9. IBC 1608.0
- 10. IBC 1609.0

G3 STRUCTURAL DESIGN CRITERIA

- 1. LIVE LOADS
- 2. ROOF LIVE LOAD
- 3. FLOOR LIVE LOAD
- 4. SLOPED ROOF LIVE LOAD
- 5. SNOW AND ICE LOAD
- 6. SNOW AND ICE LOAD FACTOR
- 7. SNOW AND ICE LOAD FACTOR
- 8. SNOW AND ICE LOAD FACTOR
- 9. SNOW AND ICE LOAD FACTOR
- 10. SNOW AND ICE LOAD FACTOR

G4 SOILS & FOUNDATIONS

- 1. FOUNDATIONS HAVE BEEN DESIGNED FOR A MAXIMUM ALLOWABLE BEARING PRESSURE OF 4,000 PSF. THE GENERAL CONTRACTOR SHALL VERIFY THE BEARING CAPACITY OF THE SOILS PRIOR TO THE START OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY UPON DISCOVERY.
- 2. ALL FOUNDATIONS SHALL BE CONSTRUCTED TO BE PERMITTED TO BEAR A MAXIMUM NET UPLIFT OF 10% OF THE DESIGN LOAD. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
- 3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
- 4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
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- 10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.

CAST-IN-PLACE CONCRETE

- 1. THE FOLLOWING TYPES OF CONCRETE SHALL BE USED IN ACCORDANCE WITH THE LAST-INFORCE SPECIFICATION: CONCRETE SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
- 2. ALL CONCRETE SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
- 3. ALL CONCRETE SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
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CONCRETE MASONRY UNITS (CMU)

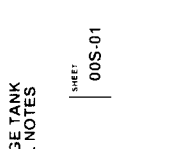
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- 10. CMU SHALL BE MANUFACTURED TO MEET THE REQUIREMENTS OF THE SPECIFICATION AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.

WOOD FRAMING

- 1. ALL WOOD SHALL BE DRY KILN DRIED TO A MAXIMUM MOISTURE CONTENT OF 19% AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
- 2. ALL WOOD SHALL BE DRY KILN DRIED TO A MAXIMUM MOISTURE CONTENT OF 19% AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
- 3. ALL WOOD SHALL BE DRY KILN DRIED TO A MAXIMUM MOISTURE CONTENT OF 19% AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
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- 10. ALL WOOD SHALL BE DRY KILN DRIED TO A MAXIMUM MOISTURE CONTENT OF 19% AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.

STRUCTURAL WOOD PANELS (SHEATHING)

- 1. ALL WOOD PANELS SHALL BE MANUFACTURED TO MEET THE REQUIREMENTS OF THE SPECIFICATION AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
- 2. ALL WOOD PANELS SHALL BE MANUFACTURED TO MEET THE REQUIREMENTS OF THE SPECIFICATION AND SHALL BE PLACED AND FINISHED TO THE SPECIFIED FINISH AND SHALL BE CURED PROPERLY TO AVOID CRACKING.
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F2R

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PROJECT MANAGER: J. BENTON SMITH

DESIGNED BY: []

CHECKED BY: []

DRAWN BY: []

DATE: []

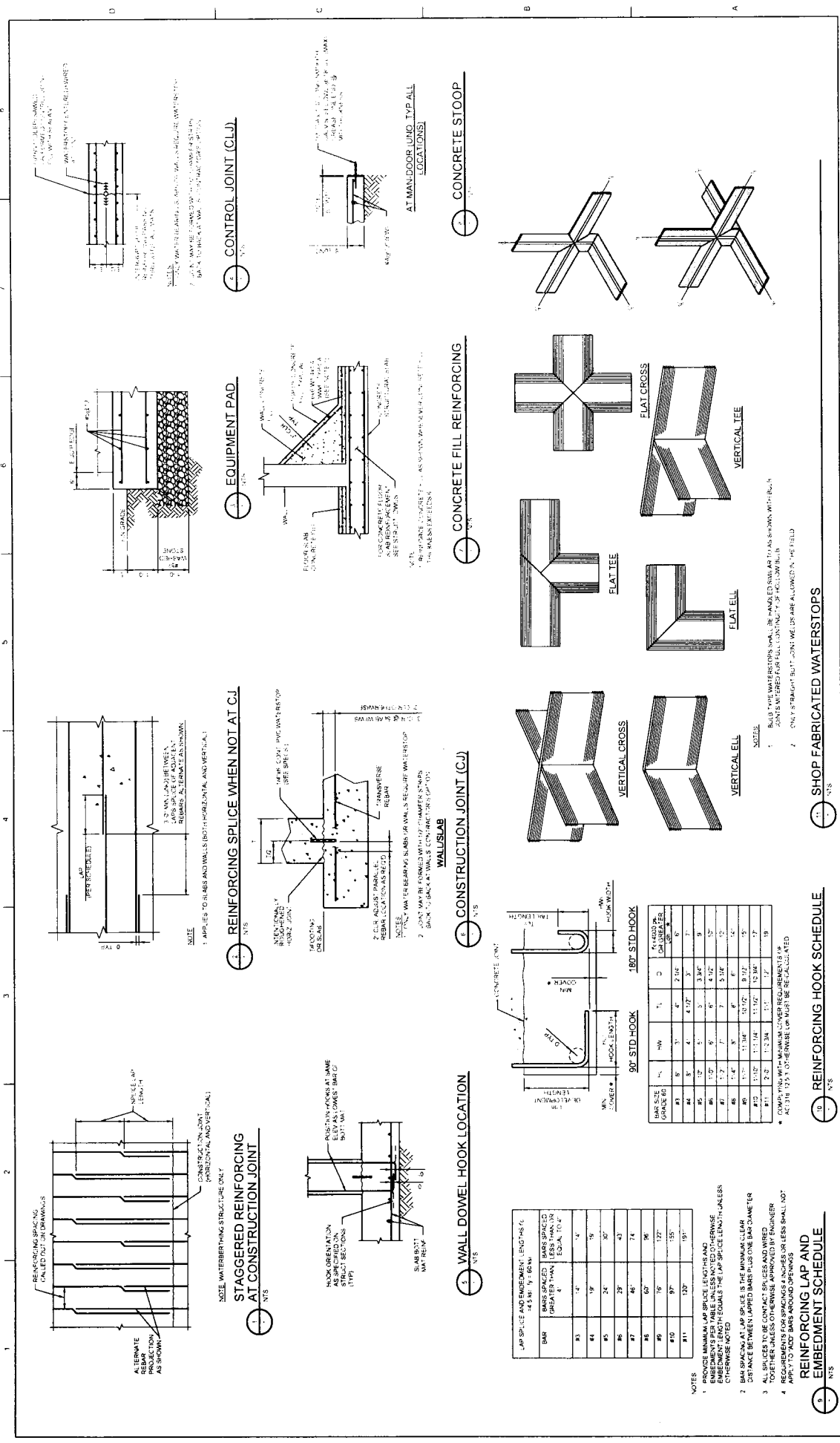
PROJECT NUMBER: 2018010

PUMP STATION / STORAGE TANK STRUCTURAL GENERAL NOTES

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

TITLE BLOCK

005-01 SHEET



WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PUMP STATION / STORAGE TANK STRUCTURAL STANDARD DETAILS

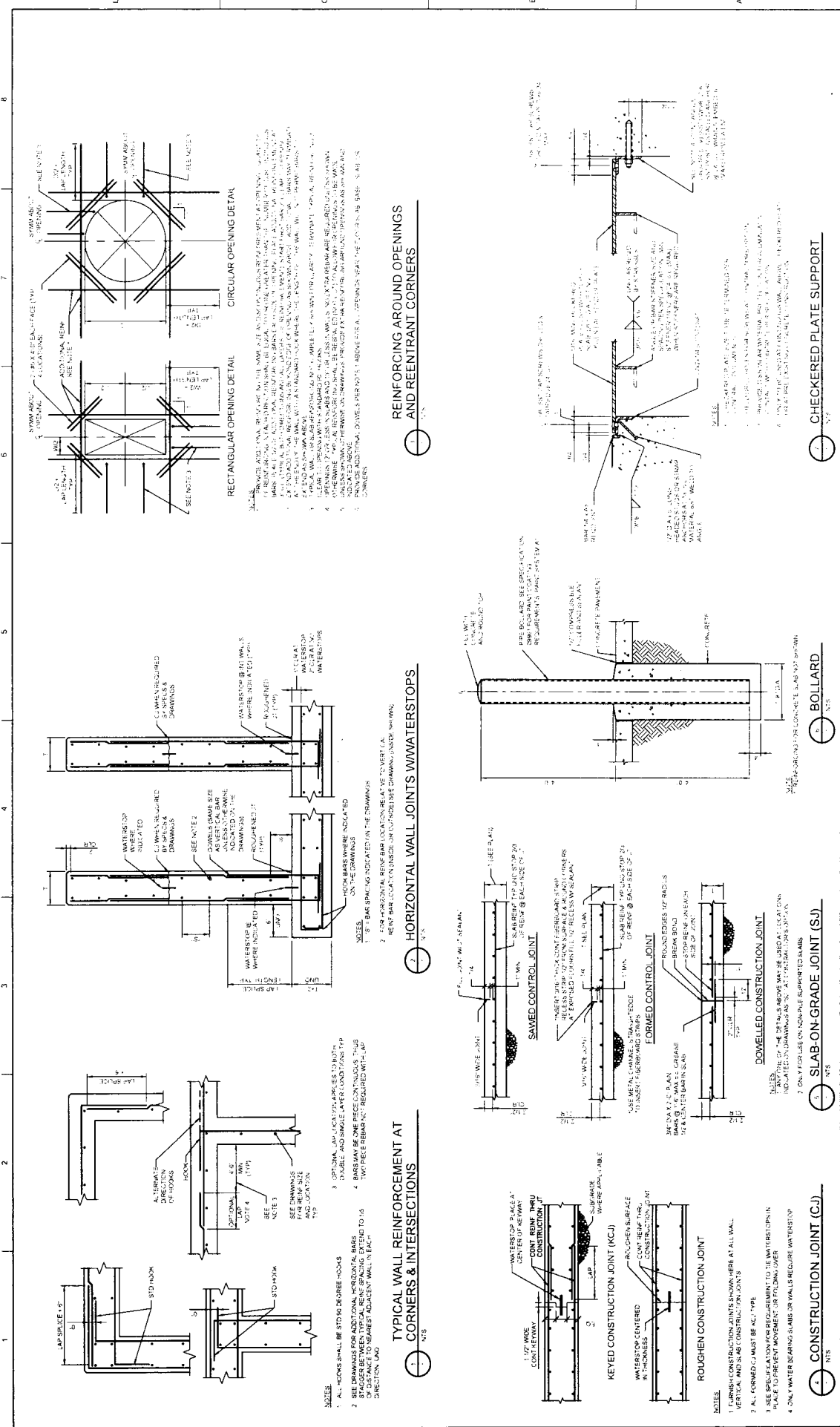
PROJECT NUMBER: 1004008
 ISSUE: DATE: DESCRIPTION:

DESIGNED: M.T.T.
 DRAWN: D.R.G.
 CHECKED: M.E.V.
 QUOTE: O.A.C.C.

PROJECT NUMBER: 1004008
 ISSUE: DATE: DESCRIPTION:

SCALE: 1/4" = 1'-0"
 FILE NAME: 00S-02
 SHEET: 00S-02

FOR



NOTES:

1. ALL HOOPS SHALL BE ST9-20 OR EQUIV. HOOPS
2. SEE COMMENTS ON PLAN FOR SPACING, BARS, AND DISTANCE TO NEAREST ADJACENT WALL IN EACH DIRECTION, AND
3. OPTIONAL LAP LOCATION APPLIES TO BOTH DOUBLE AND SINGLE LAYER CONSTRUCTION
4. BARS MAY BE ONE PIECE CONTINUOUS, THIS IS DEPENDENT ON FABRICATOR'S SPACING, BENDING TO HIS DIRECTION, AND

RECTANGULAR OPENING DETAIL

1. REINFORCING AROUND OPENINGS SHALL BE AS SHOWN IN THIS DETAIL UNLESS OTHERWISE NOTED

2. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

3. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

4. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

5. PROVIDE ADDITIONAL HOOPS PER NOTE 1 ABOVE AREA APPROXIMATELY 2' FROM EACH SIDE OF CORNERS

NOTES:

1. 3" BAR SPACING INDICATED IN THE DRAWINGS
2. FOR HORIZONTAL REINFORCEMENT LOCATION RELATIVE TO VERT. C.A. REINFORCEMENT LOCATION INSIDE OF WATERSTOP SEE DRAWING UNDER WATERSTOP

HORIZONTAL WALL JOINTS WITH WATERSTOPS

1. WATERSTOPS SHALL BE ST9-20 OR EQUIV. BARS

2. WATERSTOPS SHALL BE ST9-20 OR EQUIV. BARS

3. WATERSTOPS SHALL BE ST9-20 OR EQUIV. BARS

4. WATERSTOPS SHALL BE ST9-20 OR EQUIV. BARS

5. WATERSTOPS SHALL BE ST9-20 OR EQUIV. BARS

NOTES:

1. FURNISH CONSTRUCTION JOINTS SHOWN WHERE AT ALL WALLS
2. ALL FORMED JOINTS MUST BE ALL-TYPE
3. SEE SPECIFICATION FOR REQUIREMENT TO THE WATERSTOP IN PLACE TO PREVENT MOVEMENT OR FLOODING OVER
4. ONLY WATER BEARING SLABS OR WALLS REQUIRE WATERSTOP

KEYED CONSTRUCTION JOINT (KCJ)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

ROUGH CONSTRUCTION JOINT

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

FORMED CONSTRUCTION JOINT

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

DOWELLED CONSTRUCTION JOINT

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

SLAB-ON-GRADE JOINT (SUG)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

CONSTRUCTION JOINT (CJ)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

NOTES:

1. FURNISH CONSTRUCTION JOINTS SHOWN WHERE AT ALL WALLS
2. ALL FORMED JOINTS MUST BE ALL-TYPE
3. SEE SPECIFICATION FOR REQUIREMENT TO THE WATERSTOP IN PLACE TO PREVENT MOVEMENT OR FLOODING OVER
4. ONLY WATER BEARING SLABS OR WALLS REQUIRE WATERSTOP

REINFORCING AROUND OPENINGS AND REINFRANT CORNERS

1. REINFORCING AROUND OPENINGS SHALL BE AS SHOWN IN THIS DETAIL UNLESS OTHERWISE NOTED

2. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

3. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

4. ALL REINFORCING SHALL BE ST9-20 OR EQUIV. BARS

5. PROVIDE ADDITIONAL HOOPS PER NOTE 1 ABOVE AREA APPROXIMATELY 2' FROM EACH SIDE OF CORNERS

NOTES:

1. FURNISH CONSTRUCTION JOINTS SHOWN WHERE AT ALL WALLS
2. ALL FORMED JOINTS MUST BE ALL-TYPE
3. SEE SPECIFICATION FOR REQUIREMENT TO THE WATERSTOP IN PLACE TO PREVENT MOVEMENT OR FLOODING OVER
4. ONLY WATER BEARING SLABS OR WALLS REQUIRE WATERSTOP

KEYED CONSTRUCTION JOINT (KCJ)

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3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

ROUGH CONSTRUCTION JOINT

1. 1" MIN. GAP

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3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

FORMED CONSTRUCTION JOINT

1. 1" MIN. GAP

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3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

DOWELLED CONSTRUCTION JOINT

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

SLAB-ON-GRADE JOINT (SUG)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

CONSTRUCTION JOINT (CJ)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

NOTES:

1. FURNISH CONSTRUCTION JOINTS SHOWN WHERE AT ALL WALLS
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3. SEE SPECIFICATION FOR REQUIREMENT TO THE WATERSTOP IN PLACE TO PREVENT MOVEMENT OR FLOODING OVER
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4. 1" MIN. GAP

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ROUGH CONSTRUCTION JOINT

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FORMED CONSTRUCTION JOINT

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DOWELLED CONSTRUCTION JOINT

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SLAB-ON-GRADE JOINT (SUG)

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3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

CONSTRUCTION JOINT (CJ)

1. 1" MIN. GAP

2. 1" MIN. GAP

3. 1" MIN. GAP

4. 1" MIN. GAP

5. 1" MIN. GAP

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS

CONTRACT NO. 2

PUMP STATION AND WET WEATHER STORAGE TANK

PUMP STATION / STORAGE TANK STRUCTURAL STANDARD DETAILS

FILE NAME: **CONTRACT NO. 2**

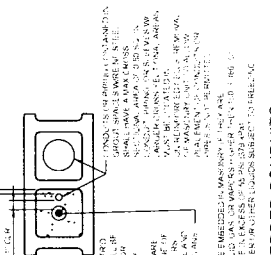
SCALE: **AS SHOWN**

SHEET: **00S-03**

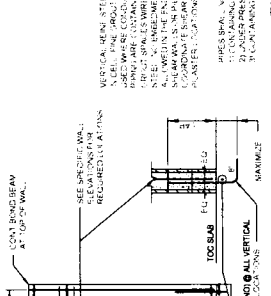
ISSUE	DATE	DESCRIPTION

PROJECT NUMBER: P	DESIGNER: HMS
DRAWN: CSG	CHECKED: MEP
DATE: 	PROJECT NUMBER: 1000000

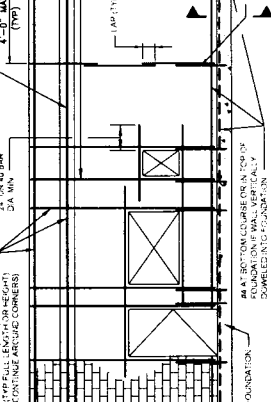
NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



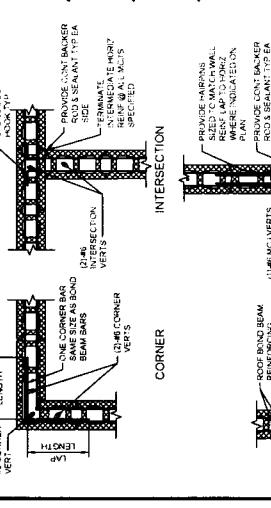
SECTION OF UNIEL AT OPENING



EMBEDDED CONDUITS, PIPES AND SLEEVES IN CMU



EQUIPMENT BASE



TYPICAL THICKENED SLAB DETAIL

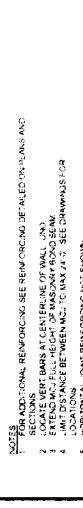
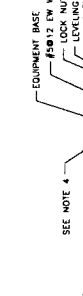
UNIEL SCHEDULE

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



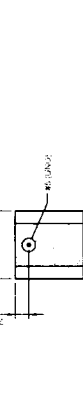
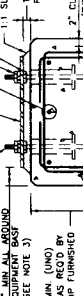
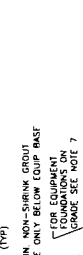
CMU WALL REINFORCING LAP SCHEDULE

BAR SIZE	LAP (PER WALL THICKNESS)	NOTES
#4	30"	1. LAPS PER REINFORCING LAP SCHEDULE
#5	32"	2. LAPS PER REINFORCING LAP SCHEDULE
#6	34"	3. BAR LOCKED @ CENTER OF LAP
#7	36"	4. LAPS PER REINFORCING LAP SCHEDULE



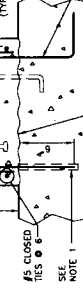
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



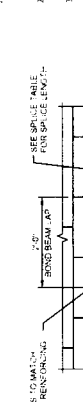
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



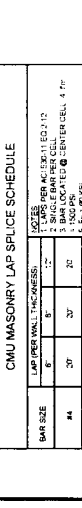
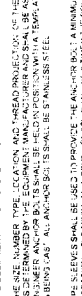
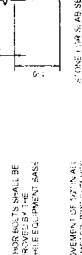
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



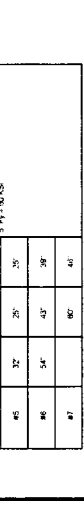
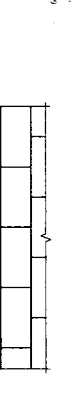
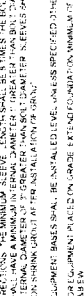
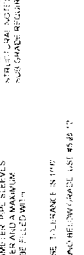
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



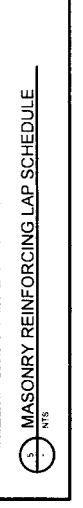
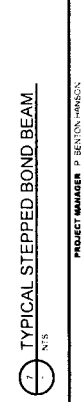
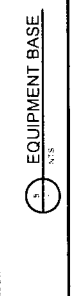
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



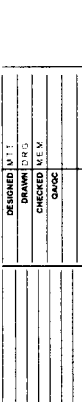
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



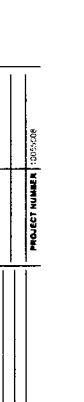
CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



CMU WALL REINFORCING

NO.	DESCRIPTION	DATE	BY	CHKD.	REVISION
M.1	ISSUED FOR PERMITS	12/15/11	...	...	...
M.2	...	...	...	...	...
M.3	...	...	...	...	...



WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS

CONTRACT NO. 2

PUMP STATION AND WET WEATHER STORAGE TANK

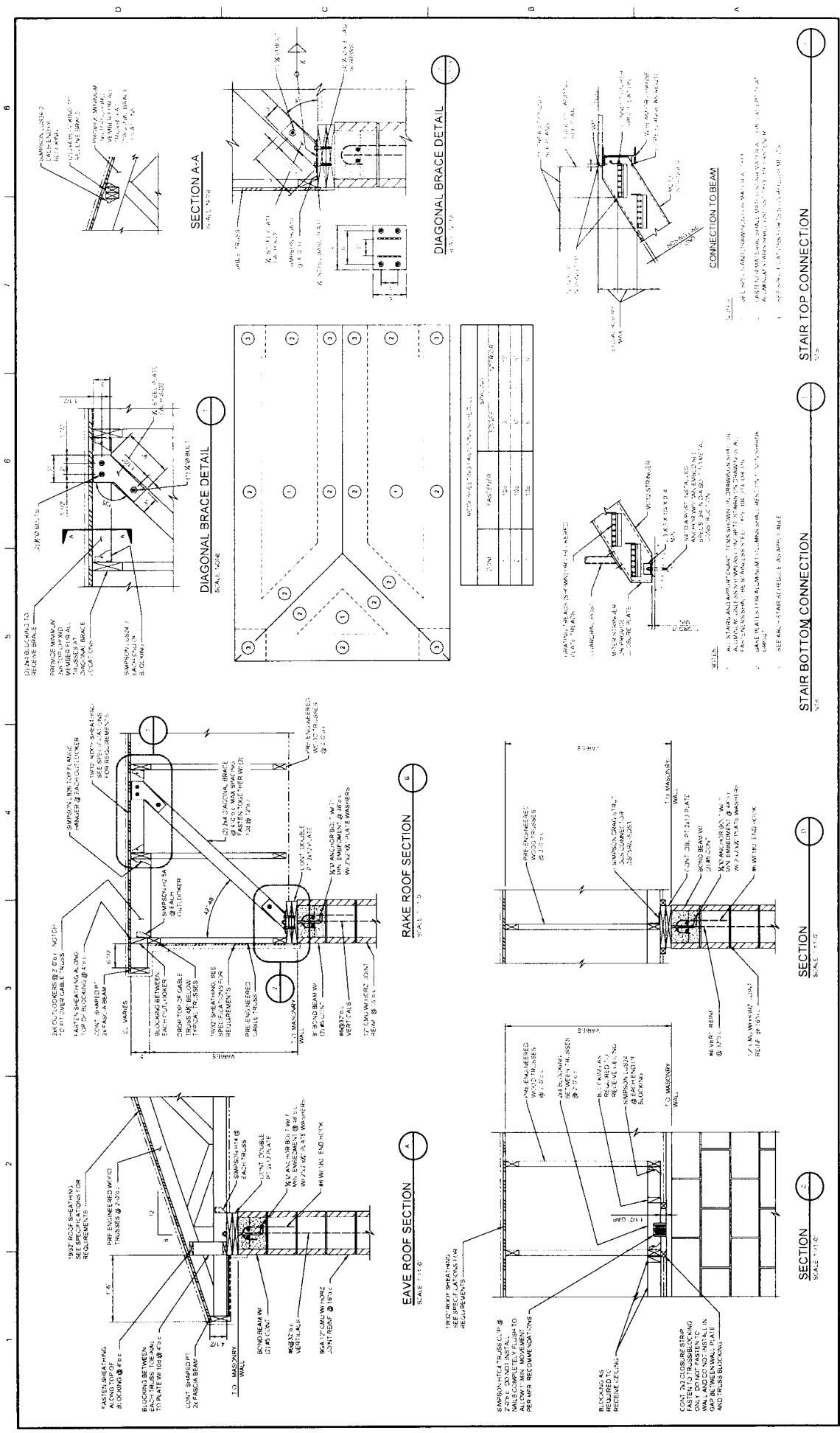
SHEET 00S-04

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

FILE NAME: 11-11-11

NO.	DATE	DESCRIPTION

PROJECT MANAGER	PROJECT ENGINEER
DESIGNED BY: ...	CHECKED BY: ...
DRAWN BY: ...	DATE: ...
CHECKED BY: ...	PROJECT NUMBER: ...
DATE: ...	DESCRIPTION: ...



WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PROJECT NUMBER 2: WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

DESIGNED BY: []
CHECKED BY: []
DWGNO: []

SCALE: []
DATE: []
DESCRIPTION: []

PROJECT NUMBER 2: WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

DESIGNED BY: []
CHECKED BY: []
DWGNO: []

SCALE: []
DATE: []
DESCRIPTION: []

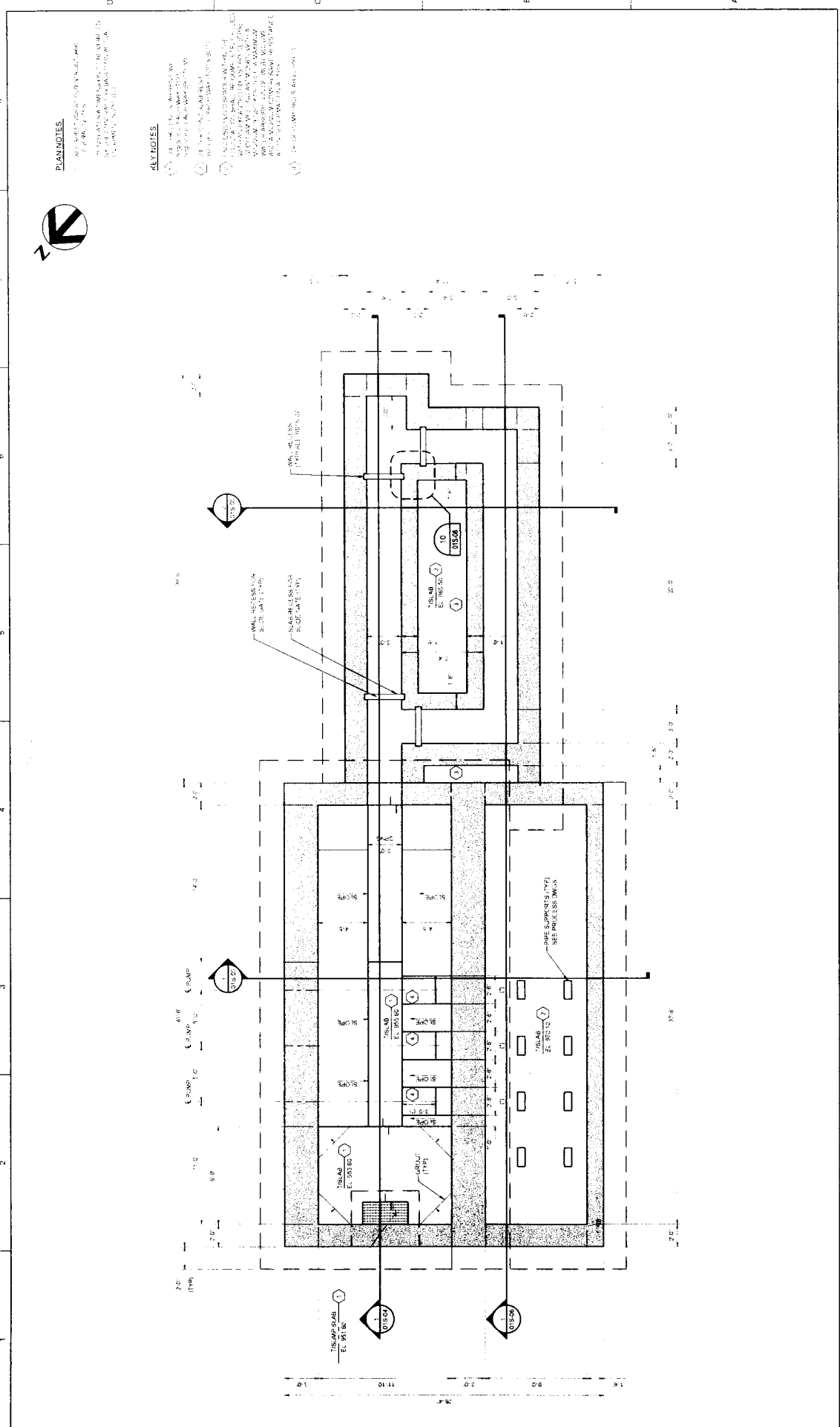
FILE NAME: []
SCALE: []
SHEET: 00S-05

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

DESIGNED BY: []
CHECKED BY: []
DWGNO: []

SCALE: []
DATE: []
DESCRIPTION: []

FILE NAME: []
SCALE: []
SHEET: 00S-05



PLAN NOTES

- 1. SEE SHEET 01S-01 FOR PLAN AND ELEVATION.
- 2. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
- 3. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
- 4. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.

KEY NOTES

- 1. WALL REVISION (SEE SHEET 01S-01)
- 2. SLAB REVISION (SEE SHEET 01S-01)
- 3. WALL REVISION (SEE SHEET 01S-01)
- 4. WALL REVISION (SEE SHEET 01S-01)
- 5. WALL REVISION (SEE SHEET 01S-01)
- 6. WALL REVISION (SEE SHEET 01S-01)
- 7. WALL REVISION (SEE SHEET 01S-01)
- 8. WALL REVISION (SEE SHEET 01S-01)
- 9. WALL REVISION (SEE SHEET 01S-01)
- 10. WALL REVISION (SEE SHEET 01S-01)
- 11. WALL REVISION (SEE SHEET 01S-01)
- 12. WALL REVISION (SEE SHEET 01S-01)
- 13. WALL REVISION (SEE SHEET 01S-01)
- 14. WALL REVISION (SEE SHEET 01S-01)
- 15. WALL REVISION (SEE SHEET 01S-01)
- 16. WALL REVISION (SEE SHEET 01S-01)
- 17. WALL REVISION (SEE SHEET 01S-01)
- 18. WALL REVISION (SEE SHEET 01S-01)
- 19. WALL REVISION (SEE SHEET 01S-01)
- 20. WALL REVISION (SEE SHEET 01S-01)

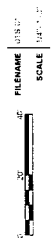


PROJECT MANAGER: BENTON HANSON
 DESIGNED BY: [Name]
 CHECKED BY: [Name]
 DATE: [Date]

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

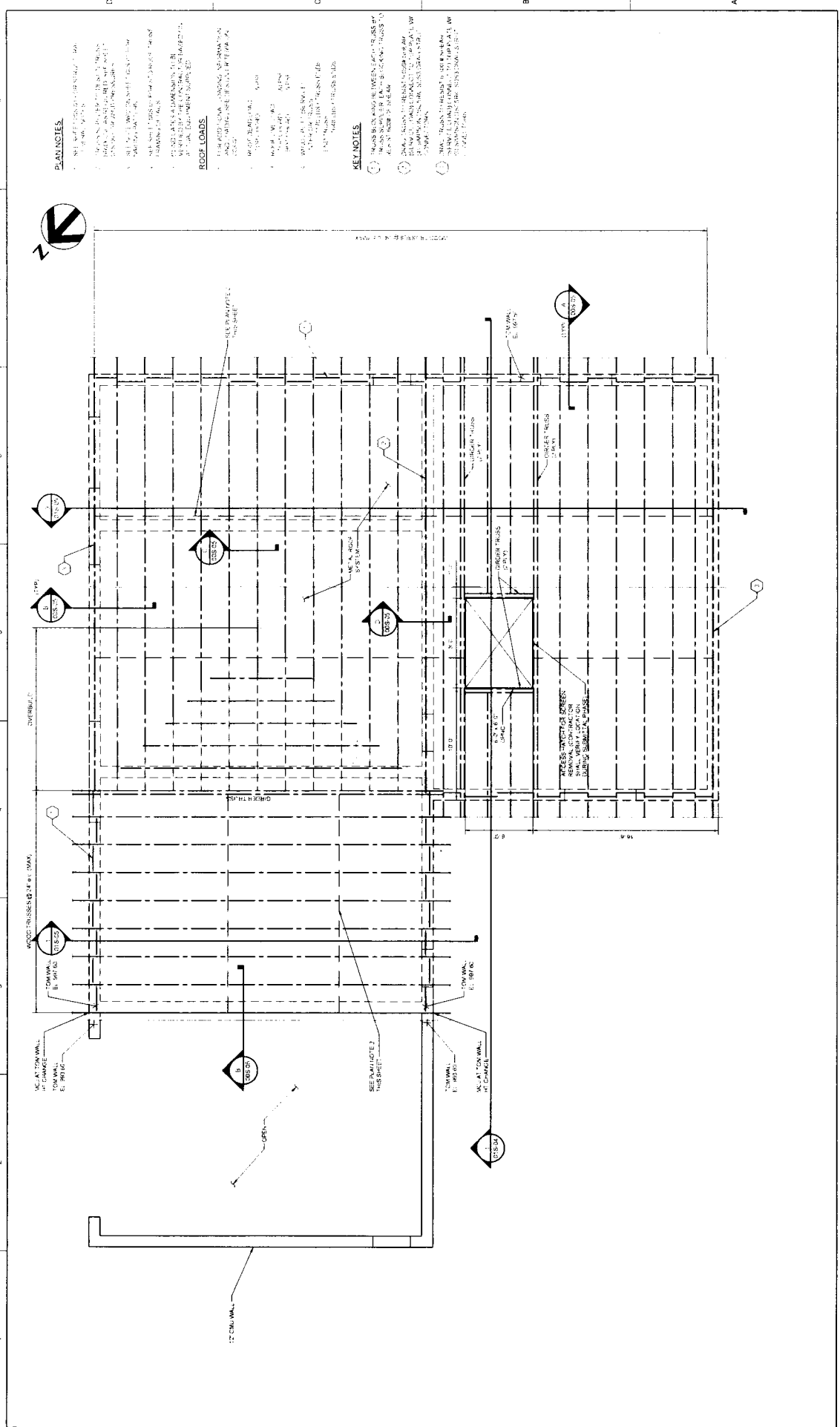
PUMP STATION LOWER FOUNDATION PLAN

SHEET 01S-01



ISSUE	DATE	DESCRIPTION

PROJECT NUMBER: 100500P



PLAN NOTES

1. SEE SHEET 01S-02 FOR OVERALL PLAN.
2. ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED.
3. SEE SHEET 01S-02 FOR OVERALL PLAN.
4. SEE SHEET 01S-02 FOR OVERALL PLAN.
5. SEE SHEET 01S-02 FOR OVERALL PLAN.
6. SEE SHEET 01S-02 FOR OVERALL PLAN.
7. SEE SHEET 01S-02 FOR OVERALL PLAN.
8. SEE SHEET 01S-02 FOR OVERALL PLAN.
9. SEE SHEET 01S-02 FOR OVERALL PLAN.
10. SEE SHEET 01S-02 FOR OVERALL PLAN.

ROOF LOADS

1. DEAD LOAD (DL) - 15 PSF
2. LIVE LOAD (LL) - 20 PSF
3. WIND LOAD (WL) - 15 PSF
4. SNOW LOAD (SL) - 15 PSF
5. SEISMIC LOAD (SL) - 15 PSF
6. OTHER LOADS (OL) - 15 PSF
7. TOTAL LOAD (TL) - 15 PSF
8. TOTAL LOAD (TL) - 15 PSF
9. TOTAL LOAD (TL) - 15 PSF
10. TOTAL LOAD (TL) - 15 PSF

KEY NOTES

1. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
2. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
3. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
4. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
5. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
6. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
7. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
8. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
9. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.
10. ROOF TRUSS #1 THROUGH #5 SHALL BE 12' O.C.



ISSUE	DATE	DESCRIPTION
1	05/20/20	ISSUE FOR PERMIT

PROJECT MANAGER: P. HENSON-HANSON

DESIGNED BY: J. H. HANSON
 DRAWN BY: J. H. HANSON
 CHECKED BY: J. H. HANSON
 DATE: 05/20/20

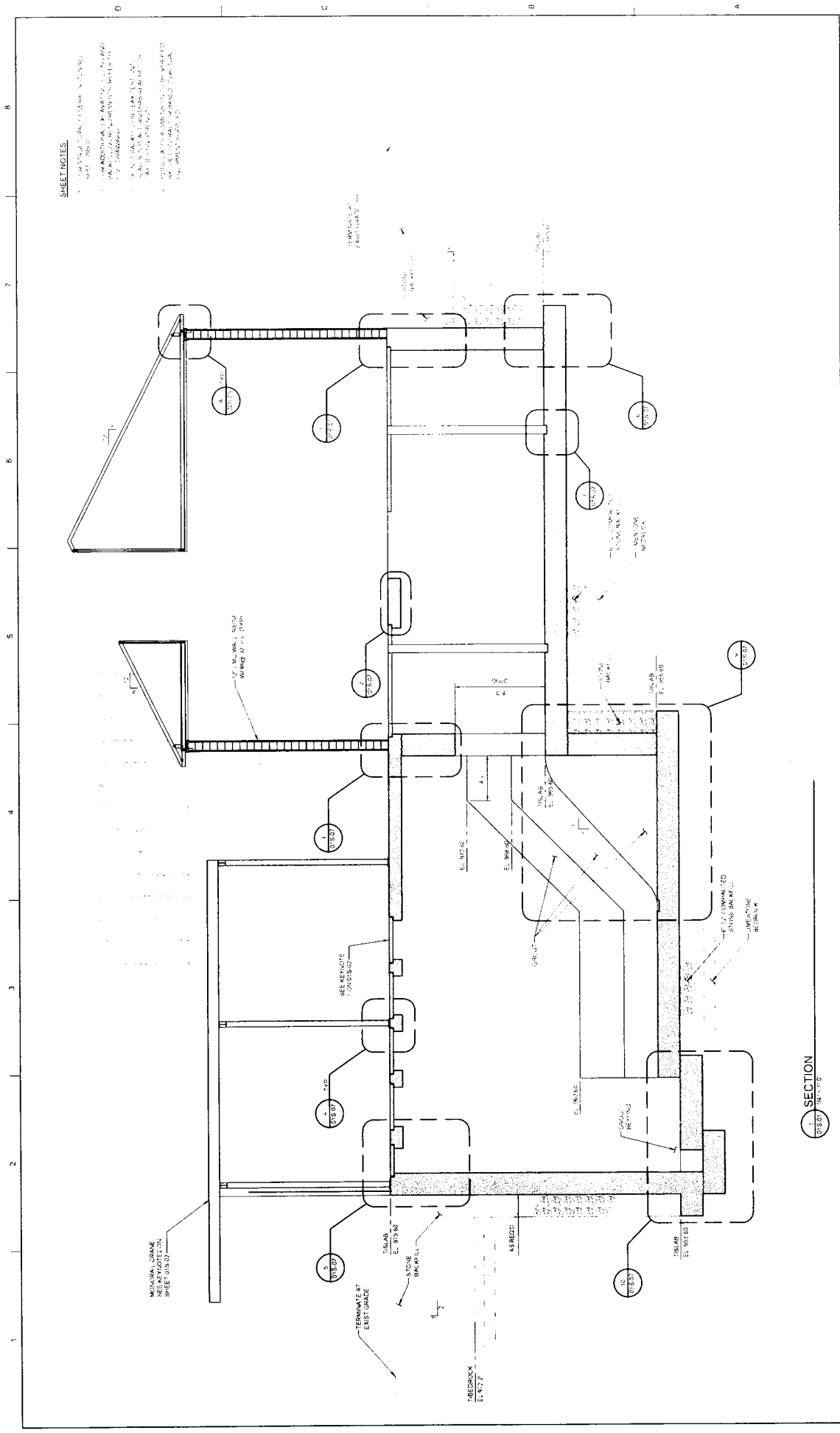
PROJECT NUMBER: 10005008



WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PUMP STATION ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"
 FILE NAME: 10005008_PUMP STATION ROOF FRAMING PLAN.dwg
 SHEET: 01S-03



SHEET NOTES

- 1. CONSULT DRAWING NUMBER 015-04
- 2. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 3. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 4. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 5. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 6. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 7. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 8. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 9. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES
- 10. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES

PROJECT MANAGER: P. BERLON-WANSON
 DESIGNED: M.T.T.
 DRAWN: C.H.G.
 CHECKED: M.E.M.
 QUOTE: G.A.C.
 PROJECT NUMBER: 105008
 ISSUE: DATE: DESCRIPTION:

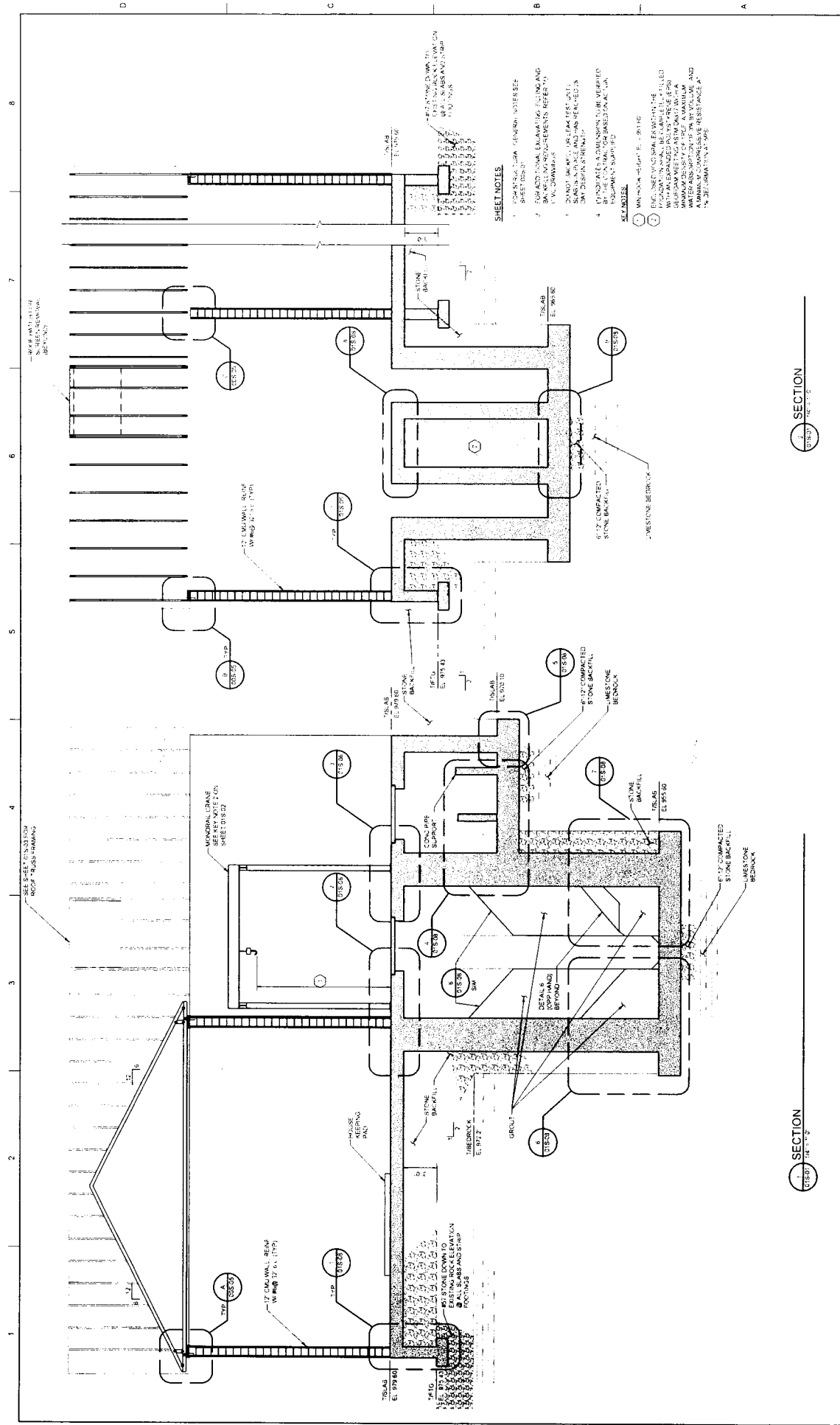
WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS
 CONTRACT NO. 2
 PUMP STATION AND WET WEATHER STORAGE TANK

SECTION 01500 - PUMPS

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS
 CONTRACT NO. 2
 PUMP STATION AND WET WEATHER STORAGE TANK

SCALE: AS SHOWN
 SHEET 015-04





SHEET NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET 01S-01
 2. FOR ADDITIONAL EXPLANATIONS REGARDING MATERIALS AND DIMENSIONS REFER TO THE CONTRACT DOCUMENTS.
 3. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN FEET AND INCHES.
 4. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
- KEY NOTES**
1. MINIMUM HEIGHT: 10'-0" TO TOP OF ROOF
 2. ENGINEERING SHALL VERIFY THE DESIGN OF THE STRUCTURE AND THE FOUNDATION SHALL BE AS PER THE DESIGN DRAWINGS AND SHALL BE APPROVED BY THE CONTRACTOR BEFORE CONSTRUCTION.
 3. ALL MATERIALS SHALL BE OF A MINIMUM COMpressive RESISTANCE AS NOTED.

SECTION 01S-01

SECTION 01S-02

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK



PROJECT MANAGER: P. BENTON HANSON
 DESIGNED: M.T.T.
 DRAWN: D.R.G.
 CHECKED: M.E.V.
 DATE: 04/03

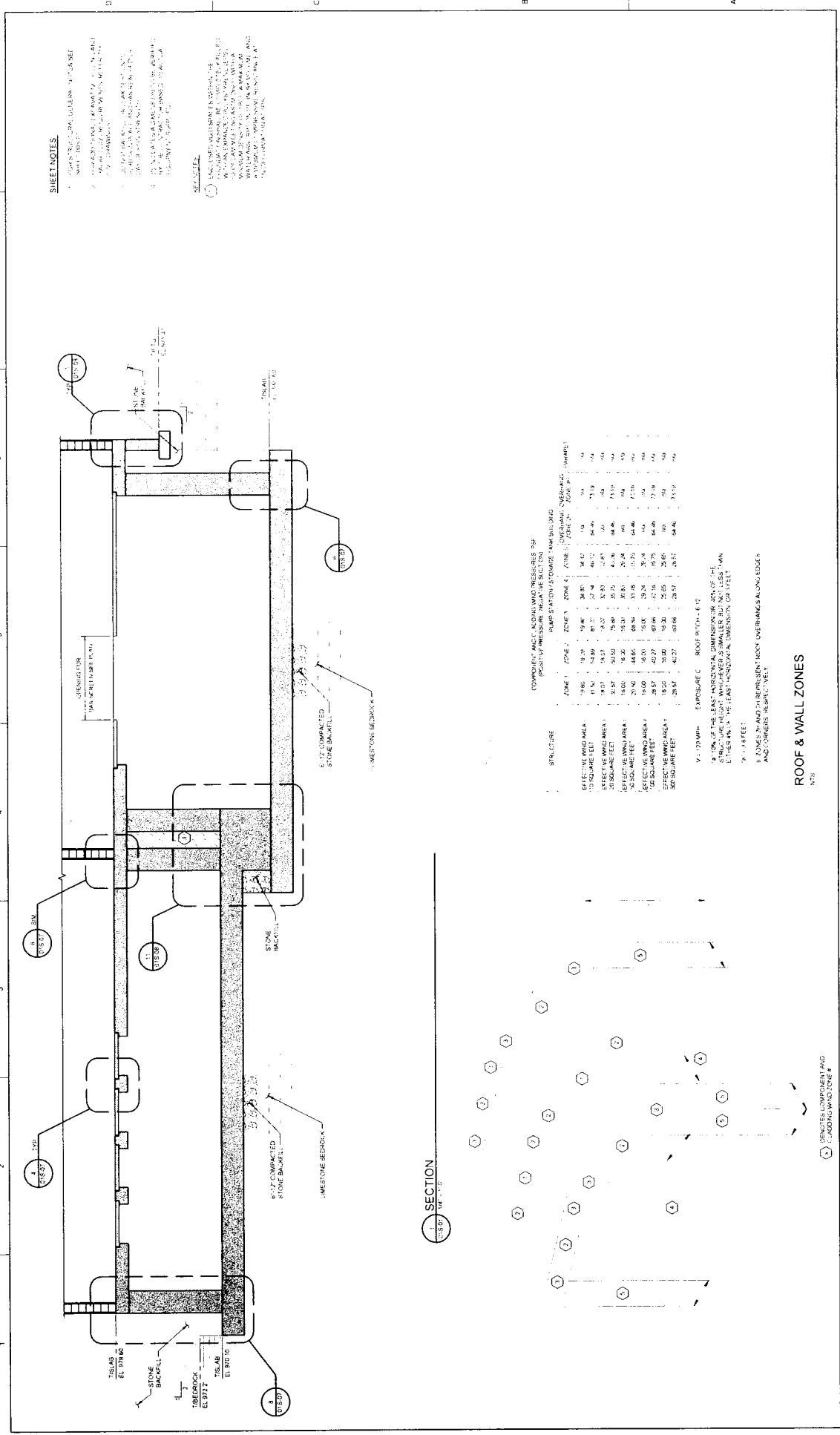
ISSUE	DATE	DESCRIPTION

PROJECT NUMBER: 100500P

SCALE: AS SHOWN

SHEET 01S-05





SHEET NOTES

1. CONSULT GENERAL NOTES AND SPECIFICATIONS.
2. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.
3. ALL MATERIALS SHALL BE AS SHOWN OR APPROVED BY THE ENGINEER.
4. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, MICHIGAN DEPARTMENT OF TRANSPORTATION.

REMARKS

1. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

2. ALL MATERIALS SHALL BE AS SHOWN OR APPROVED BY THE ENGINEER.

3. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, MICHIGAN DEPARTMENT OF TRANSPORTATION.

COMPOSITE AND WIND PRESSURES FOR POSITIVE PRESSURE WIND EXPOSURE

STRUCTURE	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9
EFFECTIVE WIND AREA	19.81	19.31	19.81	34.85	34.87	1.9	1.9	1.9

V = 120 MPH EXPOSURE C ROOF RATCH - R 12

NOTE: DIMENSIONS OF THE LEAST HORIZONTAL DIMENSION OR 1/4 OF THE STRUCTURE HEIGHT, WHICHEVER IS SMALLER BUT NOT LESS THAN EITHER 40% THE LEAST HORIZONTAL DIMENSION OR 1 FEET.

1. ZONES 1 AND 2 REPRESENT ROOF OVERHANGS ALONG EDGES AND CORNERS, RESPECTIVELY.

ROOF & WALL ZONES

PROJECT NUMBER: 19-0000000000

DESIGNED BY: J. HANSEN

CHECKED BY: J. HANSEN

DATE: 11/11/2019

ISSUE DATE: 11/11/2019

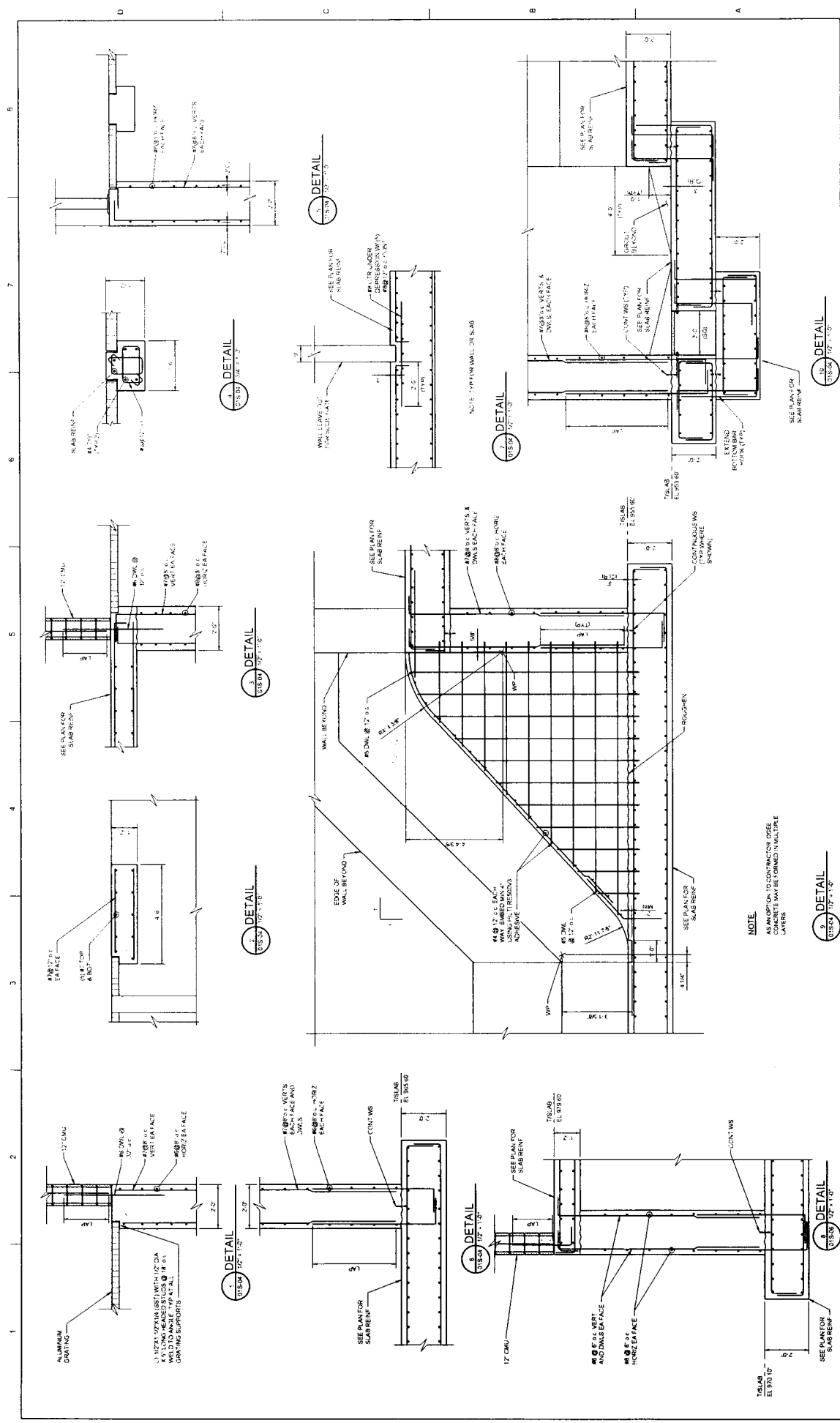
DESCRIPTION: PUMP STATION 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK



PUMP STATION OVERALL SECTIONS

SHEET 01S-06





PUMP STATION DETAILS

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2

PUMP STATION AND WET WEATHER STORAGE TANK

PROJECT MANAGER: P. BENTON HANSON

DESIGNED BY: [Signature]

CHECKED BY: [Signature]

DATE: 04/03/08

PROJECT NUMBER: 1006008P

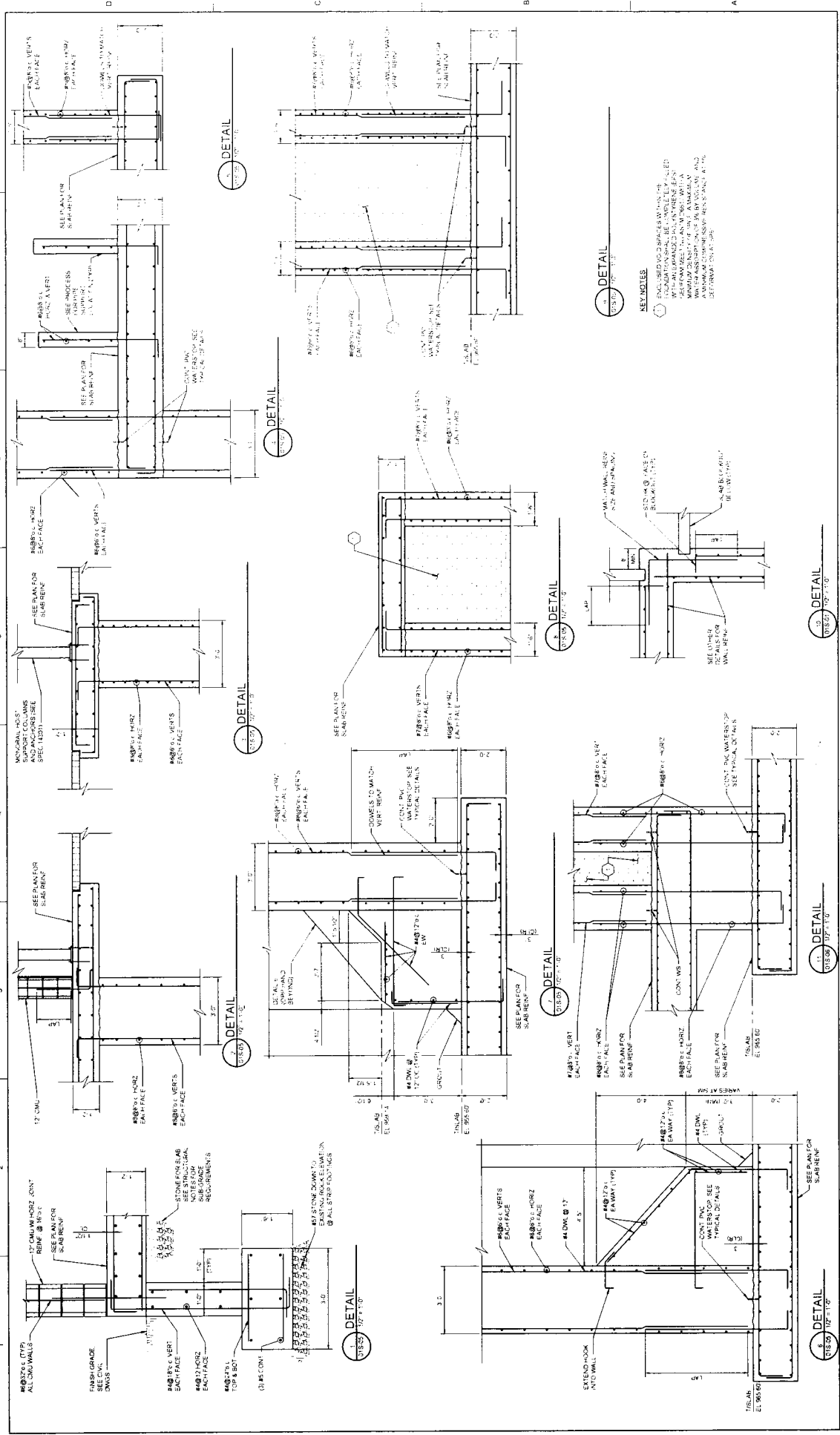
ISSUE DATE: [Blank]

DESCRIPTION: [Blank]

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

FILENAME: 01S-07.DWG

SHEET: 01S-07



KEY NOTES

1. ENCLOSED VENT SYSTEMS SHALL BE INSTALLED WITH AN APPROVED AIR WRENTE-LESS SYSTEM. ALL VENTS SHALL BE INSTALLED WITH AN APPROVED AIR WRENTE-LESS SYSTEM. ALL VENTS SHALL BE INSTALLED WITH AN APPROVED AIR WRENTE-LESS SYSTEM.

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PUMP STATION DETAILS

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

DATE: 12/12/10

FILE NAME: 12/12/10

SHEET: 015-08

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

H2R

PROJECT NUMBER: 7-10-100-1000

DESIGNED BY: J. BENTON-HARRIS

DRAWN BY: J. BENTON-HARRIS

CHECKED BY: J. BENTON-HARRIS

DATE: 12/12/10

ISSUE	DATE	DESCRIPTION

DETAIL 1/22/1.0

DETAIL 2/22/1.0

DETAIL 3/22/1.0

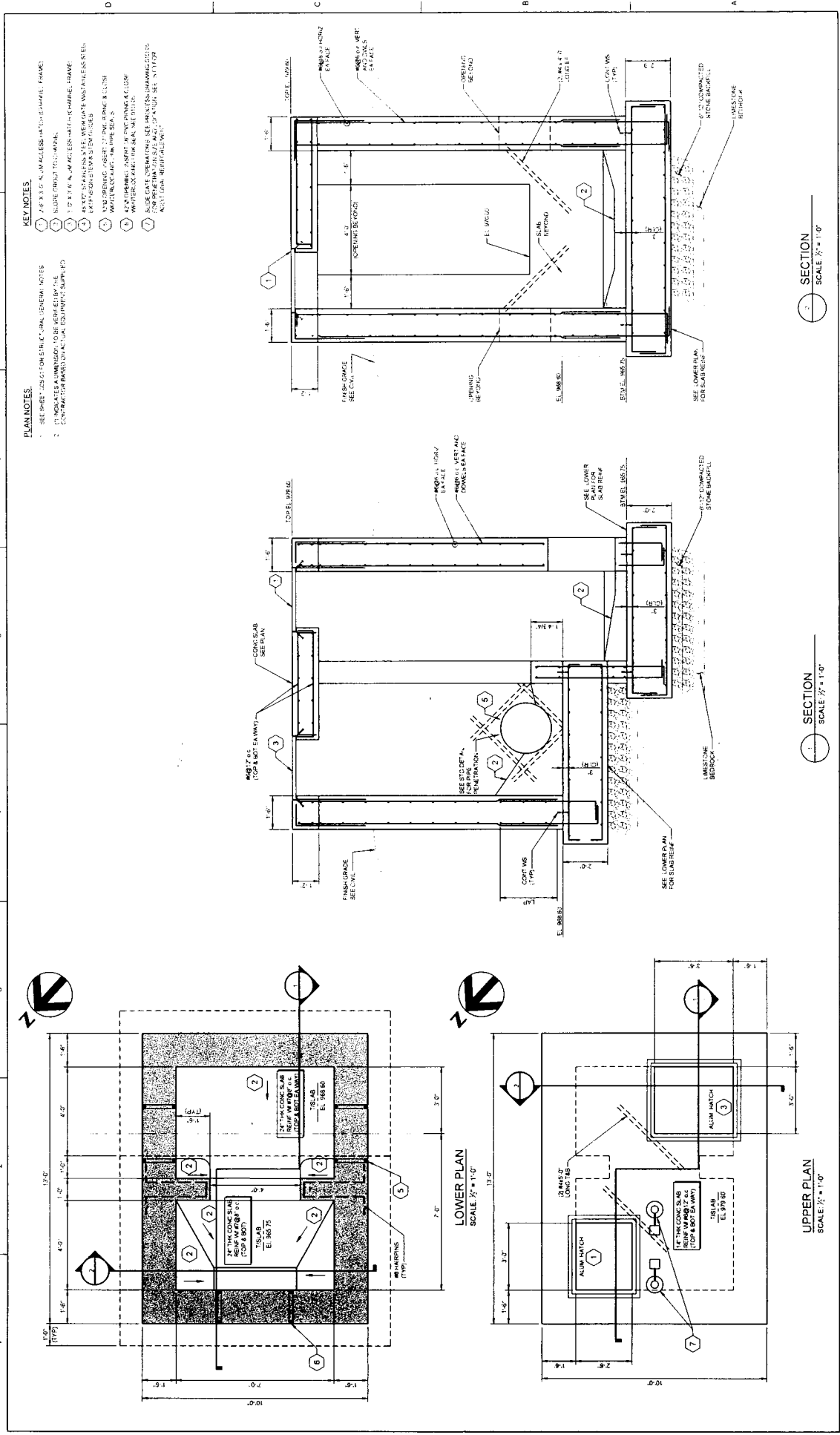
DETAIL 4/22/1.0

DETAIL 5/22/1.0

DETAIL 6/22/1.0

DETAIL 7/22/1.0

DETAIL 8/22/1.0



KEY NOTES:

- 1. 7.6 X 3.3 ALUM. ACCESS HATCH - SHIPPER FRAME;
- 2. SLIDE CONTACT TO CHANNEL;
- 3. 1.2 X 3.6 ALUM. ACCESS HATCH - CHANNEL FRAME;
- 4. 4.8 X 3.6 ALUM. ACCESS HATCH - CHANNEL FRAME;
- 5. 4.8 X 3.6 ALUM. ACCESS HATCH - CHANNEL FRAME;
- 6. 4.8 X 3.6 ALUM. ACCESS HATCH - CHANNEL FRAME;
- 7. 4.8 X 3.6 ALUM. ACCESS HATCH - CHANNEL FRAME;

PLAN NOTES:

- 1. SEE SHEET 205 FOR STRUCTURAL GENERAL NOTES
- 2. DIMENSIONS UNLESS OTHERWISE NOTED TO BE VERIFIED BY THE CONTRACTOR BASED ON ACTUAL EQUIPMENT SUPPLIED

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

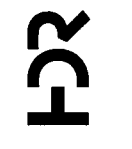
SECTION 1 SCALE 1/2" = 1'-0"

SECTION 2 SCALE 1/2" = 1'-0"

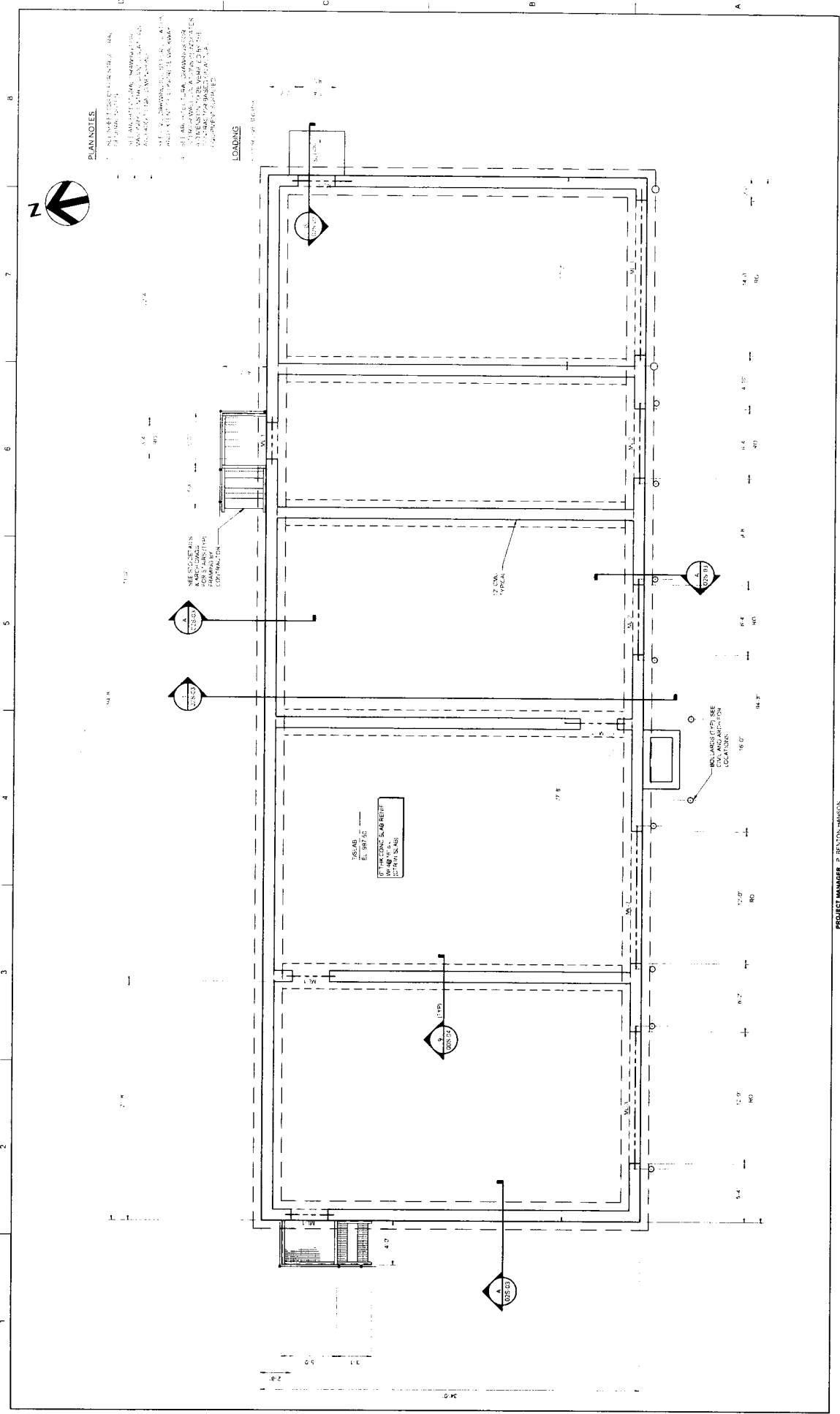
PROJECT MANAGER: P. BENSON, HANSEN
 DESIGNED BY: J. M. B. HANSEN
 CHECKED BY: J. M. B. HANSEN
 DATE: 01/15/14

PROJECT NUMBER: 1400000

ISSUE	DATE	DESCRIPTION



SHRINKAGE COMPENSATION
 01S-09



PLAN NOTES

1. SEE CONTRACT SCHEDULE FOR SCHEDULE CONSTRUCTION.
2. SEE CONTRACT SCHEDULE FOR SCHEDULE CONSTRUCTION.
3. SEE CONTRACT SCHEDULE FOR SCHEDULE CONSTRUCTION.
4. SEE CONTRACT SCHEDULE FOR SCHEDULE CONSTRUCTION.

LOADING

SEE SECTION FOR SCHEDULE CONSTRUCTION

WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

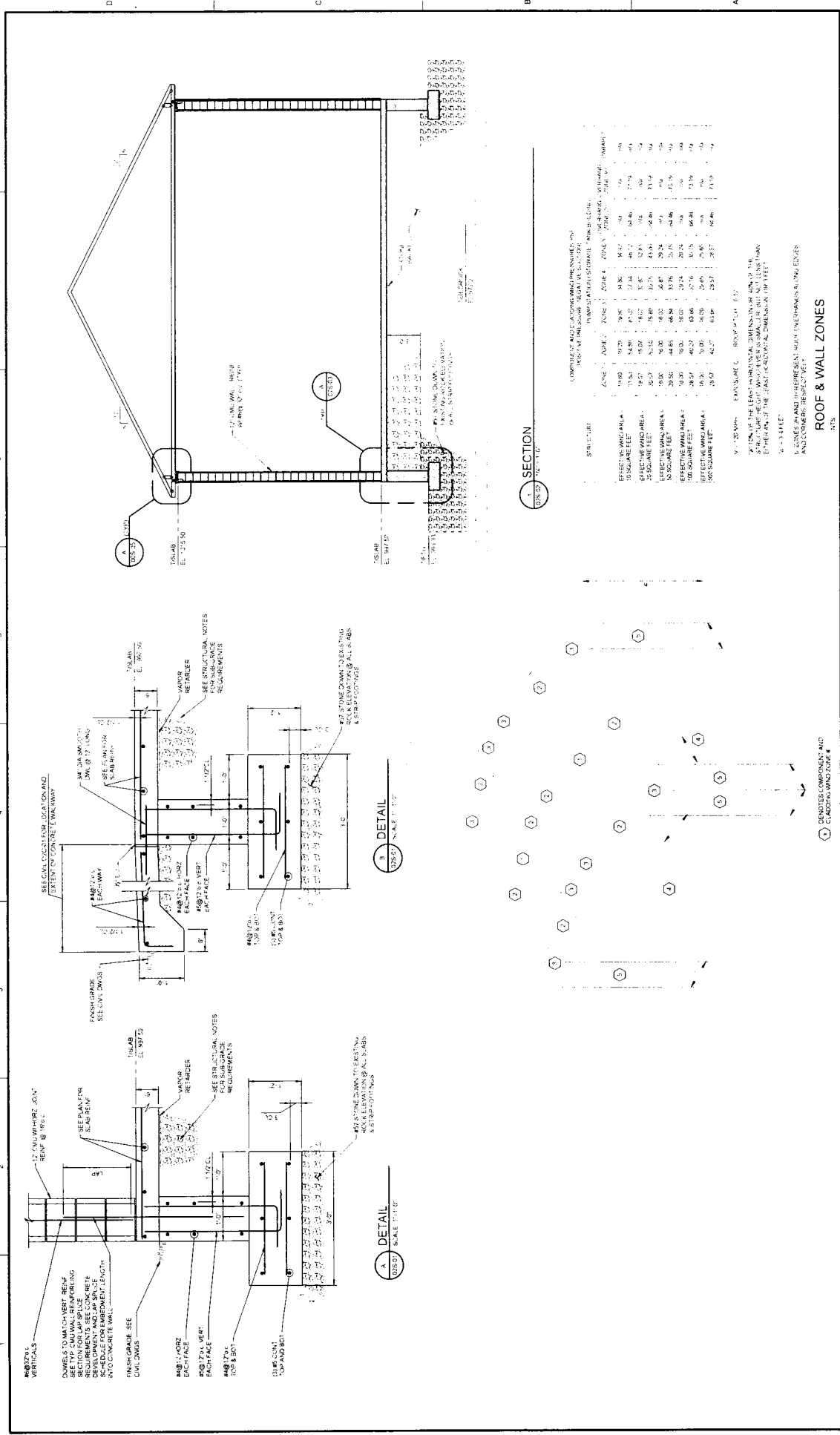
PROJECT MANAGER: BENSON, HANSON
 DESIGNED: M.T.T.
 DRAWN: D.R.G.
 CHECKED: M.E.V.
 QA/QC: G.A.C.

STORAGE TANK BUILDING FOUNDATION PLAN

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

FILENAME: 105-07
 SHEET: 02S-01

ISSUE	DATE	DESCRIPTION



COMPLETE AND CALCULATE DIMENSIONS AND HEIGHTS OF ALL WALLS, ROOFS, AND FLOOR SLABS.

ZONE	ADJ.	ZONE 1	ZONE 4	ZONE 7	ZONE 8	ZONE 9	ZONE 10
TOTAL WALL AREA	115.4	54.09	45.27	71.88	46.72	64.86	47.5
SQUARE FEET	12,950	5,890	4,970	7,920	5,120	7,150	5,150
EFFECTIVE WALL AREA	85.3	42.07	34.80	53.75	34.80	48.46	34.80
SQUARE FEET	9,280	4,520	3,750	5,800	3,750	5,200	3,750
EFFECTIVE WALL AREA	85.3	42.07	34.80	53.75	34.80	48.46	34.80
SQUARE FEET	9,280	4,520	3,750	5,800	3,750	5,200	3,750
EFFECTIVE WALL AREA	85.3	42.07	34.80	53.75	34.80	48.46	34.80
SQUARE FEET	9,280	4,520	3,750	5,800	3,750	5,200	3,750
EFFECTIVE WALL AREA	85.3	42.07	34.80	53.75	34.80	48.46	34.80
SQUARE FEET	9,280	4,520	3,750	5,800	3,750	5,200	3,750

V. 11/20/11
 PROJECT NO. 11-1111
 SHEET NO. 02S-03

WEST HICKMAN 7 WET WEATHER STORAGE TANK BUILDING IMPROVEMENTS

CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

ROOF & WALL ZONES

11/20/11

PROJECT NUMBER: 11-1111
 DRAWN BY: JMG
 CHECKED BY: MCV
 DATE: 04/02/11

ISSUE DATE: 11/20/11
 DESCRIPTION: STORAGE TANK BUILDING SECTIONS

PROJECT MANAGER: BENYON HANSON

DESIGNED BY: MIT
 DRAWN BY: JMG
 CHECKED BY: MCV
 DATE: 04/02/11

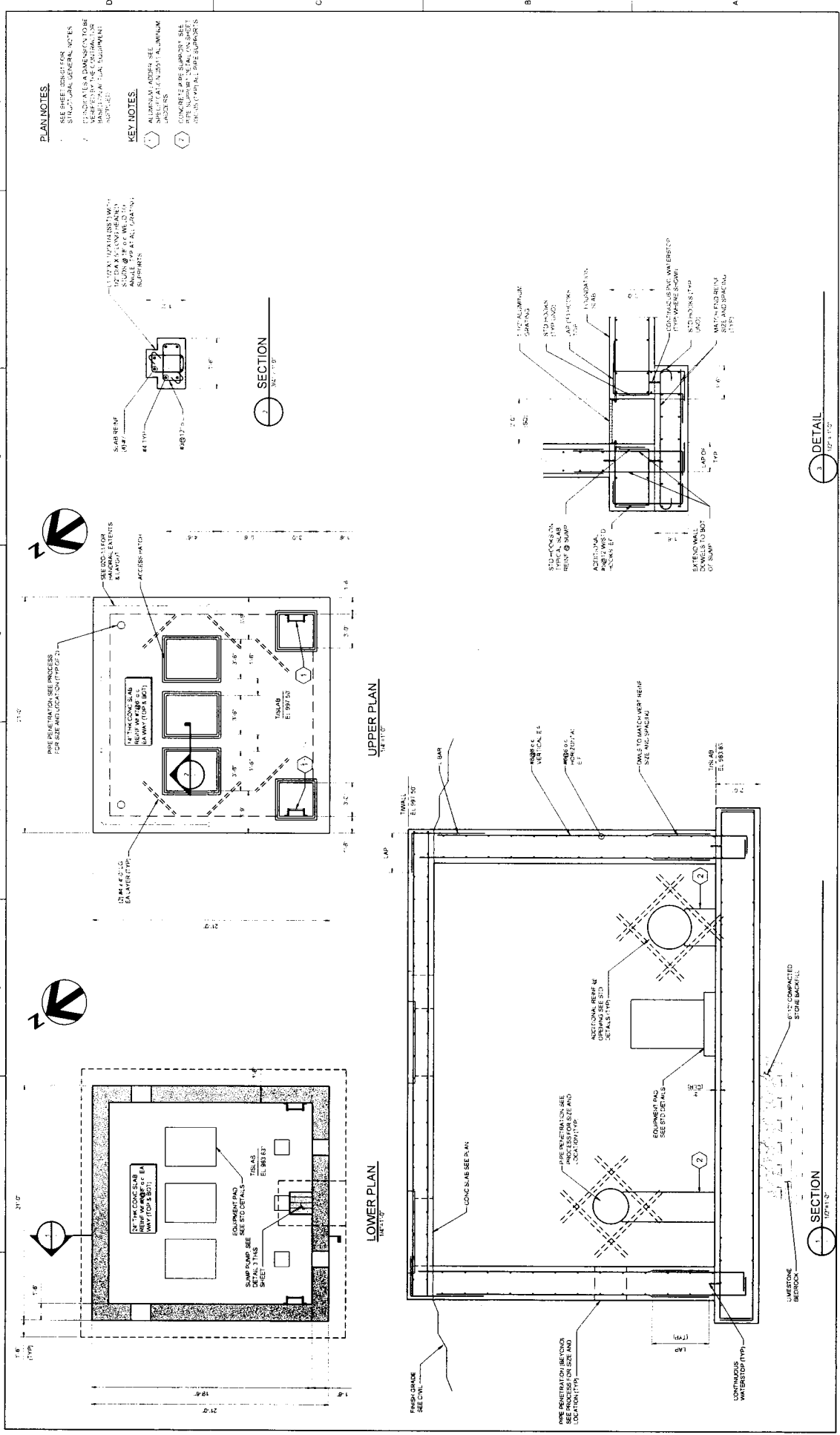
PROJECT NUMBER: 11-1111
 ISSUE DATE: 11/20/11
 DESCRIPTION: STORAGE TANK BUILDING SECTIONS

SCALE: AS SHOWN

PLI NUMBER: 11-1111

SHEET: 02S-03





WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

H2R

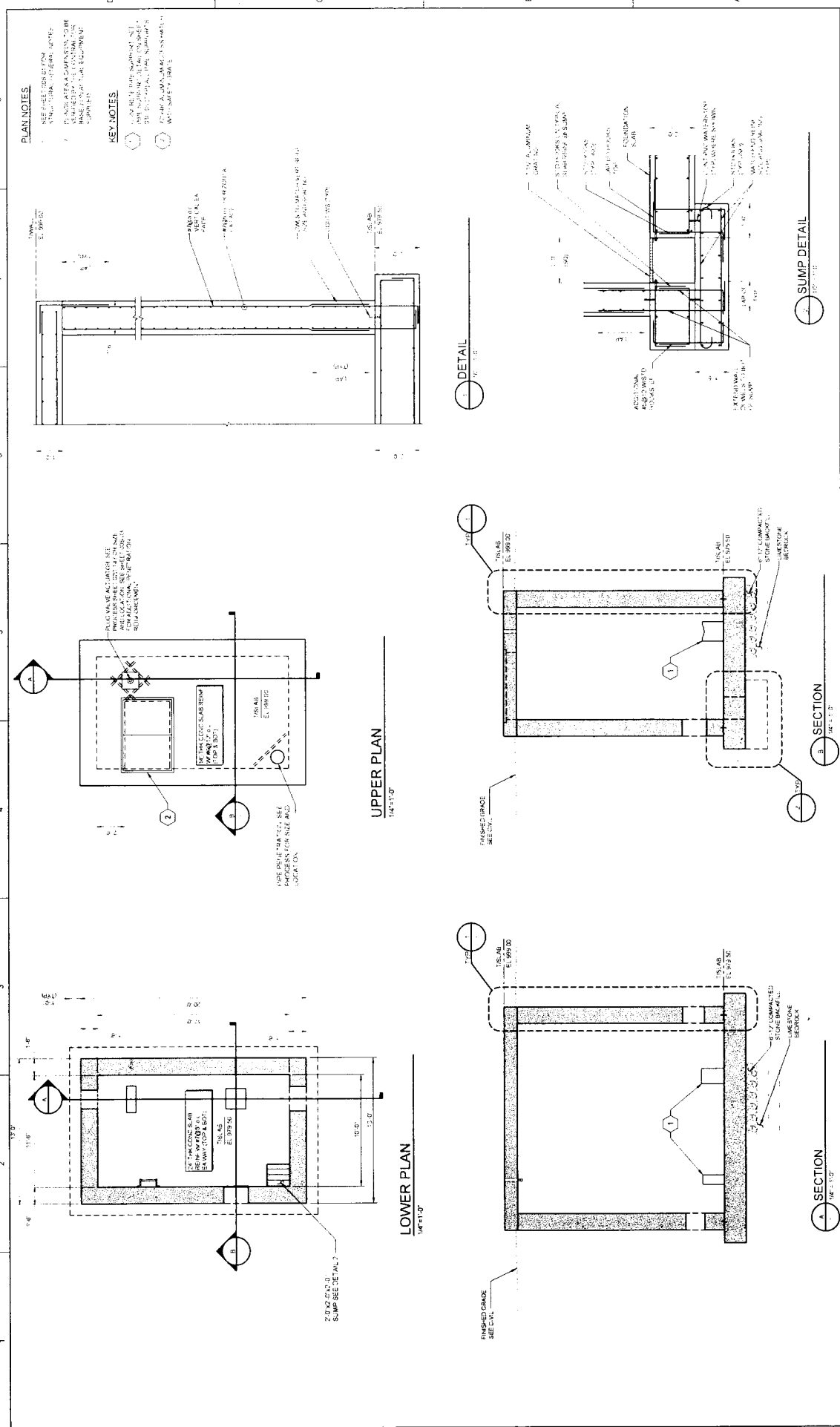
PROJECT MANAGER: BENSON HANSON
 DESIGNED BY: []
 DRAWN BY: GRC
 CHECKED BY: GRC
 PROJECT NUMBER: 1010008

MIXING PUMP STATION PLANS AND SECTIONS

SCALE: 1" = 10'-0"

FILE NAME: 1010008-2011-01-10

SHEET: 025-04



ISSUE DATE DESCRIPTION

PROJECT MANAGER: P. BEYON-HANSEN
 DESIGNED BY: MIT
 DRAWN BY: CHG
 CHECKED BY: MEM
 DATE: 03/13/2013
 PROJECT NUMBER: 1100009A



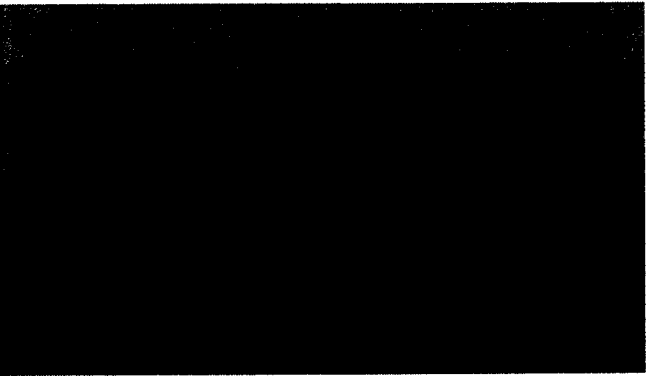
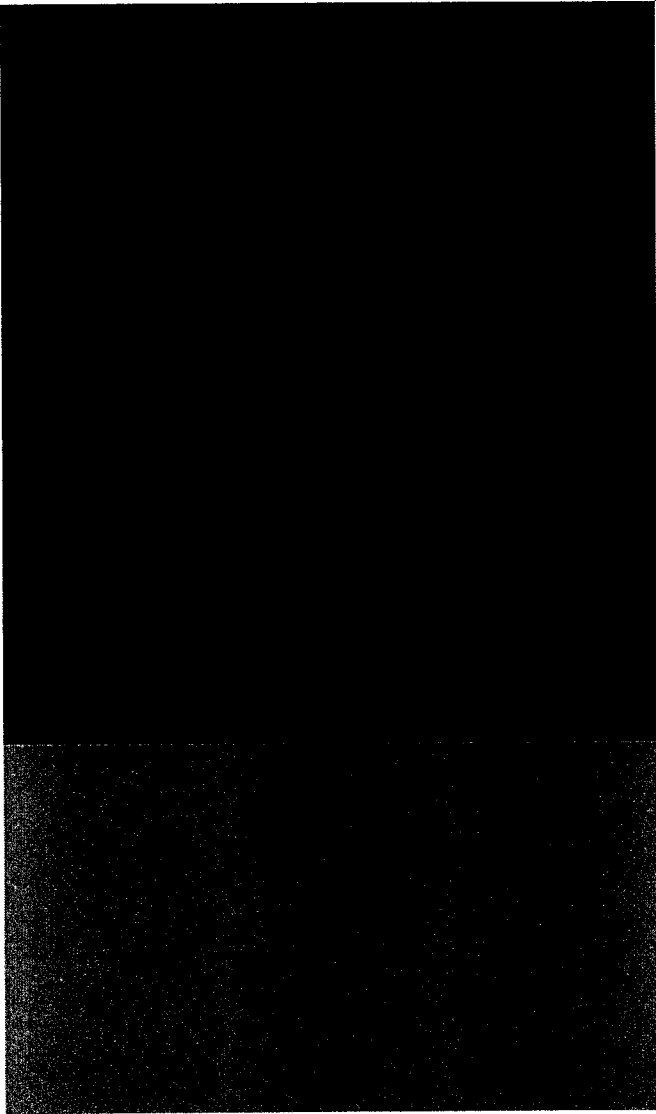
WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

FLOW CONTROL VAULT PLAN AND SECTIONS




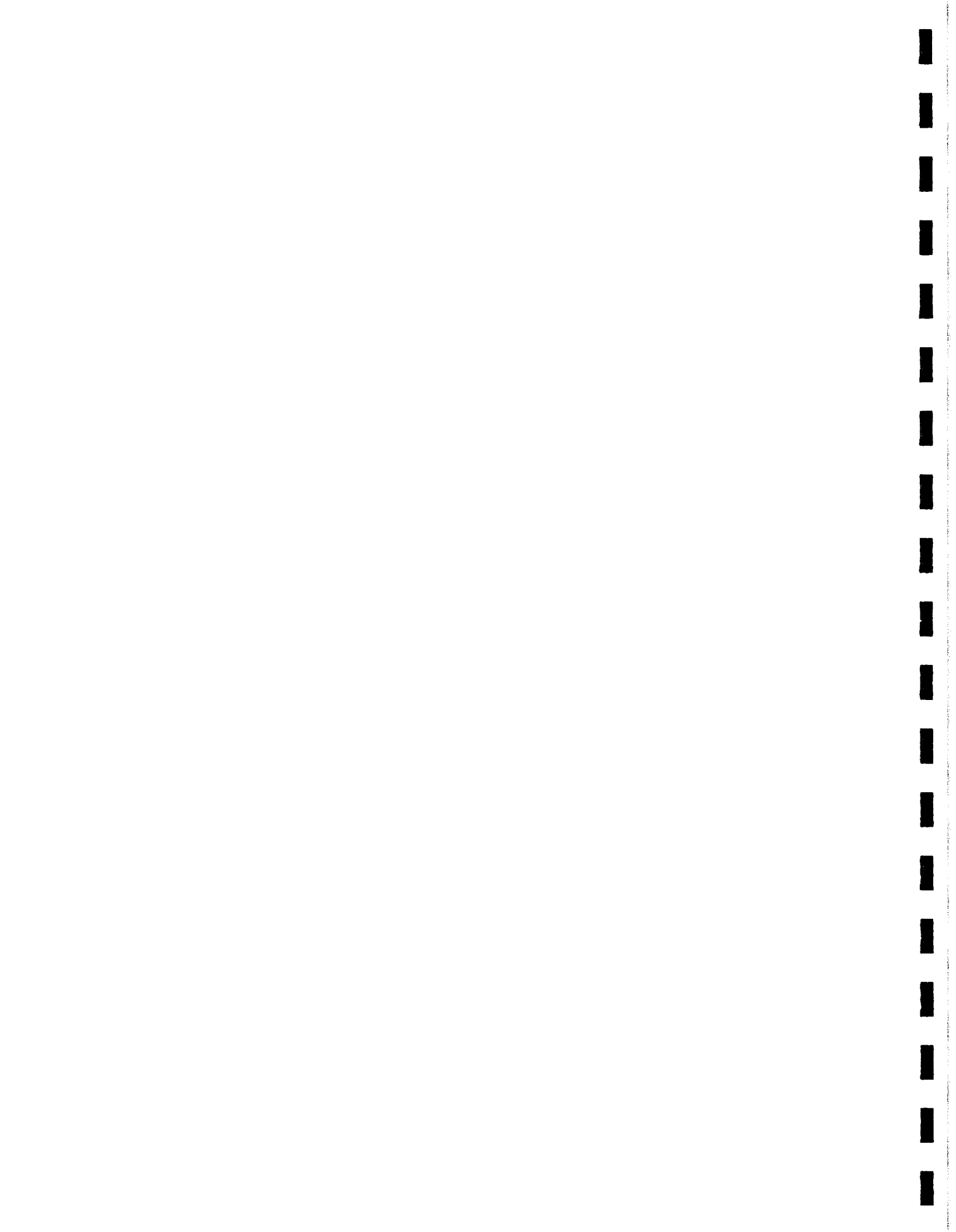
SHEET 02S-05





Appendix B
Boring Logs and
Laboratory Testing
Results





SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
<p>COARSE GRAINED SOILS</p> <p>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</p>	<p>GRAVEL AND GRAVELLY SOILS</p> <p>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</p>	<p>CLEAN GRAVELS</p> <p>(LITTLE OR NO FINES)</p>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
		<p>GRAVELS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
	<p>SAND AND SANDY SOILS</p> <p>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</p>	<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		<p>CLEAN SANDS</p> <p>(LITTLE OR NO FINES)</p>		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SM	SILTY SANDS, SAND - SILT MIXTURES	
		<p>SANDS WITH FINES</p> <p>(APPRECIABLE AMOUNT OF FINES)</p>		SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
		<p>FINE GRAINED SOILS</p> <p>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</p>	<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT LESS THAN 50</p>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL			ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY		
<p>SILTS AND CLAYS</p> <p>LIQUID LIMIT GREATER THAN 50</p>			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS		
			CH	INORGANIC CLAYS OF HIGH PLASTICITY		
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS		
<p>HIGHLY ORGANIC SOILS</p>				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



SUBSURFACE INVESTIGATION
BORING LOG

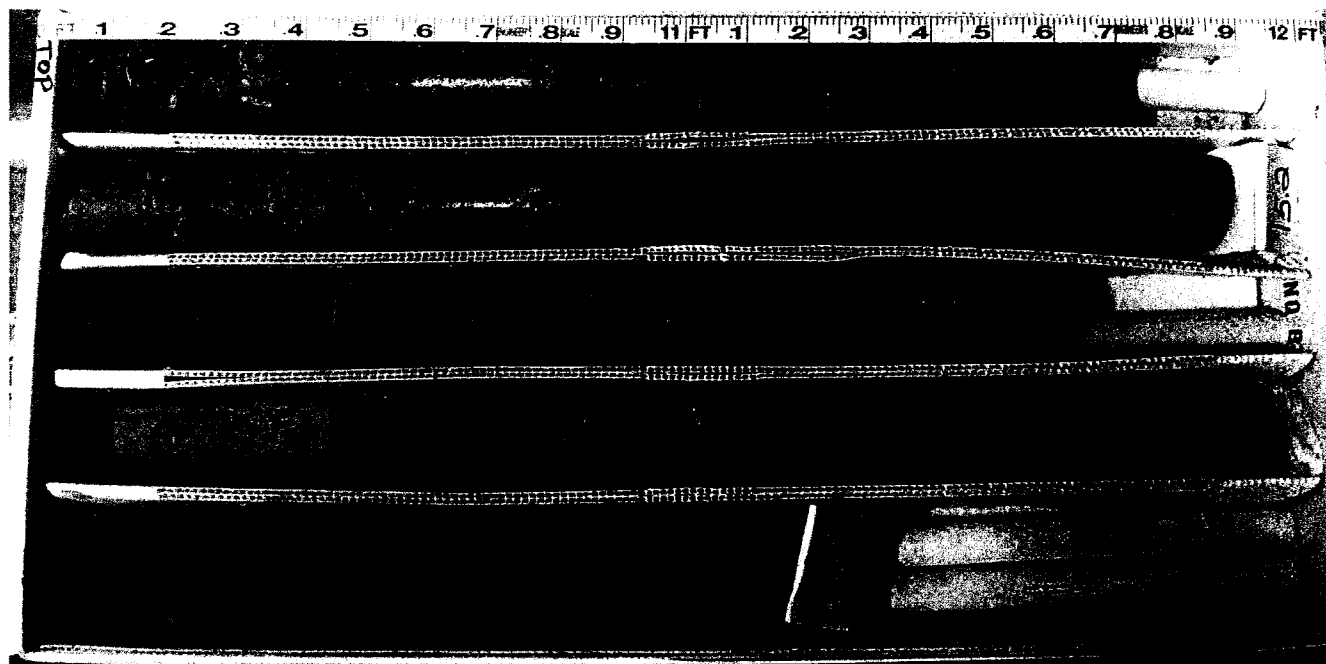
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01437°</u>	Longitude <u>84.45955°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>983.6 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>4/12/2017</u>	Completed <u>4/12/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-1</u>	Total Depth <u>20 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec. (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev. = 983.6 ft					
		Brown clay and boulders (possible fill).					
5		Brown, clayey GRAVEL with sand (GC).	SS-1	5.0 6.5	0.8	3-2-3	SPT
10			SS-2	10.0 10.5	0.2	50/0.5--	SPT
		Auger Refusal at 11.6', Begin Coring in Limestone.	SS-3	11.6	0.0	50/0.1--	SPT
15		Light gray, gray, fine to medium crystalline, fossiliferous with bioclastic, calcareous, thin shale beds, fresh, LS=75%, SH=25%.	Core-1	15.2	3.6	100	75
20		Limestone: Dark gray-gray, fine to medium crystalline, thinly bedded with calcareous, bioclastic shale lenses, clay seams @ 18.7'-19.0' & 19.1'-19.2', LS=40%, SH=60%	Core-2	20.0	4.7	98	83
		Boring Terminated at 20.0' (Elev. 963.6).					
25		No topsoil, boring located on artificial fill.					
30		Note: Low maximum stress failure of RS-F at 16.9'-17.3' due to near vertical rippled shale laminae intersecting horizontal shale discontinuity.					
35							
40							
45							
50							
55							
60							

CORE PHOTOGRAPHIC RECORD

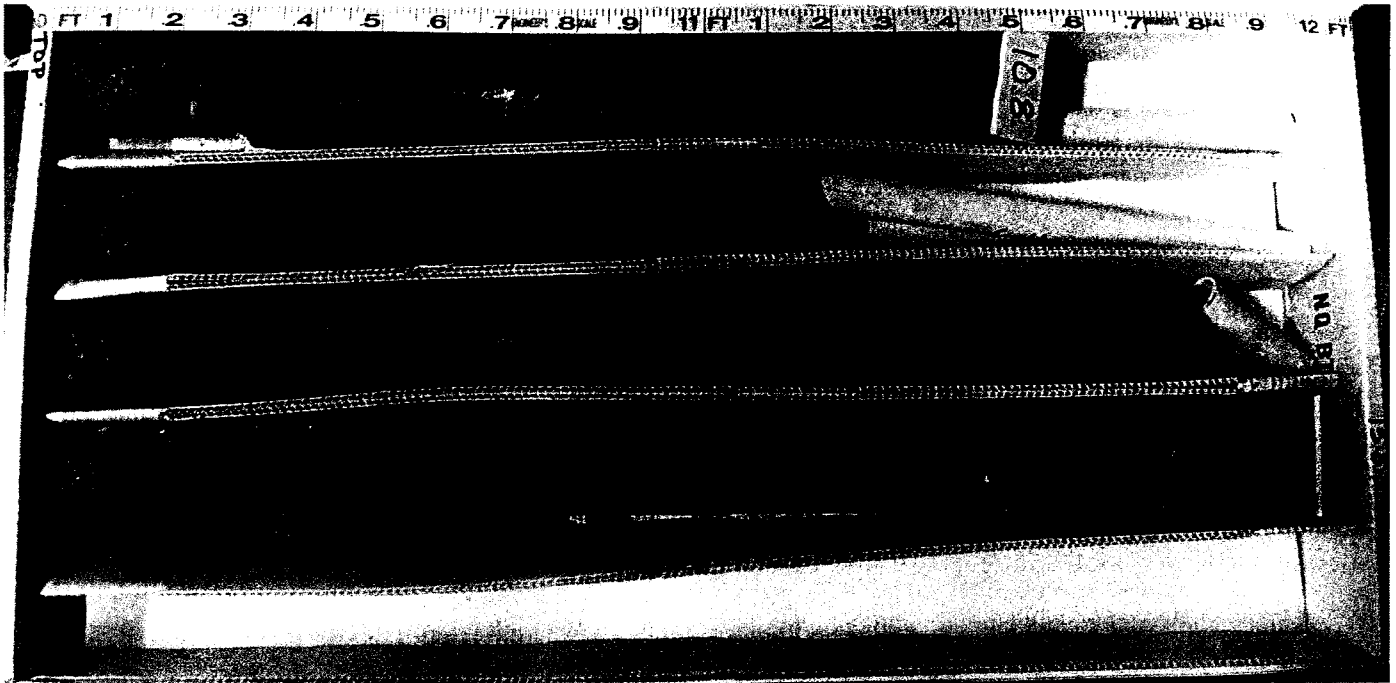
West Hickman 7
Wet Weather Storage Improvements



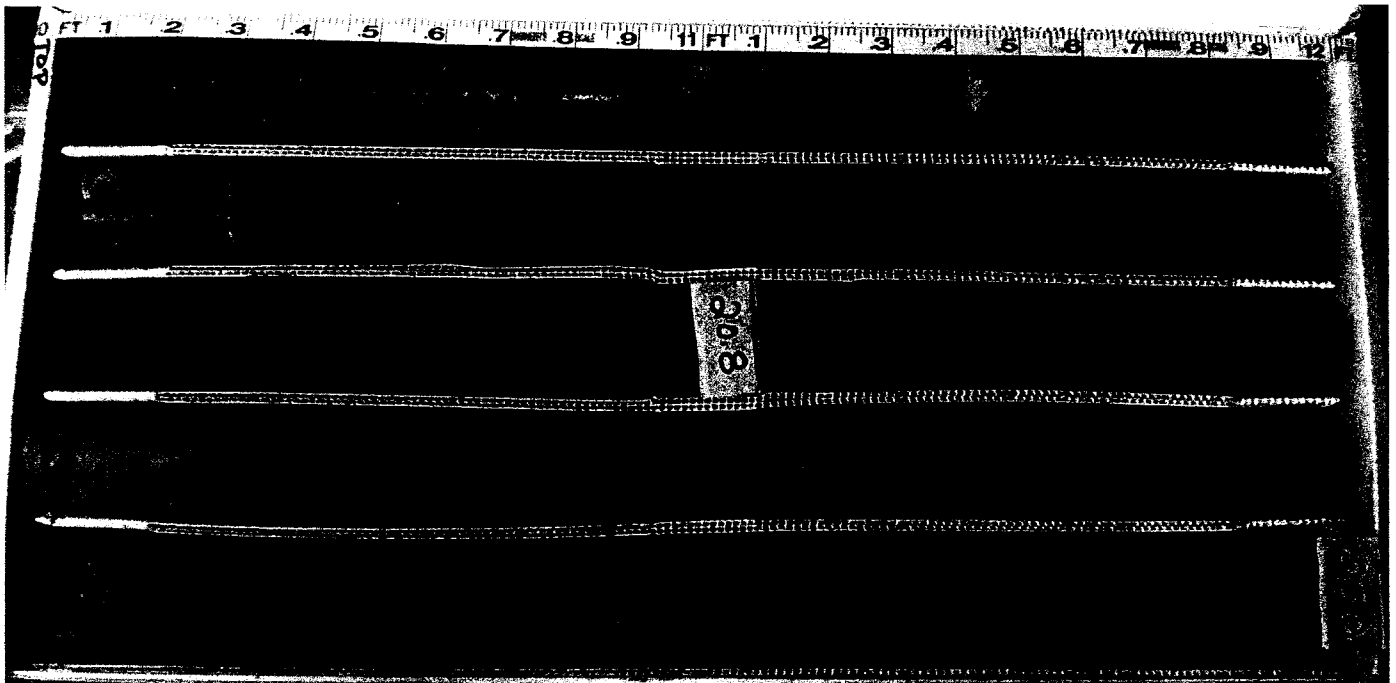
B-1 - Box 1 of 1

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



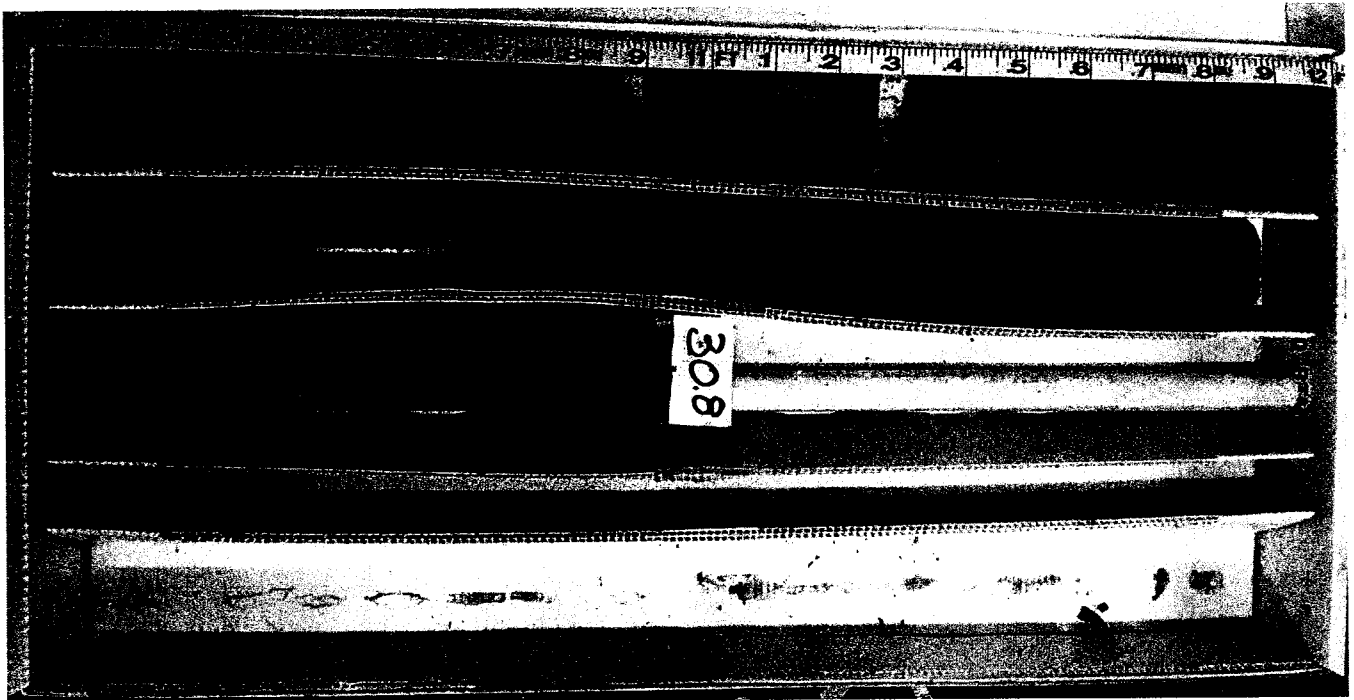
B-2 - Box 1 of 4



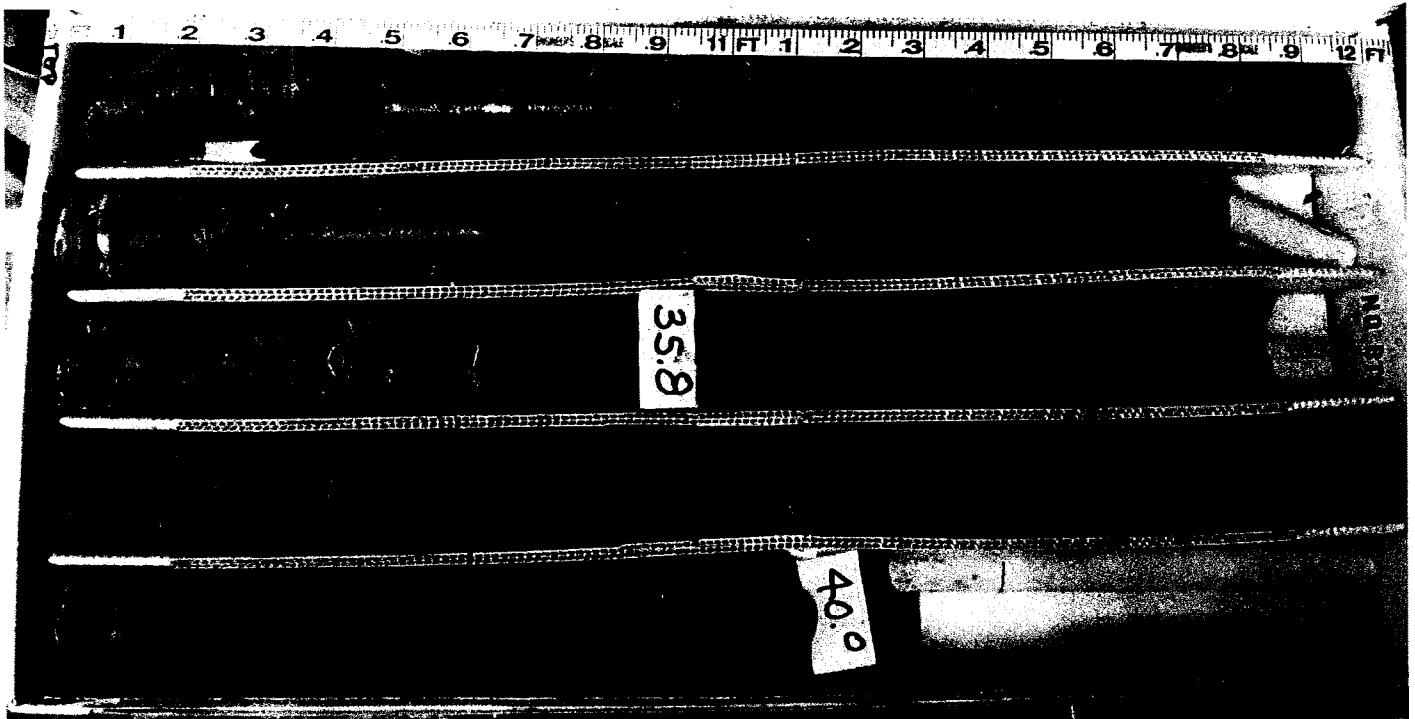
B-2 - Box 2 of 4

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-2 - Box 3 of 4



B-2 - Box 4 of 4



SUBSURFACE INVESTIGATION
BORING LOG

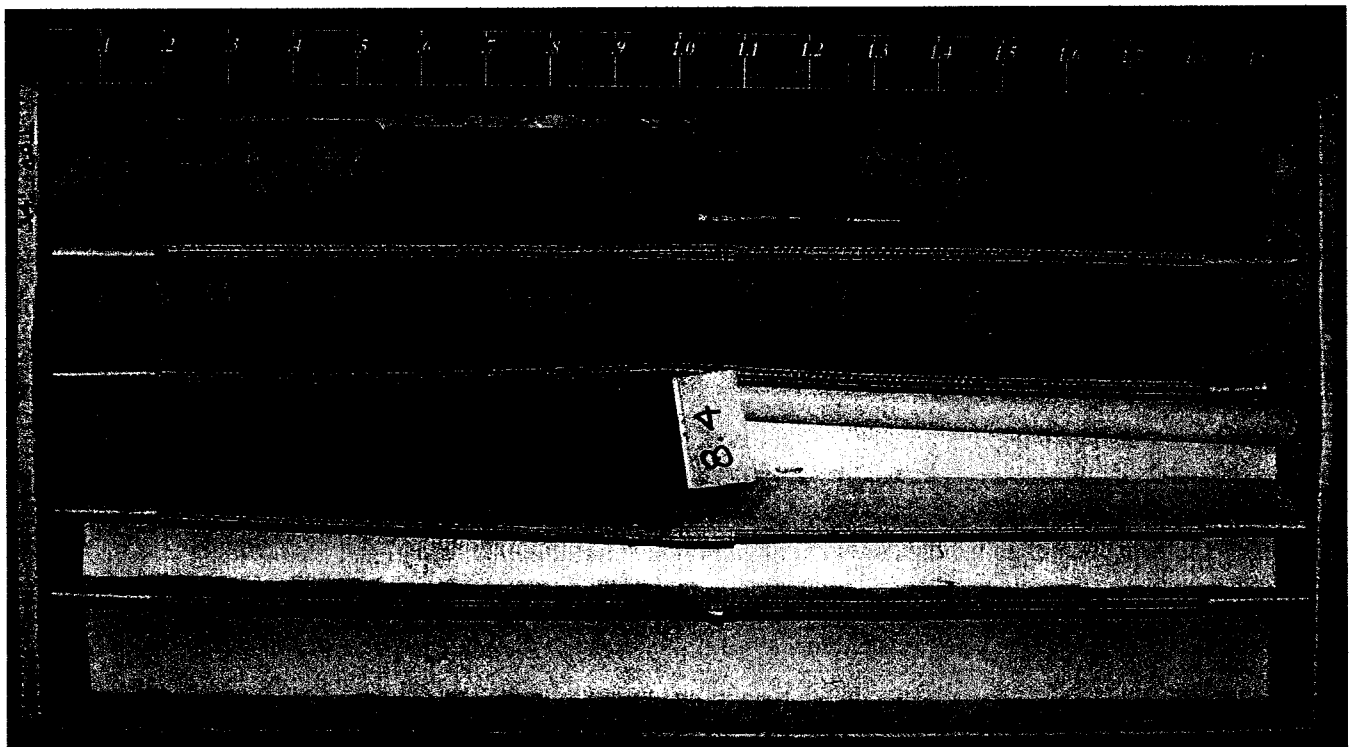
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01381^o</u>	Longitude <u>84.45914^o</u>	
County <u>Fayette</u>	Location <u>NA</u>		
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>987.4 ft</u>		
Job No. <u>10055008</u>	Dated Started <u>4/12/2017</u>	Completed <u>4/12/2017</u>	
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>	
Hole Number <u>B-3</u>	Total Depth <u>8.4 ft.</u>	Depth to Water <u>NA</u>	Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec. (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 987.4 ft					
		Topsoil 0.4'					
		Brown clay with rock fragments (possible fill). 3.4'		3.4			
5		Auger Refusal at 3.4', Begin Coring in Limestone.					
		Gray, blue-gray, brown stain, fine to coarse grain w/beds whole fossils, moderately weathered, moderately hard, very thinly bedded, clay/shale laminations & beds calcareous, fossiliferous. 6.9'	Core-1	8.4	4.8	96	40
10		clay seams 5.9', 6.4', 6.6', 6.8'-6.9'					
15		Limestone: Dark gray, gray, traces black, medium to coarse grain w/silty shale matrix, moderately weathered, moderately to medium hard, pebbles to beds of limestone, fossiliferous, silty shale, calcareous, LS=60%, SH=40%.					
20		clay seam 7.2', 8.1'-8.2'; 85° joint (discontinuous); water stain 5.6'-5.9'					
		Boring Terminated at 8.4' (Elev. 979.0).					
		RS-C taken from 73.6'-73.9'					
25							
30							
35							
40							
45							
50							
55							
60							

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-3 - Box 1 of 1



SUBSURFACE INVESTIGATION
BORING LOG

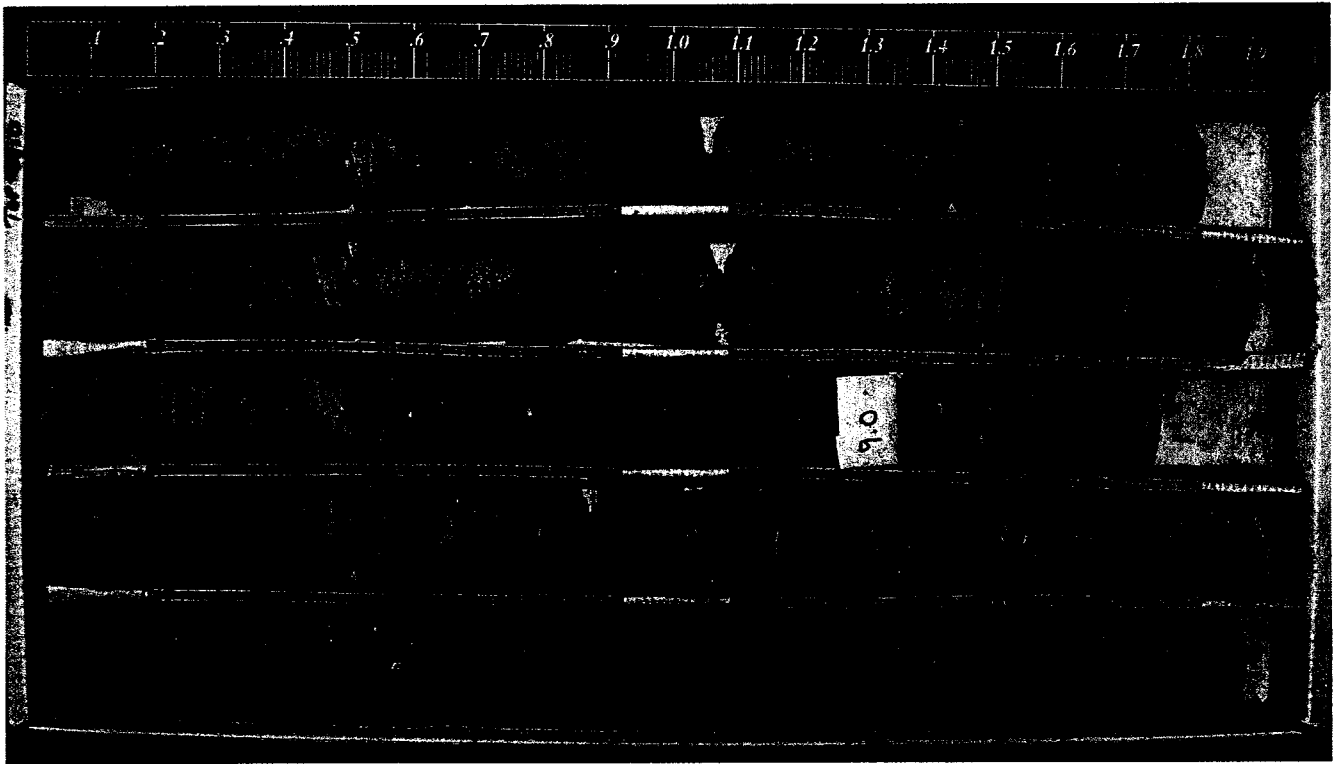
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01381 °</u>	Longitude <u>84.45914 °</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>987.4 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>6/20/2017</u>	Completed <u>6/20/2017</u>
Driller <u>F. Woodard</u>	Logged by <u>F. Woodard</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-3A</u>	Total Depth <u>24 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

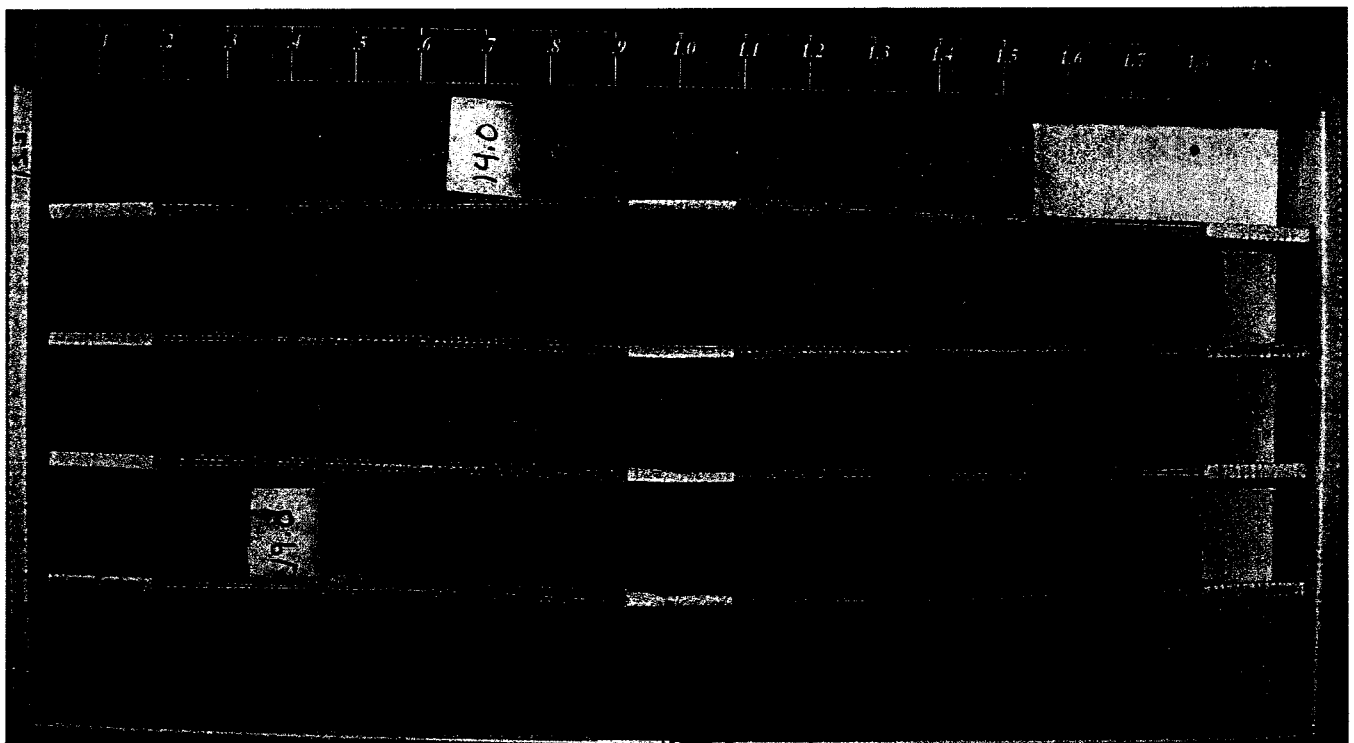
Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 987.4 ft					
		Topsoil 0.4' Brown clay with rock fragments (possible fill).					
5		Auger Refusal at 4.0', Begin Coring in Limestone.		4.0			
10		Gray, gray-blue, brown stain near discontinuities, fine to medium grain, slightly weathered seams (clay & fragments), very thin to thinly bedded, clay seams, calcareous shale laminae, fossiliferous (fragmented). clay seams 4.2', 4.5', 4.7', 5.0'-5.1', 5.5', 6.3', 6.6'-6.7', 6.9', 7.3'-7.4', 7.7'-7.8', 7.9'; 3 0°-10° bedding discontinuities	Core-1		5.0	100	44
15		Limestone: Dark gray, gray, black, medium to coarse grain beds & pebbles w/silty shale matrix, very fossiliferous, shale matrix calcareous & whole fossils, shale beds to 4", nodular texture, fresh w/seams severely weathered (clay), LS=60%, SH=40%.	Core-2		5.0	100	68
20		clay seams 9.1', 10.5'-10.6', 19.5'-19.6', 21.6'; 17 0°-10° bedding discontinuities; mechanical break at 24.5'	Core-3		5.0	100	90
25		Boring Terminated at 24.0' (Elev. 963.4).	Core-4		5.0	100	78

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



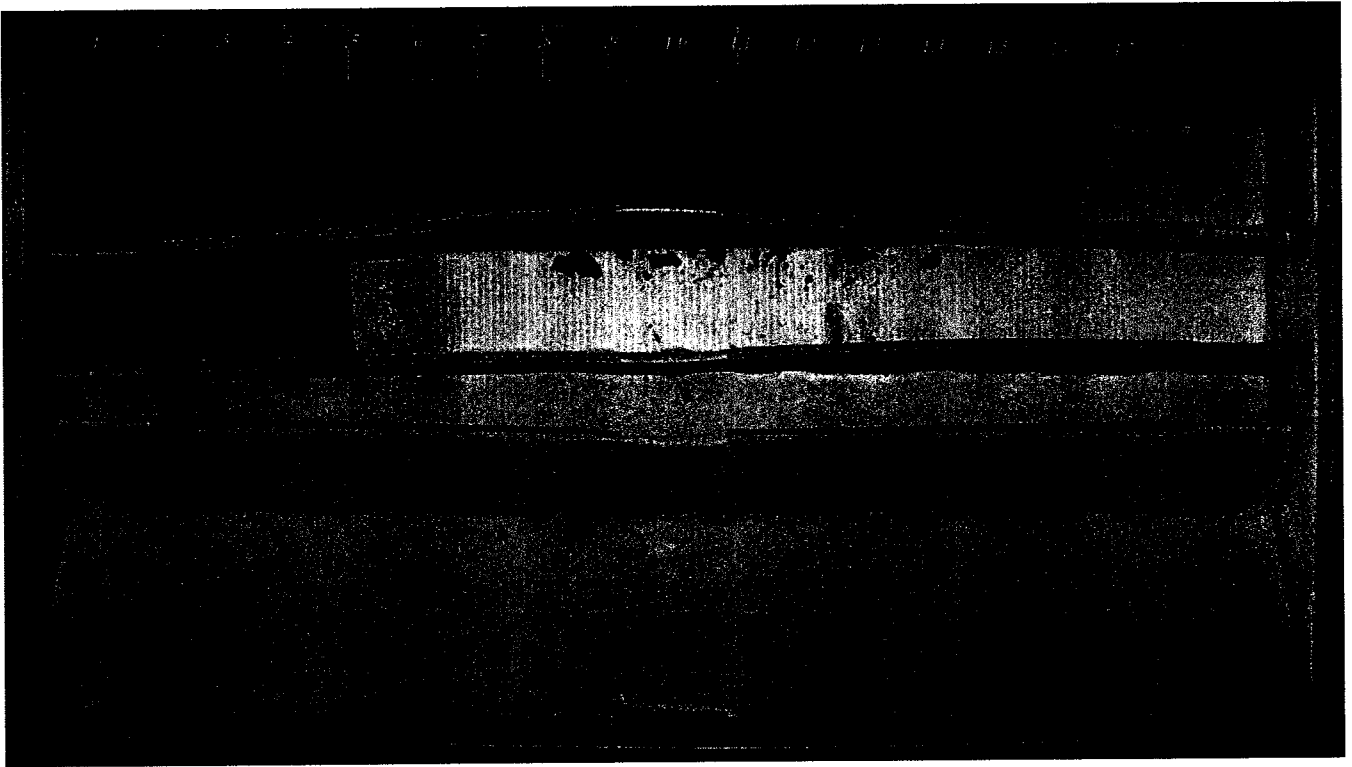
B-3A - Box 1 of 3



B-3A - Box 2 of 3

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-3A - Box 3 of 3



SUBSURFACE INVESTIGATION
BORING LOG

Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01372°</u>	Longitude <u>84.45884°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>		Surface Elevation <u>994.3 ft</u>
Job No. <u>10055008</u>	Dated Started <u>4/12/2017</u>	Completed <u>4/12/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>Dry</u>
Hole Number <u>B-4</u>	Total Depth <u>1.7 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev. = 994.3 ft					
		Topsoil 0/3 1/2					
		Brown clay with rock fragments (possible fill). Auger Refusal & Boring Terminated at 1.7' (Elev. 992.6).					
5							
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55							
60							



SUBSURFACE INVESTIGATION
BORING LOG

Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01313^o</u>	Longitude <u>84.45759^o</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>1008.1 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>4/12/2017</u>	Completed <u>4/12/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>Dry</u>
Hole Number <u>B-5</u>	Total Depth <u>10.7 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 1008.1 ft					
		Topsoil 0.5' Brown clay with rock fragments (possible fill).					
5							
10		Auger Refusal & Boring Terminated at 10.7' (Elev. 997.4). 10.7'					
15							
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60							



SUBSURFACE INVESTIGATION
BORING LOG

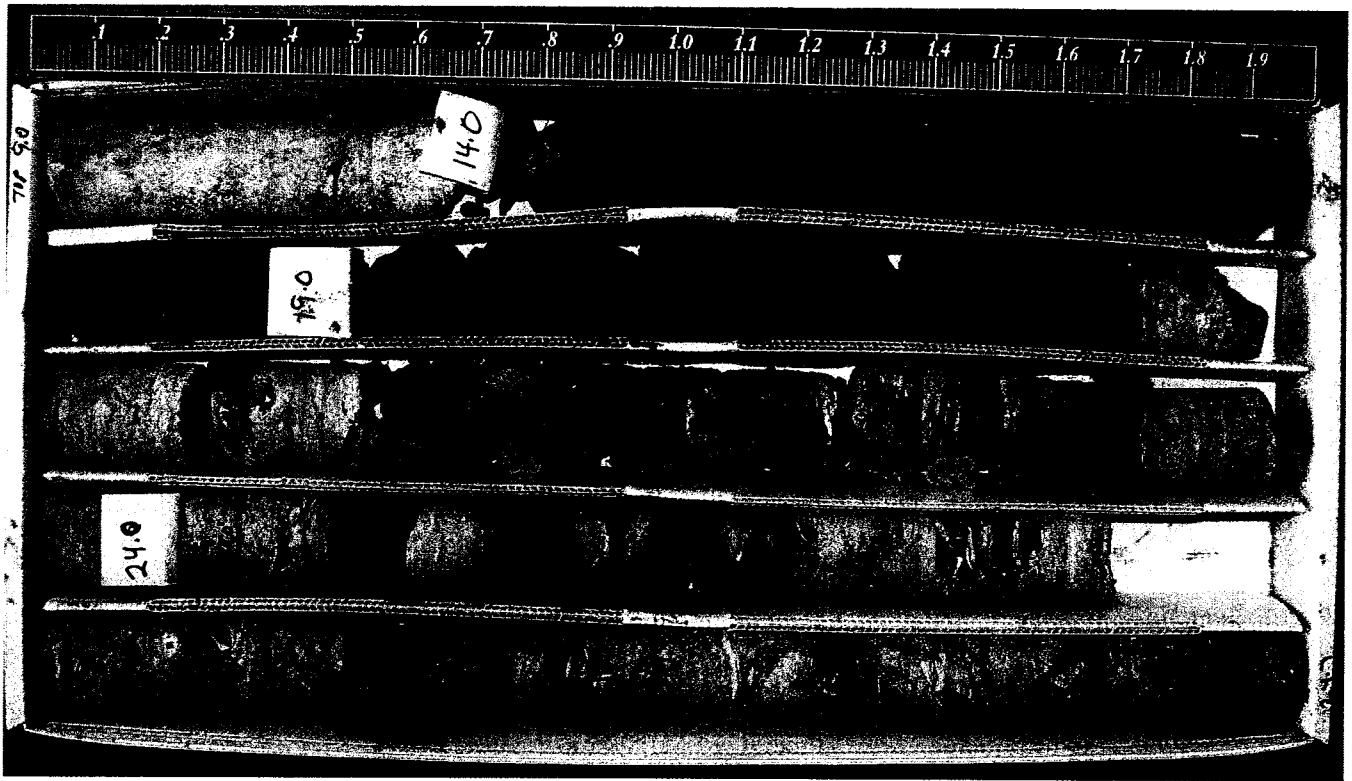
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01313°</u>	Longitude <u>84.45759°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>1008.1 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>6/20/2017</u>	Completed <u>6/20/2017</u>
Driller <u>F. Woodard</u>	Logged by <u>F. Woodard</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-5A</u>	Total Depth <u>39 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

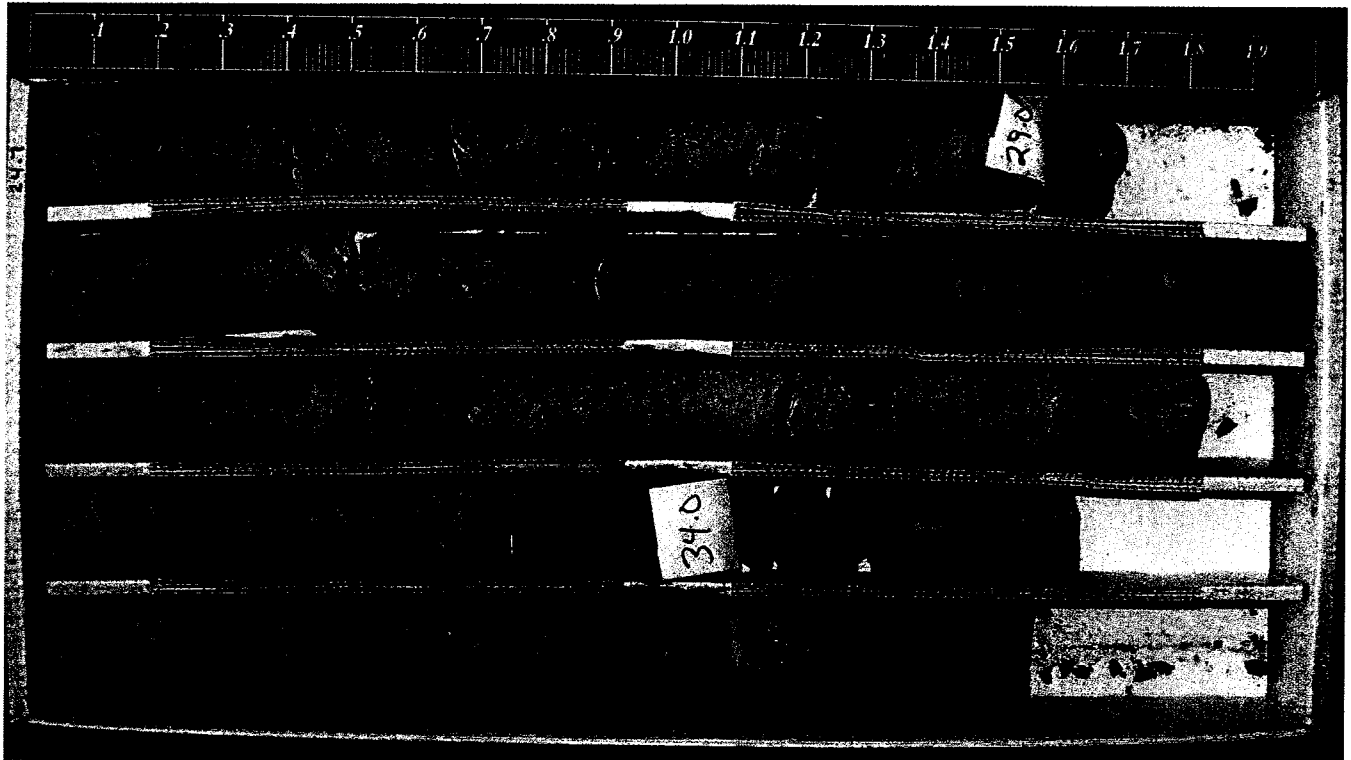
Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec. (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev. = 1008.1 ft					
		Topsoil					
		Brown clay with rock fragments (possible fill).					
5							
10		Auger Refusal at 9.0', Begin Coring in Fill.		9.0			
		Limestone cobble (8" diameter), fossiliferous.	Core-1		0.7	14	0
		Clay: Brown-orange-red, firm to stiff, low to medium plasticity, grains & granules.	Core-2	14.0	1.8	36	0
15							
20							
		Limestone: Coarse gravel & cobbles with clay, fossiliferous.	Core-3	19.0	3.7	74	0
		Artificial fill base at 22.7'.					
25		Limestone: Brown, severely weathered shale (clay) with gray, fine grain limestone laminations grading into gray, dark gray, black, fine to coarse grain beds & cobbles in shale matrix, fresh with few severely weathered shale (clay) seams, shale matrix calcareous & fossiliferous.	Core-4	24.0	5.0	100	68
30		clay seams 22.7'-23.63', 24.2'-24.3', 24.4'-24.5', 24.7'-24.9', 25.9'-26.0'; 5 0°-10° bedding discontinuities	Core-5	29.0	5.0	100	90
35			Core-6	34.0	5.0	100	80
40		Shale: Dark gray, calcareous, fresh to moderately weathered, fossiliferous, limestone pebbles.		39.0			
		clay seam 38.7'-38.8'					
		Boring Terminated at 39.0' (Elev. 969.1).					
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50							
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60							

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



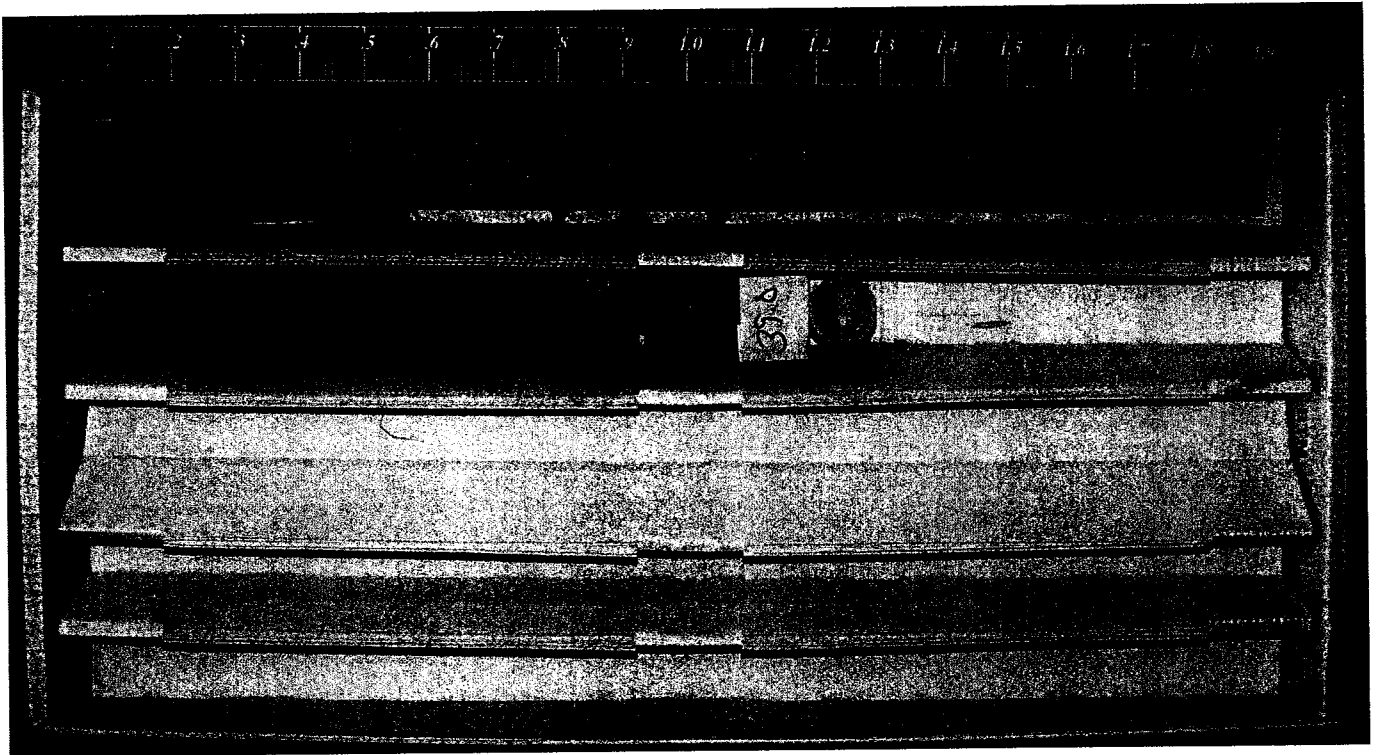
B-5A - Box 1 of 3



B-5A - Box 2 of 3

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-5A - Box 3 of 3



SUBSURFACE INVESTIGATION
BORING LOG

Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01314^o</u>	Longitude <u>84.45704^o</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u> Surface Elevation <u>993.9 ft</u>		
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-6</u>	Total Depth <u>8.4 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Brown clay with boulders (possible fill). Elev. = 993.9 ft					
5							
10		Auger Refusal & Boring Terminated at 8.4' (Elev. 985.5). 8.4'					
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SUBSURFACE INVESTIGATION
BORING LOG

Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01291</u> ^o	Longitude <u>84.45700</u> ^o
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u> Surface Elevation <u>999.3 ft</u>		
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-7</u>	Total Depth <u>8.8 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 999.3 ft					
5		Brown clay with boulders (possible fill).					
10		Auger Refusal & Boring Terminated at 8.8' (Elev. 990.5). 8.8'					
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SUBSURFACE INVESTIGATION
BORING LOG

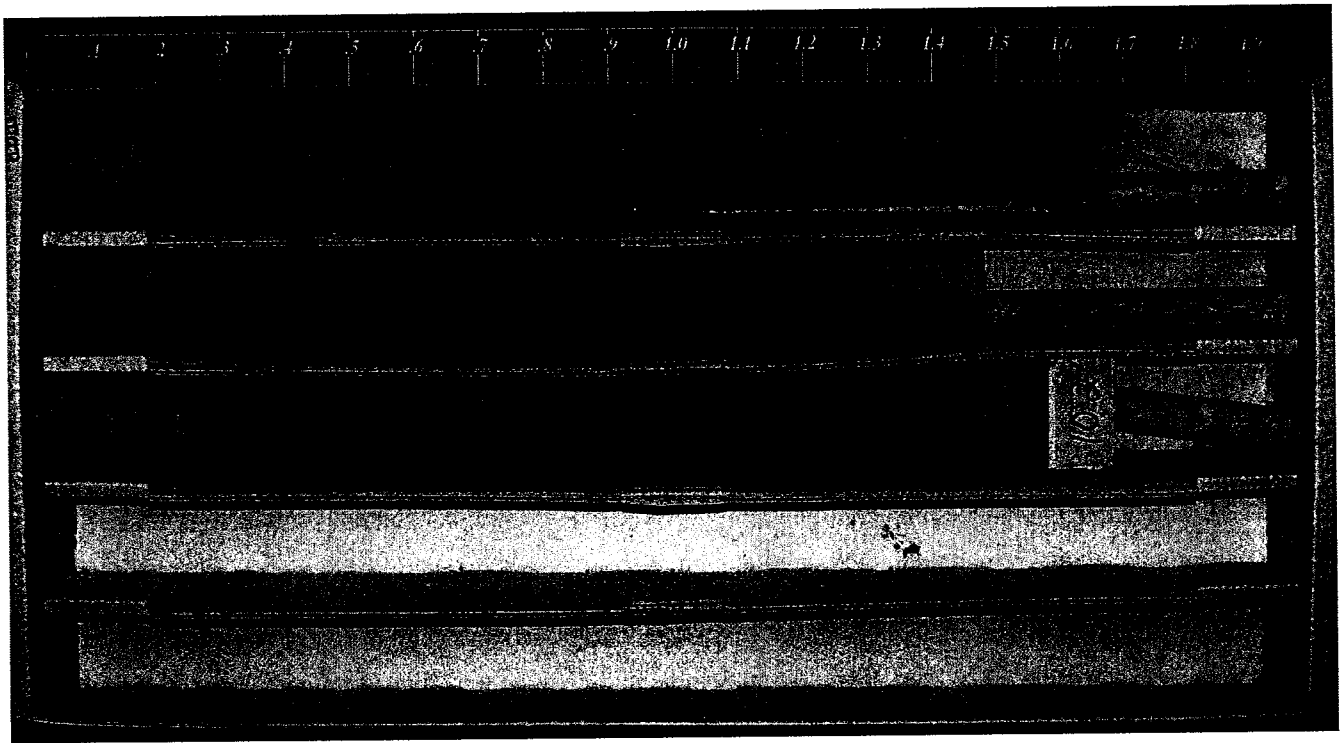
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01266°</u>	Longitude <u>84.45693°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u> Surface Elevation <u>999.6 ft</u>		
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-8</u>	Total Depth <u>10.2 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec. (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 999.6 ft					
		Brown clay with boulders (possible fill).					
5		Gray, poorly graded GRAVEL with clay and sand (and/or silty clay and sand)(GP-GC).	SS-1	4.7 5.2	0.5	50/0.5--	SPT
10		Auger Refusal at 5.2', Begin Coring in Limestone. Gray, scattered dark gray, traces brown-orange, medium to coarse grain, slight to moderately weathered, moderately hard, thin bedded, bioclastic, shale/clay beds calcareous & fossiliferous, shale laminae-some stylolitic. clay seams 6.1', 6.8', 6.9', 7.2'-7.3', 7.4'-7.5', 7.7',-7.8', 9.6'	Core-1	10.2	4.8	96	72
15		Boring Terminated at 10.2' (Elev. 989.4).					
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CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-8 - Box 1 of 1

CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-9 - Box 1 of 1



SUBSURFACE INVESTIGATION
BORING LOG

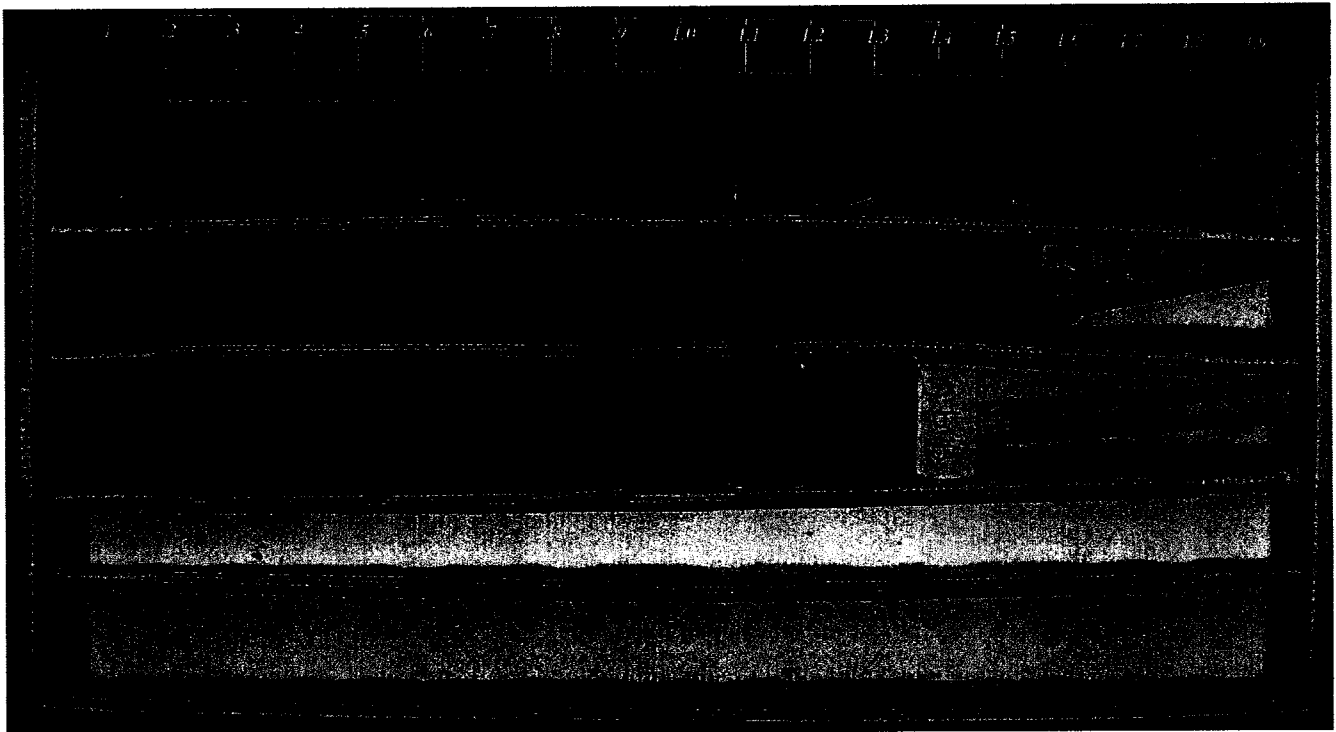
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01263</u> ^o	Longitude <u>84.45662</u> ^o
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>999.9 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-10</u>	Total Depth <u>9.9 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 999.9 ft					
		Brown clay with boulders (possible fill).					
5	[Brick Pattern]	Auger Refusal at 4.9', Begin Coring in Limestone.	4.9' SS-1	4.9	0.0	50/0.1--	SPT
10	[Brick Pattern]	Gray, scattered dark gray, traces brown-orange stain, medium to coarse grain, slight to moderately weathered, medium hard w/soft seams, thin bedded, bioclastic, shale/clay beds calcareous & fossiliferous, scattered shale laminae. clay seams 5.0', 5.4', 5.9'-6.0', 6.2'-6.3', 6.4'-6.5', 6.7'-7.0', 8.3'-8.5'	9.9' Core-1	9.9	4.7	94	64
15		Boring Terminated at 9.9' (Elev. 990.0).					
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CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-10 - Box 1 of 1



SUBSURFACE INVESTIGATION
BORING LOG

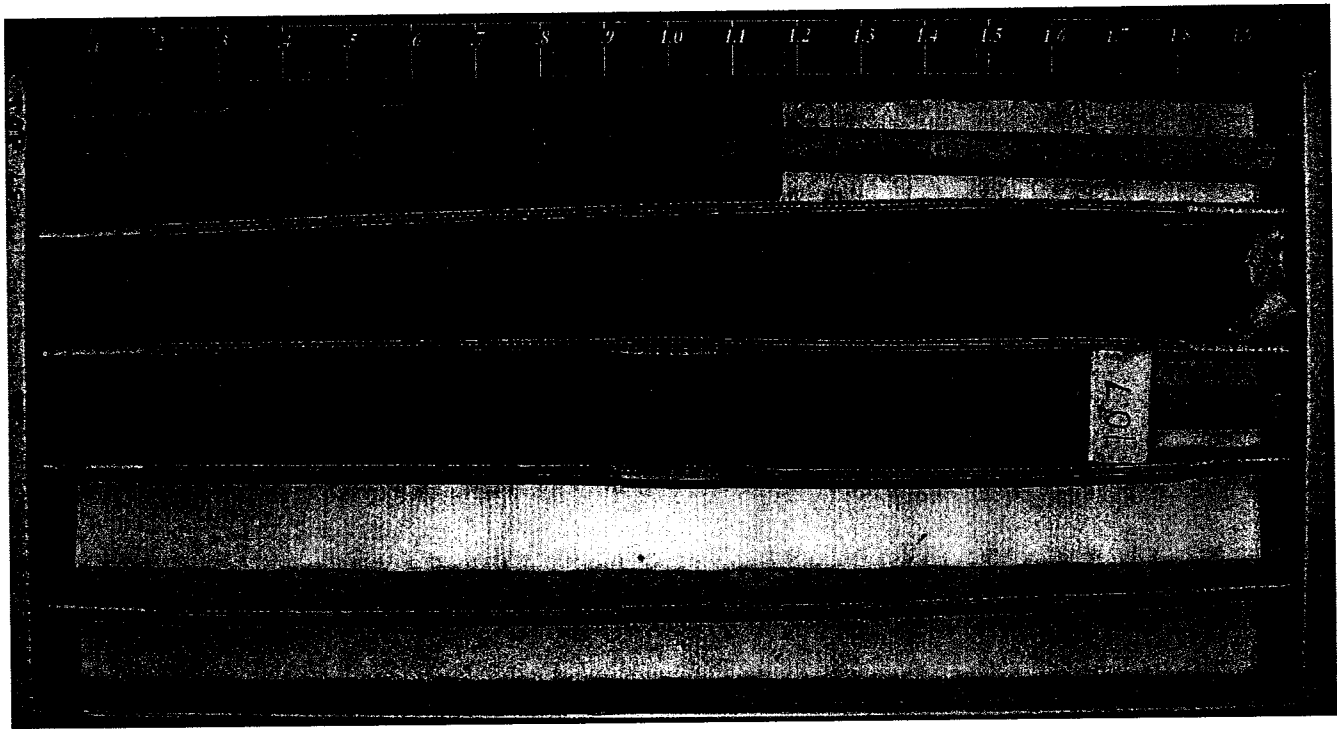
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01241°</u>	Longitude <u>84.45670°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u> Surface Elevation <u>1002.5 ft</u>		
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-11</u>	Total Depth <u>10.7 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev = 1002.5 ft Brown clay with gravel and boulders (possible fill).					
5	◦ ◦ ◦ ◦	Gray limestone fragments	4.7 5.7	4.7 5.7	0.0	50/0.1--	SPT
10	◻ ◻ ◻ ◻	Auger Refusal at 5.7', Begin Coring in Limestone. Gray, dark gray, medium to coarse grain, fresh to moderately weathered, moderately hard w/soft seams, very thin to thin bedded, bioclastic, shale beds calcareous & fossiliferous, shale laminae. clay seams 5.9', 8.3'-8.8', 8.9'-9.1'	Core-1	10.7	4.8	96	74
15		Boring Terminated at 10.7' (Elev. 991.8).					
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CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-11 - Box 1 of 1



SUBSURFACE INVESTIGATION
BORING LOG

Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01277°</u>	Longitude <u>84.45625°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>		Surface Elevation <u>1000.1 ft</u>
Job No. <u>10055008</u>	Dated Started <u>4/11/2017</u>	Completed <u>4/11/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-12</u>	Total Depth <u>10.9 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Core No.	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev. = 1000.1 ft					
5		Brown clay with boulders (possible fill).					
10		Auger Refusal & Boring Terminated at 10.9' (Elev. 989.2). 10.9'					
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SUBSURFACE INVESTIGATION
BORING LOG

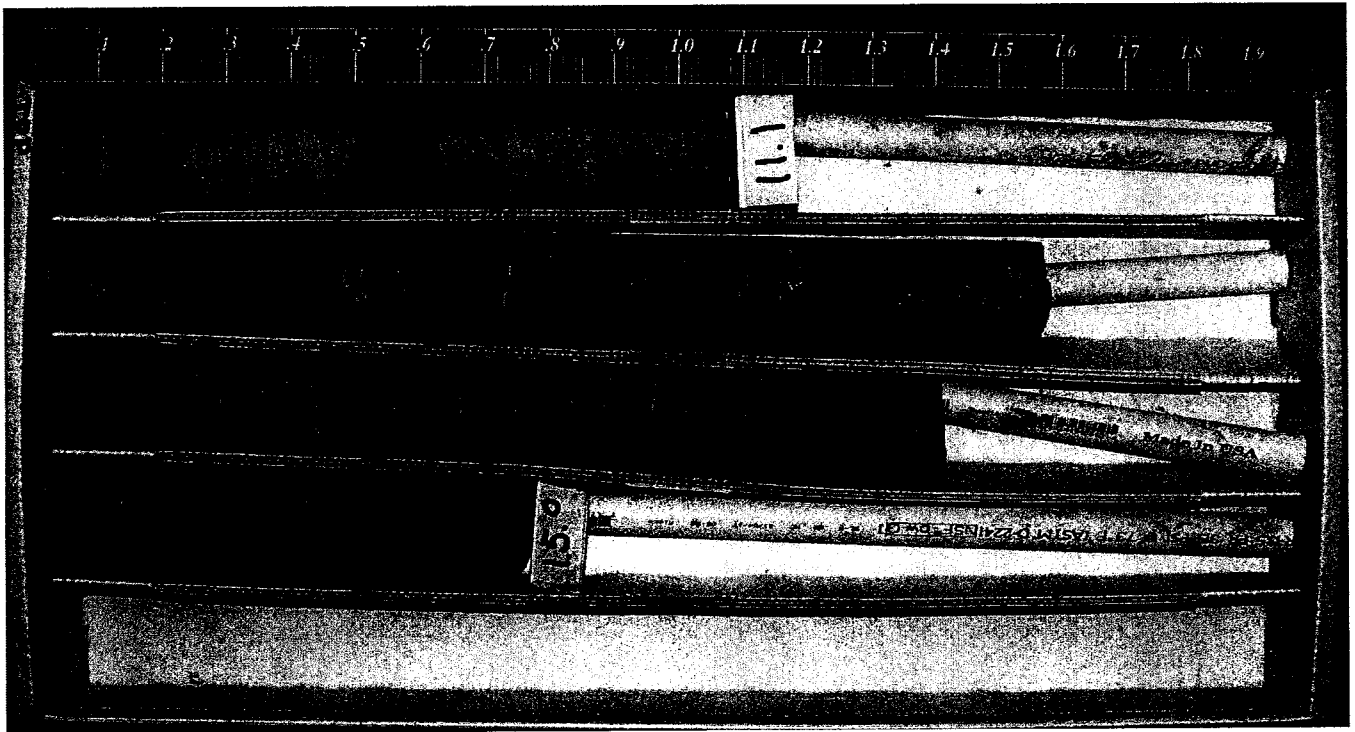
Sheet No. 1 of 1

State <u>Kentucky</u>	Latitude <u>38.01254°</u>	Longitude <u>84.45636°</u>
County <u>Fayette</u>	Location <u>NA</u>	
Project Name <u>LFUCG - West Hickman 7 Wet Weather Storage</u>	Surface Elevation <u>1000.5 ft</u>	
Job No. <u>10055008</u>	Dated Started <u>4/10/2017</u>	Completed <u>4/10/2017</u>
Driller <u>W. Smith</u>	Logged by <u>B. Cayton</u>	Depth to Water: Immediate <u>NA</u>
Hole Number <u>B-13</u>	Total Depth <u>15 ft.</u>	Depth to Water <u>NA</u> Date Measured _____

Lithology		Overburden	Sample No.	Depth	Rec. (ft.)	Blows	Type
Depth	Symbol	Description	Rock Core	Run	Rec (ft.)	Rec. (%)	RQD (%)
0		<i>Ground Line</i> Elev. = 1000.5 ft Brown clay with gravel (possible fill).					
5		Brown, elastic SILT with gravel (MH).	SS-1	5.0 6.4	1.0	2-4-50/0.4	SPT
10		Auger Refusal at 10.0', Begin Coring in Limestone. Gray, blue-gray, medium grain, fresh, hard, thin bedded, bioclastic, shale bed (10.6').	SS-2 Core-1	10.0 11.1	0.0 1.1	50/0.0-- 100	SPT 100
15		Limestone: Gray, gray-blue, olive green, fine to medium grain, fresh, moderately hard to hard, limestone beds, cobbles & pebbles in silty, calcareous shale matrix, fossiliferous, traces small vugs, LS=70%, SH=30%	Core-2	15.0	3.8	97	95
20		Boring Terminated at 15.0' (Elev. 985.5).					
25							
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CORE PHOTOGRAPHIC RECORD

West Hickman 7
Wet Weather Storage Improvements



B-13 - Box 1 of 1



Project Name : LFUCG West Hickman
 Location : Fayette County, Kentucky
 Job Number : 10055008
 Project Job No. : 10055008

Moisture Data

(AASHTO T255-T265 / ASTM C566-D2216)

Soil No.	Boring No.	Station & Offset	Sample No.	Depth	Description of Soil	pH	Natural Moisture Content (%)
1	B-1		SS-1	5.0	6.5	Brown Clayey Gravel with Sand	
1			SS-2	10.0	10.5	Brown Clayey Gravel with Sand	
1	B-2		SS-1	5.0	6.5	Brown & Gray Clayey Gravel with Sand	22.9
2	B-8		SS-1	4.7	5.2	Gray Poorly Graded Gravel with Clay and Sand (and/or Silty Clay a	13.7
3	B-9		SS-1	4.9	5.5	Brown Sandy Elastic Silt	35.7
4	B-13		SS-1	5.0	6.4	Brown Elastic Silt with Gravel	21.4



SOIL CLASSIFICATION

Project Name : LFUCG-West Hickman 7 Wet Weather Storage
 Project No. : 100550088
 Project County : Fayette
 Project State : Kentucky
 Laboratory No. : 100550088
 Submitted By : HDR
 Soil Type : Brown & Gray Clayey Gravel with Sand

Sample No. : SS-1
 Sample Loc. : Boring No. B-2
 Sample Depth : 5.0' to 6.5'
 Date Tested : 04/27/17
 Date Reported : 05/05/17

AASHTO T27 :

				% Passing	
4	in.	101.6	mm		
3.5	in.	88.9	mm		
3	in.	76.2	mm		
2.5	in.	63.5	mm		
2	in.	50.8	mm		
1 3/4	in.	45	mm		
1 1/2	in.	38.1	mm		
1 1/4	in.	31.5	mm		
1	in.	25	mm	100.0	
3/4	in.	19	mm	86.2	
1/2	in.	12.5	mm		
3/8	in.	9.5	mm	64.6	
1/4		6.3	mm		
No.4		4.75	mm	51.4	
No.6		3.35	mm		
No.10		2	mm	40.8	

				% Passing	
No.16		1.18	mm		
No.30		0.6	mm		
No.40		0.425	mm	32.3	
No.50		0.3	mm		
No.60		0.25	mm		
No.80		0.18	mm		
No.100		0.15	mm		
No.200		0.075	mm	27.5	
No.270		0.053	mm		
Hyd. Rd. # 1			mm		
Hyd. Rd. # 2			mm		
Hyd. Rd. # 3			mm		
Hyd. Rd. # 4			mm		
Hyd. Rd. # 5			mm		
Hyd. Rd. # 6			mm		
Hyd. Rd. # 7			mm		

AASHTO T88

D₅₀ = 4.237 mm

CBR : NA Natural Moisture (%) (AASHTO T265) : 22.9
 Dry Dens. : NA Liquid Limit (AASHTO T89) : 33
 Opt. Moist. : NA Plastic Limit (AASHTO T90) : 19
 Plasticity Index : 14

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 59.2
 Coarse Sand (-No.10 + No.40) : 8.5
 Fine Sand (-No.40 + No.200) : 4.8
 Silt + Clay (-No.200) : 27.5

Activity : NA
 Liquidity Index : 0.30
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-6 (1)
 ASTM Classification: D2487 : GC

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 13.8
 Fine Gravel (-3/4in. + No.4) : 34.8
 Coarse Sand (-No.4 + No.10) : 10.6
 Medium Sand (-No.10 + No.40) : 8.5
 Fine Sand (-No.40 + No.200) : 4.8
 Silt + Clay (-No.200) : 27.5

Approved By : Ken E. Walker

Soil No. 1



SOIL CLASSIFICATION

Project Name : LFUCG-West Hickman 7 Wet Weather Storage
 Project No. : 100550088
 Project County : Fayette
 Project State : Kentucky
 Laboratory No. : 100550088
 Submitted By : HDR
 Soil Type : Gray Poorly Graded Gravel with Clay and Sand (and/or Silty Clay and Sand)

Sample No. : SS-1
 Sample Loc. : Boring No. B-8
 Sample Depth : 4.7' to 5.2'
 Date Tested : 04/27/17
 Date Reported : 05/05/17

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	100.0
3/4	in.	19	mm	68.1
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	42.1
1/4		6.3	mm	
No.4		4.75	mm	28.7
No.6		3.35	mm	
No.10		2	mm	16.3

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	10.2
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	7.4
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 11.727 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 13.7
 Liquid Limit (AASHTO T89) : 25
 Plastic Limit (AASHTO T90) : 18
 Plasticity Index : 7

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 83.7
 Coarse Sand (-No.10 + No.40) : 6.1
 Fine Sand (-No.40 + No.200) : 2.8
 Silt + Clay (-No.200) : 7.4

Liquidity Index : -0.63
 Activity : NA

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-2-4 (0)
 ASTM Classification: D2487 : GP-GC

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 31.9
 Fine Gravel (-3/4in. + No.4) : 39.4
 Coarse Sand (-No.4 + No.10) : 12.4
 Medium Sand (-No.10 + No.40) : 6.1
 Fine Sand (-No.40 + No.200) : 2.8
 Silt + Clay (-No.200) : 7.4

Approved By : Ken E. Walker

Soil No. 2



SOIL CLASSIFICATION

Project Name : LFUCG-West Hickman 7 Wet Weather Storage
 Project No. : 100550088 Sample No. : SS-1
 Project County : Fayette Sample Loc. : Boring No. B-9
 Project State : Kentucky Sample Depth : 4.9' to 5.5'
 Laboratory No. : 100550088 Date Tested : 04/27/17
 Submitted By : HDR Date Reported : 05/05/17
 Soil Type : Brown Sandy Elastic Silt

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	
3/4	in.	19	mm	100.0
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	89.2
1/4		6.3	mm	
No.4		4.75	mm	88.1
No.6		3.35	mm	
No.10		2	mm	86.4

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	76.3
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	66.9
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.014 mm

CBR : NA Natural Moisture (%) (AASHTO T265) : 35.7
 Dry Dens. : NA Liquid Limit (AASHTO T89) : 59
 Opt. Moist. : NA Plastic Limit (AASHTO T90) : 34

AASHTO Composition of Total Sample: M145

Gravel (3in. + No.10) : 13.6
 Coarse Sand (-No.10 + No.40) : 10.1
 Fine Sand (-No.40 + No.200) : 9.4
 Silt + Clay (-No.200) : 66.9

Plasticity Index : 25
 Liquidity Index : 0.07
 Activity : NA
 Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-5 (17)
 ASTM Classification: D2487 : MH

ASTM Composition of Total Sample: D2487

Coarse Gravel (3in. + 3/4in.) : 0.0
 Fine Gravel (-3/4in. + No.4) : 11.9
 Coarse Sand (-No.4 + No.10) : 1.7
 Medium Sand (-No.10 + No.40) : 10.1
 Fine Sand (-No.40 + No.200) : 9.4
 Silt + Clay (-No.200) : 66.9

Approved By: Kevin E. Walker

Soil No. 3



SOIL CLASSIFICATION

Project Name : LFUCG-West Hickman 7 Wet Weather Storage
 Project No. : 100550088 Sample No. : SS-1
 Project County : Fayette Sample Loc. : Boring No. B-13
 Project State : Kentucky Sample Depth : 5.0' to 6.4'
 Laboratory No. : 100550088 Date Tested : 04/27/17
 Submitted By : HDR Date Reported : 05/05/17
 Soil Type : Brown Elastic Silt with Gravel

AASHTO T27 :

				% Passing
4	in.	101.6	mm	
3.5	in.	88.9	mm	
3	in.	76.2	mm	
2.5	in.	63.5	mm	
2	in.	50.8	mm	
1 3/4	in.	45	mm	
1 1/2	in.	38.1	mm	
1 1/4	in.	31.5	mm	
1	in.	25	mm	100.0
3/4	in.	19	mm	85.6
1/2	in.	12.5	mm	
3/8	in.	9.5	mm	83.7
1/4		6.3	mm	
No.4		4.75	mm	82.4
No.6		3.35	mm	
No.10		2	mm	82.0

				% Passing
No.16		1.18	mm	
No.30		0.6	mm	
No.40		0.425	mm	79.4
No.50		0.3	mm	
No.60		0.25	mm	
No.80		0.18	mm	
No.100		0.15	mm	
No.200		0.075	mm	74.0
No.270		0.053	mm	
Hyd. Rd. # 1			mm	
Hyd. Rd. # 2			mm	
Hyd. Rd. # 3			mm	
Hyd. Rd. # 4			mm	
Hyd. Rd. # 5			mm	
Hyd. Rd. # 6			mm	
Hyd. Rd. # 7			mm	

D₅₀ = 0.009 mm

CBR : NA
 Dry Dens. : NA
 Opt. Moist. : NA

Natural Moisture (%) (AASHTO T265) : 22.9
 Liquid Limit (AASHTO T89) : 58
 Plastic Limit (AASHTO T90) : 32
 Plasticity Index : 26
 Liquidity Index : -0.36
 Activity : NA

AASHTO Composition of Total Sample: M145
 Gravel (3in. + No.10) : 18.0
 Coarse Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 5.4
 Silt + Clay (-No.200) : 74.0

Sp. Gr. (AASHTO T100) : NA
 AASHTO Classification: M145 : A-7-5 (21)
 ASTM Classification: D2487 : MH

ASTM Composition of Total Sample: D2487
 Coarse Gravel (3in. + 3/4in.) : 14.4
 Fine Gravel (-3/4in. + No.4) : 3.2
 Coarse Sand (-No.4 + No.10) : 0.4
 Medium Sand (-No.10 + No.40) : 2.6
 Fine Sand (-No.40 + No.200) : 5.4
 Silt + Clay (-No.200) : 74.0

Approved By : Keri E. Walker

Soil No. 4



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

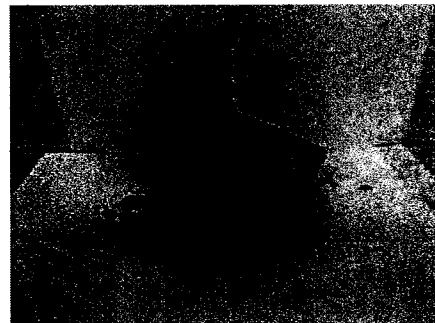
PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-A
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-11
PROJECT STATE : Kentucky	SAMPLE DEPTH : 6.0' to 6.3'
LABORATORY NO. : 10055008	DATE TESTED : 4/26/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 4/26/2017

ROCK DESCRIPTION : Limestone: medium to coarse grain, bioclastic fresh

Diameter : 1.99 in	Area : 3.10 in ²
Height : 4.11 in	Volume : 0.0074 ft ³

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	168.34 lbs/ft. ³
Maximum Stress :	9233 psi
Elapsed Time :	12:03 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Kevin E. Walker



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

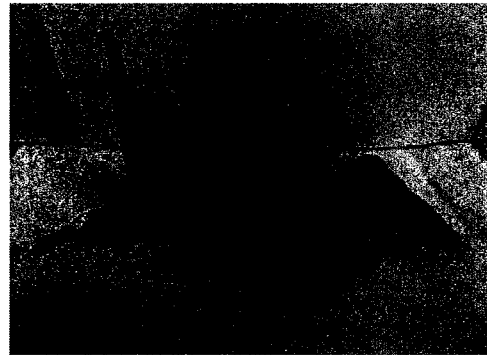
PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	SAMPLE NO. : RS-B
PROJECT NO. : 10055008	SAMPLE LOC. : B-10
PROJECT COUNTY : Fayette	SAMPLE DEPTH : 9.0' to 9.4'
PROJECT STATE : Kentucky	DATE TESTED : 4/26/2017
LABORATORY NO. : 10055008	DATE REPORTED : 4/26/2017
SUBMITTED BY : HDR | ICA	

ROCK DESCRIPTION : Limestone: medium to coarse grain, bioclastic sli. wthd.

Diameter : 1.99 in	Area : 3.10 in ²
Height : 4.10 in	Volume : 0.0074 ft ³

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	168.29 lbs/ft. ³
Maximum Stress :	6507 psi
Elapsed Time :	9:28 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Kevin E. Walker



ASTM: D7012-Method C

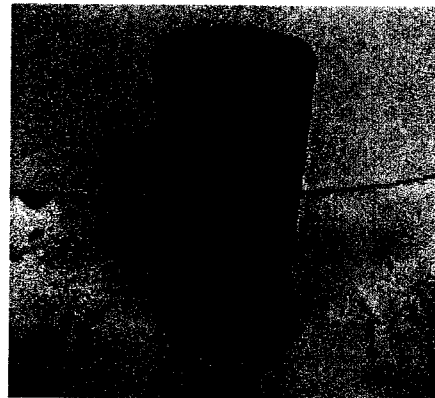
UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-C
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-3
PROJECT STATE : Kentucky	SAMPLE DEPTH : 7.6' to 7.9'
LABORATORY NO. : 10055008	DATE TESTED : 4/26/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 4/26/2017

ROCK DESCRIPTION : Limestone: med. to cse. grain beds, cobbles & pebbles in silty shale matrix mod. withd.	
Diameter : 1.98 in	Area : 3.09 in ²
Height : 3.89 in	Volume : 0.007 ft ³

RESULTS :

Moisture Air-Dry :	NA	
Air-Dry Density :	164.68	lbs/ft. ³
Maximum Stress :	4019	psi
Elapsed Time :	6:46	min.
Rate of Loading :	40	lb/sec



Comments :

Approved By : Ken E. Walker



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

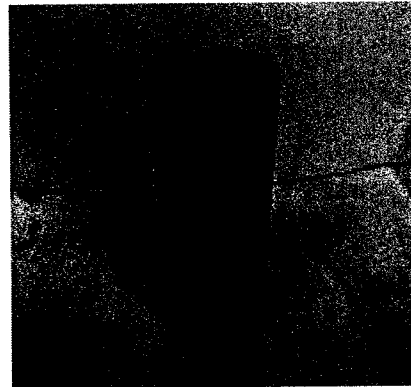
PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	SAMPLE NO. : RS-D
PROJECT NO. : 10055008	SAMPLE LOC. : B-13
PROJECT COUNTY : Fayette	SAMPLE DEPTH : 13.7' to 14.1'
PROJECT STATE : Kentucky	DATE TESTED : 4/26/2017
LABORATORY NO. : 10055008	DATE REPORTED : 4/26/2017
SUBMITTED BY : HDR | ICA	

ROCK DESCRIPTION : Limestone: fine to med. grain beds, cobbles & pebbles in silty shale matrix fresh

Diameter : 1.98 in	Area : 3.09 in ²
Height : 4.10 in	Volume : 0.0073 ft ³

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	164.48 lbs/ft. ³
Maximum Stress :	3489 psi
Elapsed Time :	5:14 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Kevin E. Walker



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

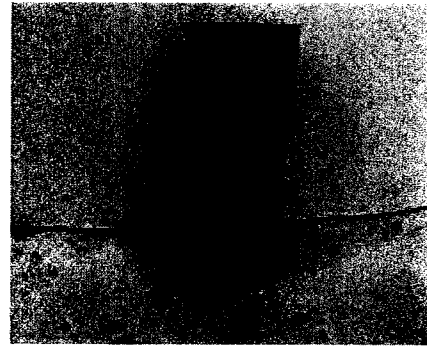
PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-E
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-1
PROJECT STATE : Kentucky	SAMPLE DEPTH : 12.9' to 13.4'
LABORATORY NO. : 10055008	DATE TESTED : 5/4/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 5/5/2017

ROCK DESCRIPTION : Limestone: f to med. grain, fossiliferous, in bioclastic calcareous shale matrix fresh

Diameter : 1.99 in	Area : 3.10 in ²
Height : 3.99 in	Volume : 0.0072 ft ³

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	166.27 lbs/ft. ³
Maximum Stress :	4432 psi
Elapsed Time :	4:53 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Ken E. Walker



ASTM: D7012-Method C

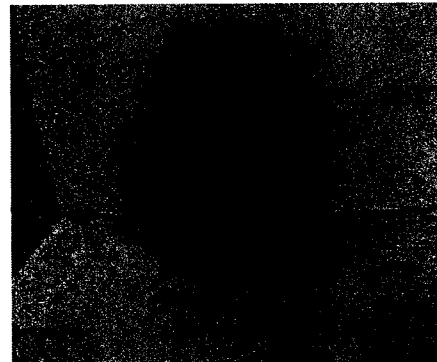
UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-F
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-1
PROJECT STATE : Kentucky	SAMPLE DEPTH : 16.9' to 17.3'
LABORATORY NO. : 10055008	DATE TESTED : 5/4/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 5/5/2017

ROCK DESCRIPTION : Limestone: f to med. Grain, fossiliferous, bioclastic silty shale matrix fresh	
Diameter : 1.98 in	Area : 3.08 in ²
Height : 4.01 in	Volume : 0.0071 ft ³

RESULTS :

Moisture Air-Dry :	NA	
Air-Dry Density :	168.4	lbs/ft. ³
Maximum Stress :	715	psi
Elapsed Time :	1:54	min.
Rate of Loading :	40	lb/sec



Note: Low maximum stress failure due to near vertical rippled shale laminae intersecting horizontal shale discontinuity.

Comments :

Approved By : Kevin E. Walker



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

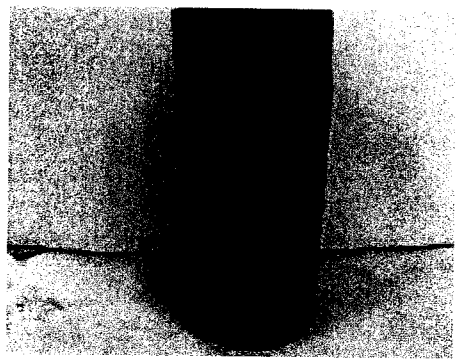
PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-G
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-2
PROJECT STATE : Kentucky	SAMPLE DEPTH : 16.7' to 17.2'
LABORATORY NO. : 10055008	DATE TESTED : 5/4/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 5/5/2017

ROCK DESCRIPTION : Limestone: f to med. Crystalline, fossiliferous, cacareous, bioclastic silty shale matrix fresh

Diameter : 1.99 in	Area : 3.10 in ²
Height : 4.07 in	Volume : 0.0073 ft ³

RESULTS :

Moisture Air-Dry :	NA	
Air-Dry Density :	167.02	lbs/ft. ³
Maximum Stress :	6265	psi
Elapsed Time :	8:54	min.
Rate of Loading :	40	lb/sec



Comments :

Approved By : Kevin E. Walker



ASTM: D7012-Method C

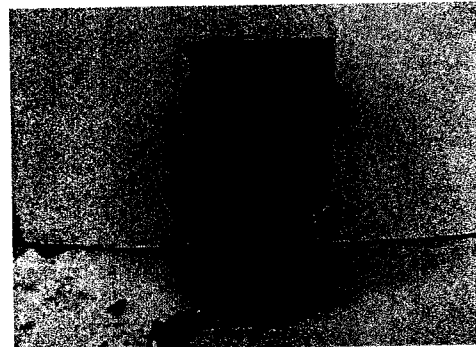
UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	SAMPLE NO. : RS-H
PROJECT NO. : 10055008	SAMPLE LOC. : B-2
PROJECT COUNTY : Fayette	SAMPLE DEPTH : 26.7' to 27.2'
PROJECT STATE : Kentucky	DATE TESTED : 5/4/2017
LABORATORY NO. : 10055008	DATE REPORTED : 5/5/2017
SUBMITTED BY : HDR | ICA	

ROCK DESCRIPTION : Limestone: f to med. Grain, fossiliferous, cacareous, bioclastic silty shale matrix fresh	Area : 3.10 in ²
Diameter : 1.99 in	Volume : 0.0074 ft ³
Height : 4.14 in	

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	166.41 lbs/ft. ³
Maximum Stress :	2169 psi
Elapsed Time :	2:44 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Ken E. Walker



ASTM: D7012-Method C

UNCONFINED COMPRESSION TEST (ROCK CORE)

PROJECT NAME : LFUCG-West Hickman 7 Wet Weather Storage	
PROJECT NO. : 10055008	SAMPLE NO. : RS-1
PROJECT COUNTY : Fayette	SAMPLE LOC. : B-2
PROJECT STATE : Kentucky	SAMPLE DEPTH : 36.3' to 36.9'
LABORATORY NO. : 10055008	DATE TESTED : 5/4/2017
SUBMITTED BY : HDR | ICA	DATE REPORTED : 5/5/2017

ROCK DESCRIPTION : Limestone: f to med. Grain, fossiliferous, calcareous, bioclastic silty shale matrix fresh

Diameter : 1.99 in	Area : 3.10 in ²
Height : 4.05 in	Volume : 0.0073 ft ³

RESULTS :

Moisture Air-Dry :	NA
Air-Dry Density :	167.19 lbs/ft. ³
Maximum Stress :	5852 psi
Elapsed Time :	19:57 min.
Rate of Loading :	40 lb/sec



Comments :

Approved By : Ken E. Walker



SECTION 00410 – BID FORM

West Hickman 7 Wet Weather Storage Facilities Improvements:
Contract No. 2 – Pump Station and Wet Weather Storage Tank

Division of Water Quality
Lexington-Fayette Urban County Government

LFUCG Bid No. ~~140-2017~~

1.01 GENERAL

Place: Lexington, Kentucky

Date: 11-2-17

The following Bid Form shall be followed exactly in submitting a Bid for this Work.

This Bid Form Submitted by SMITH CONTRACTORS INC.
P.O. Box 980
Lawrenceburg, Ky 40342
(Name and Address of Bidder)

(Hereinafter called "Bidder"), organized and existing under the laws of the State of Kentucky, doing business as "A CORPORATION"
"a corporation," "a partnership", or an "individual" as applicable

To: Lexington-Fayette Urban County Government
(Hereinafter called "Owner")
Office of the Director of Central Purchasing
200 East Main Street, Room 338
Lexington, KY 40507

The Bidder, in compliance with your Advertisement for Bids for the **West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank**; Lexington, Kentucky, having examined the Contract Documents including the Plans and Specifications with related documents, having examined the site for proposed Work, and being familiar with all of the conditions and any and all addendums surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the lump sum stated hereinafter. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid is a part.

The Bidder hereby agrees to commence Work under this Contract on a date to be specified in a written "Notice to Proceed" of the Owner and to substantially complete the Project within 380 consecutive calendar days. Bidder further agrees to pay liquidated damages, the sum of eight hundred dollars and no cents (\$800.00) for each consecutive day thereafter.

The Bidder hereby acknowledges receipt of the following addenda:

Addendum No. 1 Date 10-9-17 ; Addendum No. ____ Date _____
Addendum No. 2 Date 10-11-17 ; Addendum No. ____ Date _____
Addendum No. 3 Date 10-19-17 ; Addendum No. ____ Date _____
Addendum No. 4 Date 10-26-17 ; Addendum No. ____ Date _____

Insert above the number and the date of any Addendum issued and received. If none has been issued and received, the word "NONE" should be inserted.



	SPARE	DO	ST	10	9
	SPARE	DO	ST	10	10
	SPARE	DO	ST	10	11
	SPARE	DO	ST	10	12
	SPARE	DO	ST	10	13
	SPARE	DO	ST	10	14
	SPARE	DO	ST	10	15

Note: A second redundant unit is required at the Diversion Structure and Storage Tank."

Addendum No. 4

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: SMITH CONTRACTORS, INC.

ADDRESS: P.O. Box 480, 1241 Bypass N., Lawrenceburg, Ky 40342

SIGNATURE OF BIDDER: *Kerry Smith*
Kerry Smith



- H. Section 09961, High Performance Paints and Coatings – Wastewater shall be deleted in its entirety and replaced. See Attached.
- I. Section 13209, Chemical Feed System, Part 1 – General, Subpart 1.1 Work Included, Paragraph C. shall be added as follows:
 - “C. The Contractor shall provide 200 gallons of chemical (100 gallons in each 3,000 gallon tank) to be used for testing of all chemical odor control equipment which shall be included in the bid price. The cost of topping off the two (2) 3,000 gallon chemical tanks will be covered through LFUCG’s chemical vendor contract once the equipment has passed testing and Beneficial Occupancy of the project has been issued.”
- J. Section 13252, Activated Carbon Adsorber Odor Control System shall be deleted in its entirety and replaced. See Attached.

Addendum No. 3

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: SMITH CONTRACTORS, INC.

ADDRESS: P.O. Box 480, 1991 Bypass North, Lawrenceburg, Ky 40342

SIGNATURE OF BIDDER: Kerry Smith
Kerry Smith



Kentucky 40507. Bids shall be submitted in a sealed envelope no later than 2:00 p.m. (local time) on November 2, 2017. Sealed proposals shall be marked clearly on the outside of the container "Sealed Proposal for: WH7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank to be opened at 2:00 p.m. Local Time. Bids received after the scheduled closing time for receipt of Bids will not be considered and will be returned unopened."

- A. Section 00100, Advertisement for Bids, Article 1.12 State Revolving Loan Requirements shall be deleted.
- B. Section 00810, Supplemental General Conditions for Clean Water State Revolving Fund shall be deleted in its entirety.
- C. Section 00815, Guidance for the Implementation of American Iron and Steel Provisions shall be deleted in its entirety.
- D. Section 00820, Wage Determination Schedule shall be deleted in its entirety.
- E. Section 00890 Permits. Add KYTC Encroachment Permit #07-2017-00288. See attached.
- F. Section 00890 Permits. Add Kentucky Division of Water approval letter dated October 11, 2017. See attached.

Appendix No. 2

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: SMITH CONTRACTORS, INC.

ADDRESS: P.O. Box 980, 1241 Bypass N., Lawrenceburg, Ky 40342

SIGNATURE OF BIDDER: *Kerry Smith*
KERRY SMITH

1.02 LEGAL STATUS OF BIDDER

Bidder SMITH CONTRACTORS, INC.

Date 11-2-17

*A. A corporation duly organized and doing business under the laws of the State of Kentucky, for whom KERRY SMITH, bearing the official title of PRESIDENT, 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, KERRY SMITH, and after being first duly sworn, states under penalty of perjury as follows:

- A. His/her name is KERRY SMITH and He/she is the individual submitting the Bid or is the authorized representative of SMITH CONTRACTORS, Inc., 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.

Kerry Smith
Affiant Signature KERRY SMITH

STATE OF KENTUCKY
COUNTY OF ANDERSON

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

KERRY SMITH on this the 2nd. day of Nov., 2017.

My Commission expires: 7-16-18

Pandora S. Guffey
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. If unit prices are applicable, Bidder must make the extensions and additions showing the total amount of Bid. In all cases of discrepancies or math errors the amount written in for the unit price of an item shall govern.

If a discrepancy between the unit price and the item total exists, the unit price prevails except:

If the unit price is illegible, omitted, or the same as the item total, item total prevails and the unit price is the quotient of the item total and the quantity.

If the unit price and the item total are illegible or are omitted, the bid may be determined nonresponsive. If a lump sum total price is illegible or is omitted, the bid may be determined nonresponsive.

For a lump sum based bid, the item total is the bid amount the Owner uses for bid comparison.

For a unit price based bid, the sum of the item totals is the bid amount the Owner uses for bid comparison.

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

BID SCHEDULE - CONTRACT NO. 2

BID SCHEDULE - CONTRACT NO. 2				
A.	WH7 Pump Station and Wet Weather Storage Tank:			
A1	Base Bid for Construction of the Pump Station & Wet Weather Storage Tank and all improvements associated with work on both sites per the contract documents, exclusive of the following items:	1	LS	\$ 9,202,600. ⁰⁰
B.	Allowances:			
B1	Control Touch SCADA Integration	1	LS	\$50,000
B2	Project Video Monitoring	1	LS	\$25,000
B3	Miscellaneous Site Improvements	1	LS	\$1,000,000
B4	Emergency Generator Fuel Tank Permit	1	LS	\$400
B5	Electrical Service	1	LS	\$40,000
B6	Water Service	1	LS	\$15,000
B7	Below Grade Debris (Concrete Slabs, Footers, Foundations) Removal	1	LS	\$20,000
B8	Fencing and Landscaping	1	LS	\$100,000
TOTAL BID (Items A and B)				

TOTAL BID AMOUNT:

Ten million four hundred + fifty three thousand ^{no/100}
 Dollars (\$ 10,453,000.⁰⁰)

Respectfully Submitted,

FIRM: SMITH CONTRACTORS, INC.
ADDRESS: P.O. Box 480, 1241 Bypass North
CITY/STATE/ZIP: Lawrenceburg, Ky 40340
DATE: 11-2-17
BY: Kerry Smith
Kerry Smith (must be original signature)
TITLE: PRESIDENT
PHONE: 502-839-4196 FAX: 502-839-8318
(area code, number & extension)
EMAIL ADDRESS: KS@sci82.com

OFFICIAL ADDRESS AND PHONE:

P.O. Box 480, 1241 Bypass North
LAWRENCEBURG, Ky 40340
502-839-4196 (Seal if Bid is by Corporation)

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

1.05 STATEMENT OF BIDDER'S QUALIFICATIONS

The following statement of the Bidder's qualifications is required to be filled in, executed, and submitted with the Bid:

- A. Name of Bidder: SMITH CONTRACTORS, Inc.
- B. Permanent Place of Business: P.O. Box 480, 1241 Bypass N., Lawrenceburg, Ky
- C. When Organized: JANUARY 27, 1982
- D. Where Incorporated: KENTUCKY
- E. Financial Condition:

If specifically requested by the Owner, the apparent low Bidder is required to submit its latest three (3) years audited financial statements to the Owner's Division of Central Purchasing within seven (7) calendar days following the Bid opening.

- F. In the event the Agreement is awarded to the undersigned, Performance, Payment, Erosion and Sediment Control, and Warranty bonds will be furnished by:

Liberty Mutual Insurance Company (Surety)

Signed: Christopher A Cyterski (Representative of Surety)
 Christopher A Cyterski

- G. The following is a list of similar projects performed by the Bidder: (Attach separate sheet if necessary). (ATTACHED)

<u>NAME</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>

- H. The Bidder has now under contract and bonded the following projects:

<u>NAME</u> <u>(ATTACHED)</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>

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

<u>NAME</u>	<u>POSITION DESCRIPTION</u>	<u>NO. OF YEARS</u>
WH7 WWS - Contract No. 2 Specifications	00410-7	10056008/07242017

		<u>WITH BIDDER</u>
<u>KERRY SMITH</u>	<u>PRESIDENT</u>	<u>35</u>
<u>JOE SMITH</u>	<u>VICE-PRESIDENT</u>	<u>18</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

J. MWDBE Participation on current bonded projects under contract: ATTACHED

<u>SUBCONTRACTORS</u> (LIST)	<u>PROJECT</u> (SPECIFIC TYPE)	<u>MWDBE</u>	<u>% of WORK</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(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)

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

Barren Reservoir WTP Glasgow, KY	Glasgow Water Company	J.V. Engineering	March, 2007	\$ 6,003,767.95	Jeff Vaughan 5100 Linbar Drive, Ste 106, Nashville, TN 37211	615-781-8725
Contract A - Sewage Transfer PS Burnside, KY	City of Burnside	GRW Engineers	March, 2007	\$ 1,915,351.12	Alan Bryan 801 Corporate Drive, Lexington, KY 40503	859-223-3999
Contract 2 - Pump Station, Force Main Cynthiana, KY	City of Cynthiana	Quest Engineers	Sept., 2007	\$ 2,354,416.10	Rob Williams 2517 Sir Barton Way, Lexington, KY 40509	859-223-3755
Shayler Run Segment "C" Clermont County, OH	Clermont Co. Sewer District	Clermont Co. Sewer District	July, 2007	\$ 6,436,222.64	Lyle Bloom 2379 Clermont Center Dr., Batavia, OH 45103	513-732-8860
College Hill WTP Improvements/New Raw Water Intake Richmond, KY	Richmond Utilities	Bell Engineering	Sept., 2008	\$ 18,292,358.49	James Roberts P.O. Box 546, Lexington, KY 40588	859-278-5412
Contract 14 - County Water Expansion Springfield, KY	Springfield Water & Sewer Commission	Strand Associates	Oct., 2007	\$ 1,475,387.60	Tony Harver 325 W. Main St., Ste 710, Louisville, KY 40202	502-583-7020
Lake Cumberland Emergency Water Intake Jamestown, KY	City of Jamestown	Kenvitons, Inc.	May, 2008	\$ 1,964,921.88	Vaughn Williams 452 Versailles Road, Frankfort, KY 40601	502-695-4357
5.0 MGD Water Treatment Plant Columbia, KY	Columbia/Adair Co Water Commission	Monarch Engineers	May, 2008	\$ 11,103,907.00	David Bowles 556 Carlton Drive, Lawrenceburg, KY 40342	502-839-1310

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

<i>Alex-Leitch Force Main & Gravity Sewer</i> Alexandria, KY	Sanitation District No. 1	Tetra Tech, Inc.	July 2008	\$ 3,059,353.58	Paul Trepaney Suite 290, Cincinnati, OH 45241	513-772-1660
<i>Jessamine Creek Env. Control</i> Nicholasville, KY	City of Nicholasville	Tetra Tech, Inc.	Oct., 2008	\$ 5,278,831.58	Morey Lampson 800 Corporate Drive, Lexington, KY 40503	859-223-8000
<i>Town Fork Interceptor - Contract 3</i> Nicholasville, KY	City of Nicholasville	Tetra Tech, Inc.	June, 2009	\$ 5,608,540.00	Morey Lampson 800 Corporate Drive, Lexington, KY 40503	859-223-8000
<i>Contract 1 - WWTP</i> Whitesburg, KY	City of Whitesburg	Summit Engineering	March, 2009	\$ 5,800,543.70	Kevin Howard 120 Prosperous Place, Ste 101, Lexington, KY	859-264-9860
<i>Bath County Industrial Park WWTP</i> Owingsville, KY	City of Owingsville	Bell Engineering	June 2009	\$ 3,551,695.83	Ron Rogers P.O. Box 546, Lexington, KY 40588	859-278-5412
<i>Brightleaf Pump Stations, Force Mains</i> Harrodsburg, KY	Mercer Co. Sanitation District	Strand Associates	Sept 2009	\$ 1,021,636.00	Mike Davis 1525 Bull Lea Road, Lexington, KY 40511	859-225-8501
<i>Manchester 4.0 MGD WTP</i> Manchester, KY	City of Manchester	Cain Tech, LLC	Dec 2010	\$ 6,580,433.00	Matt Baker 11100 Glensboro Rd, Ste 9, Lawrenceburg, KY	502-859-0907
<i>Ashland Riverfront Improvements</i> Ashland, KY	City of Ashland	City of Ashland	Dec 2010	\$ 8,076,402.88	Ryan Eastwood 1700 Greenup Ave., Ashland, KY 41101	606-327-2008

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

Project Name	Client	Contractor	Start Date	Value	Contact Name	Contact Address	Contact Phone
<u>Contract 207 - WWT Expansion</u> Gallatin, TN	City of Gallatin	James C. Hailey & Co.	April 2012	\$ 23,472,935.44	James Hailey	7518 Hwy 70 S, Ste 100, Nashville, TN 37221	615-883-4933
<u>Moss WTP Expansion</u> Hopkinsville, KY	Hopkinsville Water Environmental Authority	JR Wauford	April 2012	\$ 9,704,456.32	Greg Davenport	P.O. Box 140350, Nashville, TN 37214	615-883-3243
<u>Campion Water Treatment Plant</u> Campion, KY	City of Campion	Bell Engineering	March, 2012	\$ 6,076,787.12	Mike Wilmoth	P.O. Box 546, Lexington, KY 40588	859-278-5412
<u>Blounts Facility</u> Gallatin, TN	City of Gallatin	James C. Hailey & Co.	April, 2012	\$ 6,340,000.00	James Hailey	7518 Hwy 70 S, Ste 100, Nashville, TN 37221	615-883-4933
<u>Louisville Hill Road Stormwater Separation Project</u> Frankfort, KY	City of Frankfort	Qk4 Engineers	Dec., 2012	\$ 1,323,110.69	Rob Campbell	1046 E. Chestnut St, Louisville, KY 40204	502-719-7941
<u>Clarksville Water Distribution System</u> Clarksville, TN	Clarksville Gas & Water	Rye Engineering	May, 2012	\$ 4,138,391.25	Seth Ryc	4210 West Main St., Erin, TN 37061	931-289-2300
<u>Rattlesnake Ridge Water Treatment Plant Expansion</u> Glasgow, KY	Rattlesnake Ridge Water District	Sister-Maggard Engr.	Dec., 2012	\$ 4,081,850.40	Joc Sister	P.O. Box 23279, Lexington, KY 40517	859-271-2978
<u>Barkley Lake Water Treatment Plant</u> Cadiz, KY	Barkley Lake Water District	GRW Engineers	May, 2012	\$ 5,735,035.00	Louis Robbins	404 BNA Drive, Ste 201, Nashville, TN 37217	615-366-1600

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

Project Name	Client	Contractor	Start Date	End Date	Value	Address	Phone
Lower Howards Creek Influent PS & WWTTP Winchester, KY	Winchester Municipal Utilities	Palmer Engineering	July, 2013		\$ 28,178,980.00	Brian Ward P.O. Box 747, Winchester, KY 40392	859-744-1218
Burchet Basin WW System Louisville, KY	Louisville Jefferson MSD	Louisville Jefferson MSD	Dec., 2012		\$ 2,453,582.42	Eric Brady 1700 West Liberty Street, Louisville, KY 40203	502-540-6616
Dover Water Treatment Plant Dover, TN	North Stewart Utility District	James C. Hailey	July, 2013		\$ 3,855,750.00	Neal Westerman 7518 Hwy 70S, Nashville, TN 37221	615-883-4933
Raw Water Intake Dover, TN	North Stewart Utility District	James C. Hailey	July, 2013		\$ 2,046,000.00	Neal Westerman 7518 Hwy 70S, Nashville, TN 37221	615-883-4933
Lexington Expansion Area 2A4 - Force Main Lexington, KY	Lexington Fayette Urban Govt.	GRW Engineers	Aug., 2013		\$ 1,084,002.41	Joe Henry 801 Corporate Dr., Lexington, KY 40503	859-223-3999
Red River WWTTP Stanton, KY	Red River WW Authority	Bell Engineering	March, 2014		\$ 9,266,870.95	Ron Rogers 2480 Fortune Dr., Ste 301, Lexington, KY 40509	859-278-5412
Lexington Expansion Area 2A4 - Pump Station Lexington, KY	Lexington Fayette Urban Govt.	GRW Engineers	June, 2014		\$ 4,861,000.00	Joe Henry 801 Corporate Dr., Lexington, KY 40503	859-223-3999
Owensboro Cargo Dock Owensboro, KY	Owensboro Riverport Authority	W.R. Coles	Oct., 2014		\$ 6,517,000.00	Ron Coles P.O. Box 159266, Nashville, TN 37215	615-712-9755

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

Project Name	Location	Client	Start Date	Amount	Contractor	Contact Name	Contact Address	Contact Phone
Monticello WWTTP	Monticello, KY	City of Monticello	Dec., 2014	\$ 7,054,447.19	Bell Engineering	Ron Rogers	2480 Fortune Dr., Ste 301, Lexington, KY 40509	859-278-5412
Carr Creek WTP Expansion	Vicco, KY	Knott Co. Water & Sewer	Aug., 2014	\$ 2,254,000.00	R.M. Johnson Engineering	Jared Salmons	P.O. Box 444, Hindman, KY 41822	606-785-5926
Jonesborough WWTTP	Jonesborough, TN	Town of Jonesborough	Oct., 2014	\$ 1,987,205.11	GRW Engineers	Robert Threadgill, P.E.	404 DNA Drive, Ste 201, Nashville, TN 37217	615-366-1600
Town Branch Vector Truck	Lexington, KY	Lexington Fayette Urban Gov't	Nov., 2014	\$ 391,998.00	Lexington Fayette Urban Govt.	Chase Azevedo	125 Industrial Avenue, Lexington, KY 40511	859-258-3425
Monticello WTP	Monticello, KY	City of Monticello	May, 2015	\$ 10,910,695.00	Bell Engineering	David Schrader	2480 Fortune Dr., Ste 301, Lexington, KY 40509	859-278-5412
Owensboro Riverfront Pavilion	Owensboro, KY	City of Owensboro	July, 2015	\$ 1,713,651.00	City of Owensboro	Bailey Bennett	P.O. Box 10003, Owensboro, KY 42302	270-687-8641
Bon Air Lift Station	Frankfort, KY	Frankfort Sewer Plant Board	Oct., 2015	\$ 1,430,729.82	Kenvirns, Inc.	Phil Mcador	452 Versailles Road, Frankfort, KY 40601	502-695-4357
Two Creeks Sanitary Sewer Collection Sys	Frankfort, KY	Frankfort Sewer Plant Board	Oct., 2015	\$ 3,335,943.54	Jacobus Engineering Group	Dinesh Palaniswamy	11880 Waycross Road, Cincinnati, OH 45240	513-595-7429

SMITH CONTRACTORS, INC.

TEN YEAR PROJECT HISTORY

SCHEDULE B

Project Name	Client	Contractor	Start Date	Amount	Contact Name	Contact Address	Contact Phone
New Water Treatment Plant Greensburg, KY	City of Greensburg	Bell Engineers	May, 2016	\$ 6,271,809.00	Mike Wilmoth	2480 Fortune Drive, Lexington, KY 40509	859-278-5412
Lebanon WTP Lebanon, TN	City of Lebanon	Water Management Services	June 2015	\$ 7,761,742.80	Joe Hinkle	12 International Plaza, Nashville, TN 37217	615-366-6088
Water Street Storm Sewer Richmond, KY	City of Richmond	Integrated Engineering	Sept., 2016	\$ 5,946,520.83	Steve Garland	166 Prosperous Place, Lexington, KY 40509	859-368-0145
Ross's Landing Riverfront Improvements Chattanooga, TN	City of Chattanooga	HDR Engineering, Inc.	April, 2016	\$ 6,278,943.06	Dan Garza	1201 Market Street, Ste C, Chattanooga, TN 37402	361-696-1300
Mike Creek WQTC Louisville, KY	Metropolitan Sewer District	Metropolitan Sewer District	Aug., 2016	\$ 9,074,751.37	Steven Leong	700 West Liberty Street, Louisville, KY 40203	502-540-6637
Moccasin Bend WWTP Effluent Disinfection Chattanooga, TN	City of Chattanooga	Barge Waggoner Sumner & Cannon	May 2016	\$ 8,043,733.86	David Bible	1110 Market St, Ste 200, Chattanooga, TN 37402	423-756-3025
Hartsville WWTP Improvements Hartsville, TN	Hartsville/Trousdale Water & Sewer	Barge Waggoner Sumner & Cannon	May 2017	\$ 6,200,899.00	Luke Burris	211 Commerce St., Ste 600, Nashville, TN 37201	615-254-1500

Smith Contractors, Inc.

Current Projects

Schedule A

Project Name & Location	Owner	Engineer	Contract		Schedul Completion	Reference Including Address & Phone #
			Amount	Percent Complete		
Harrodsburg WWTP Expansion Harrodsburg, Kentucky	City of Harrodsburg	GRW Engineers	\$ 15,608,517.00	83%	900 days	Bob Smallwood, P.E. 801 Corporate Drive, Lexington, KY 40503 859-223-3999
West Frankfort Pump Station Frankfort, Kentucky	City of Frankfort	GRW Engineers	\$ 2,860,000.00	96%	395 days	John Martin, P.E. 801 Corporate Drive, Lexington, KY 40503 859-223-3999
Solids Handling Improvements - Beaver Creek WWTP Powell, Tennessee	Hallsdale/Trousdale Water & Sewer	CTI Engineers	\$ 7,737,498.00	86%	365 days	Gary Cosby, P.E. Riverfront Parkway, Chattanooga, TN 37402 423-267-7613 1122
Ten Mile PS & Sewer Lines Knoxville, Tennessee	West Knox Utility District	GRW Engineers	\$ 4,244,000.00	11%	360 days	Louis Robbins, P.E. 404 BNA Drive, Ste 201, Nashville, TN 37217 615-366-1600
Fleming-Neon WTP Fleming-Neon, Kentucky	City of Fleming-Neon	Nesbitt Engineering, Inc.	\$ 2,324,000.00		360 days	Ora Main, P.E. 227 North Upper Street, Lexington, KY 40507 859-685-4514
Versailles WWTP Versailles, Kentucky	City of Versailles	GRW Engineers, Inc.	\$ 18,414,000.00	4%	720 days	John Martin, P.E. 801 Corporate Drive, Lexington, KY 40503 859-223-3999
WWTP Improvements Trenton, Tennessee	Trenton Light & Water	J.R. Wauford & Co.	\$ 8,888,000.00		365	Robert Qualman, P.E. PO Box 140350, Nashville, TN 37214 615-883-3243
I-64 Transmission Main Louisville, Kentucky	Louisville Water Company	Louisville Water Co	\$ 12,680,000.00		515	Eric Walls 550 South Third Street, Louisville, KY 40202 502-569-3600

Current DBE Subcontractor Participation

Subcontractor Name	Project (Specific Type)	DBE	% of Work
Lykins Reinforcing	Harrodsburg WWTP Expansion (Tie Rebar)	WBE	3%
Bison Services, LLC	Fleming-Neon WTP	MBE	5%

West Hickman 7 WWS (Contract No. 2) Equipment Manufacturer (circle one) - Bid Basis	
Solids Handling Submersible & Dry Pit Pumps	ABC Flygt KSB Fairbanks Nijhuis
Mechanical Bar Screen	Headworks Huber Duperon
Screenings Compactor	Headworks Huber Duperon
Screening Conveyor	Headworks Huber Duperon
Sump Pumps	Myers Flygt Hydromatic Zgeller
Odor Control Absorber	ECS Environmental Solutions/Calgon Daniel Company Evoqua
Odor Control Chemical Feed System	Evoqua Others (List)
Check Valves	Apco Golden Anderson Val-matic
Modulating Plug Valve	Dezurik Golden Anderson Henry Pratt
Slide/Sluice Gates	Aquanox Waleman Golden Harvest
Electric Actuators	Limitorque Auma EIM
Generator	Generac Caterpillar Cummins/ONAN MTU/Detroit Diesel Kohler
Level Transmitters	Endress+Hauser Foxboro Siemens Yokogawa
VFDs	Square D Eaton Allen Bradley
SCADA PLC's	Allen Bradley Compactlogix
Motor Control Centers	Square D Cutler Hammer Allen Bradley
Blowers	Aerzen Kaeser
Jet Mixing System	Evoqua Jet Tech Kia Mass Transfer
Ground Storage Tank	Crom Pfecon Preload



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. Geco London, KY (606)864-7550	MBE	Furnish materials	\$ 994,000	9%
2. Ly Kins Reinforcing Louisville, KY 502 634-5030	WBE	furnish and install rebar	\$ 169,766.00	1%
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.

Smith Contractors, Inc.
Company

Henry Smith
Company Representative

11/2/17
Date

President
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	1/2 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 MWDBE 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 MWDBE 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 MWDBE 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

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. 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.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled "MWDBE Participation Form". The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form." The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the "MWDBE Participation Form", the "Quote Summary Form" and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter "None" on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. 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.
 - b. Included documentation of advertising in the above publications with the bidders good faith efforts package
 - c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event

- d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities
- e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.
- f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).
- g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE 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.
- h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs and/or Veteran-Owned businesses 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.
- i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.
- j. Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.
- k. 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
- l. 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.
- m. 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.
- n. 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.
- o. 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

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

q. 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 review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.



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	tyra@commercelexington.com	859-226-1625
Tri-State Minority Supplier Diversity Council	Susan Marston	smarston@tsmsdc.com	502-365-9762
Small Business Development Council	Shawn Rogers UK SBDC	shawn.rogers@uky.edu	859-257-7666
Community Ventures Corporation	Phyllis Alcorn	palcorn@cvkv.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@orvwb.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@nwbo.org	800-675-5066
Small Business Administration	Robert Coffey	robertcoffey@sba.gov	502-582-5971
LaVoz de Kentucky	Andres Cruz	lavozdeky@yahoo.com	859-621-2106
The Key News Journal	Patrice Muhammad	production@kcynewsjournal.com	859-685-8488

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.

BRANCH OF WORK** (List each major item)	SUBCONTRACTOR	MWDBE (yes/no)	% of WORK
1. <u>Masonry</u>	Name: <u>Hume Masonry</u>	<u>No</u>	
	Address: <u>Harrodsburg, Ky</u>		
2. <u>Roofing</u>	Name: <u>JC Industries</u>	<u>NO</u>	
	Address: <u>Louisville, Ky</u>		
3. <u>Painting</u>	Name: <u>Horn Painting</u>	<u>NO</u>	
	Address: <u>Nicholasville, Ky</u>		
4. <u>Tie Rebar</u>	Name: <u>Lykins Reinforcing</u>	<u>Yes</u>	
	Address: <u>Louisville, Ky</u>		
5. <u>Electrician</u>	Name: <u>Faust Electric</u>	<u>NO</u>	
	Address: <u>Lexington, Ky</u>		
6. _____	Name: _____	_____	
	Address: _____		

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

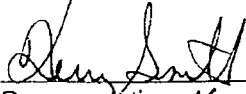
1.07 AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

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 _____. [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.

SMITH CONTRACTORS, INC.
Company

11-2-17
Date


Representative KERRY SMITH

1.08 STATEMENT OF EXPERIENCE (ATTACHED)

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

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.

Smith Contractors, Inc.

KEY PERSONNEL

Schedule C

<i>Employee Name</i>	<i>Position</i>	<i>Date Started with SCT</i>	<i>Date Started in Construction</i>	<i>Prior Positions and Experience in Construction</i>
Kerry Smith	President/Owner	January, 1982	1970	Superintendent/Project Manager
Joe Smith	Vice-President	June, 1999	1998	Superintendent/Project Manager
Vandra Guffey	Treasurer	December, 1989	1982	Accounting Controller
Jerry Powell	Superintendent/ Project Manager	May, 1992	1972	Resume provided upon request
Jack Pennington	Superintendent	November, 1984	1983	Resume provided upon request
Dennis Muse	Superintendent	April, 2004	1984	Resume provided upon request
Jason Steinmetz	Superintendent/ Project Manager	December, 2001	2000	Resume provided upon request
Mike Craft	Superintendent	June, 2004	1994	Resume provided upon request
Chris James	Superintendent	August, 2001	2001	Resume provide upon request

1.09 EQUAL OPPORTUNITY AGREEMENT

The Law

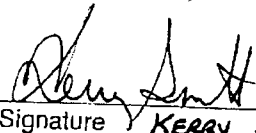
- * Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- * Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment 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 KERRY SMITH

SMITH CONTRACTORS, INC.
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 MWDBE SUBCONTRACTOR PARTICIPATION FORM



DMB Control No: 2090-0030
 Approved: 8/13/2013
 Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE¹ subcontractor² the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name		Project Name <i>West Hickman 7 West Hickman Storage Facilities Improvements</i>	
Bid/ Proposal No. <i>140-2017</i>	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name <i>SMITH CONTRACTORS, INC.</i>		Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)

1.11 MWDBE SUBCONTRACTOR PERFORMANCE FORM



OMB Control No: 2090-0030
 Approved: 8/13/2013
 Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Performance Form

This form is intended to capture the DBE¹ subcontractor's² description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name		Project Name <i>WEST HACKMAN 7 Wet WEATHER STORAGE FACILITIES IMPROVEMENTS</i>	
Bid/ Proposal No. <i>140-2017</i>	Assistance Agreement ID No. (if known)	Point of Contact	
Address			
Telephone No.		Email Address	
Prime Contractor Name <i>SMITH CONTRACTORS, Inc.</i>		Issuing/Funding Entity:	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor
DBE Certified By: <input type="checkbox"/> DOT <input type="checkbox"/> SBA		Meets/ exceeds EPA certification standards? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Unknown
Other: _____		

¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-3 (DBE Subcontractor Performance Form)

**Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Performance Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

<i>[Signature]</i> Prime Contractor Signature	Print Name
<i>[Signature]</i> Title	<i>Keya Smith</i> Date
PRESIDENT	11-2-17

Subcontractor Signature	Print Name
Title	Date

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

EPA FORM 6100-3 (DBE Subcontractor Performance Form)

1.12 MWD BE SUBCONTRACTOR UTILIZATION FORM



OMB Control No: 2090-0030
 Approved: 8/13/2013
 Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE¹ subcontractors² and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name <i>SMITH CONTRACTORS, INC.</i>		Project Name <i>WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS</i>	
Bid/ Proposal No. <i>190-2017</i>	Assistance Agreement ID No. (if known)	Point of Contact <i>KERRY SMITH</i>	
Address <i>P.O. Box 480, 1241 Bypass North, Lawrenceburg, Ky 40390</i>			
Telephone No. <i>502-839-4196</i>		Email Address <i>KS@SCI82.COM</i>	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
If yes, please complete the table below. If no, please explain:			
Subcontractor Name/ Company Name	Company Address/ Phone/ Email	Est. Dollar Amt	Currently DBE Certified?

Continue on back if needed

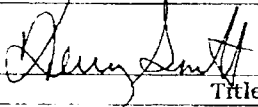
¹ A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

² Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

Disadvantaged Business Enterprise (DBE) Program
 DBE Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
	KERRY SMITH
Title	Date
PRESIDENT	11-2-17

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

1.13 MWDBE PARTICIPATION POLICY

PROJECT NAME: West Hickman 7 Wet Weather Storage Facility Improvements – Contract No. 2 Pump Station and Wet Weather Storage Tank Lexington-Fayette Urban County Government

LFUCG BID NO. 140-2017 BID DATE: 11-2-17

A. Name, address and telephone number of contact person on all MWDBE matters:

Prime Contractor's Name SMITH CONTRACTORS, INC.
Contact Person: KERRY SMITH
Address: P.O. Box 480, 1241 Bypass N., Lawrenceburg, Ky 40342
Phone: 502-839-4196 Cell: 502-680-1676
Email: KS@sci82.com
Total Contract Amount: _____

B. Total dollar amount/percent of contract of DBE participation: _____

C. Total dollar amount/percent of contract of MBE participation: _____

D. Total dollar amount/percent of contract of WBE participation: _____

E. Are certifications* for each MWDBE subcontractor enclosed; if no, please explain:

Yes No _____

F. Are MWDBE subcontracts or letters of intent signed by both parties enclosed; if no, please explain: Yes No _____

G. List of DBE Subcontractors:

Name _____
Contact Person: _____
Address: _____
Phone: _____ Cell: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

H. List of MBE Subcontractors:

Name _____
Contact Person: _____
Address: _____
Phone: _____ Cell: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

I. List of WBE Subcontractors:

Name _____

Contact Person: _____
 Address: _____
 Phone: _____ Cell: _____
 Email: _____
 Type of Contract: _____
 Work to be Done: _____
 Amount: _____

Attach additional sheets, if necessary.

*Self-certification: Self-certification of MWDBE firms will NOT be accepted as a valid form of certification of MWDBE status.

J. Information and documentation concerning efforts taken to comply with EPA's "six good faith efforts"

1. Ensure MWDBE construction firms or material suppliers are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing MWDBEs on solicitation lists and soliciting them whenever they are potential sources. A good source for a list of MWDBEs is the Kentucky Transportation's website: <http://transportation.ky.gov/Civil-Rights-and-Small-Business-Development/Pages/Certified-DBE-Directory.aspx>.

The prime contractor certifies that a bidders list (see example sheet below) of qualified vendors, including MWDBEs, was developed for current and future solicitations and that the list will be maintained. *Submit a copy of the list as documentation.*

2. Make information on forthcoming opportunities available to MWDBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by MWDBEs in the competitive process; including, whenever possible, posting solicitation for bids or proposals for a sufficient amount of time as to receive a competitive bid or proposal pool.

The prime contractor certifies that every opportunity was provided to a number of MWDBEs to encourage their participation in the competitive process and that an adequate amount of time was provided for response.

- a. List each MWDBE construction firm or material supplier to which a solicitation was attempted. *Submit copies of letters, emails, faxes, telecommunication logs, certified mail receipts, returned envelopes, certified mail return receipts, etc. as documentation.*

Company Name and Phone Number: _____

Area of Work Expertise: _____

Date of any Follow-Ups and Person Spoke to: _____

- b. Advertisements, if applicable: List each publication in which an announcement or notification was placed. *Submit a tear sheet of each announcement from each publication as documentation.*

Name of Publication: _____

Date(s) of Advertisement: _____

Specific Subcontract Areas Announced: _____

- c. Other, if applicable: List each notification method in which an announcement or outreach was used; list serve, public meeting, etc. *Submit applicable information to document effort.*

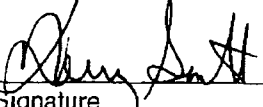
Method of Notification: _____

Date(s) of Notification: _____

3. Consider in the contracting process whether firms competing for large contracts could subcontract with MWDBEs; including dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by MWDBEs in the competitive process.
- The prime contractor certifies that the project was broken into its basic elements (i.e. dirt hauling, landscaping, painting, pipe installation, material supplies, etc.) and that a determination was made whether it's economically feasible to bid the elements separately and that the analysis of this effort was documented with a short memo to the project file.
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises.
- The prime contractor certifies that they established delivery schedules which would allow MWDBEs to participate in the projects.
5. Use the services and assistance of the Small Business Administration (SBA) and the Minority Business Development Agency (MBDA) of the U.S. Department of Commerce. The easiest way to utilize the services of SBA and MBDA is to visit their websites: www.sba.gov and www.mbda.gov and use the electronic tools available there or you may send the nearest SBA and MBDA office a certified letter that generally describes the solicitation, the dates it will be open, the types of vendors you are seeking and applicable SIC or NAIC codes if known. You may also use the services and assistance of the Kentucky Procurement Assistance Program (KPAP). The easiest way to utilize the services of KPAP is to send an email: ced.kpap@ky.gov and provide information on forthcoming opportunities available to MWDBEs.
- The prime contractor certifies that the assistance of the SBA, MBDA, and/or KPAP was utilized. *Submit pages printed off the SBA and MBDA websites which evidence efforts to register a solicitation on those sites or submit copies of the letter send and certified mail receipt as documentation; submit copies of emails with KPAP as documentation.*
6. If a subcontractor awards any subcontracts, require the subcontractor to take the steps in numbers 1 and 5 above.
- The prime contractor certifies that subcontractors used for this project will be required to follow the steps of the "six good faith efforts" as listed above.

Signature and Date:

To the best of my knowledge and belief, all "six good faith efforts" have been met and the information contained in this document is true and correct; the document has been duly authorized by the legal representative.



Signature

Kerry Smith - President

Print Name and Title

11-2-17

Date

1.15 WORKFORCE ANALYSIS FORM

Name of Organization: SMITH CONTRACTORS, INC.

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	M	F
Administrators	2	2															2	
Professionals																		
Superintendents	6	6															6	
Supervisors																		
Foremen	1	1															1	
Laborers Technicians	14	13	1														14	
Protective Service																		
Operators Para-Professionals	11	11															11	
Office/Clerical	6	2	3				1										2	4
Skilled Craft	10	7	3														10	
Service/Maintenance	8	7	1														8	
Total	58	49	3	5	1		1										54	4

Prepared By: Sandra W. Jeffrey Date 11/2/17

1.16 EVIDENCE OF INSURABILITY


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

Names Insured: Smith Contractors, Inc.
 Address: PO Box 480, Lawrenceburg, KY 40342
 Project to be Insured: Lexington Project - West Hickman 7

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 (e) through (e)	\$1,000,000 per occ \$2,000,000 agg	Amerisure Mutual	23396	A
1.05.D.1	Auto	Combined single \$1,000,000/per occ. aggregate Requirements (a) through (c)	\$1,000,000 CSL/per occ agg	Amerisure Mutual	23396	A
1.05.D.1	WC	\$ Statutory	\$4,000,000	Kentucky AGC	55002	A-
1.05.D.1	Employer's Liability	\$500,000	\$4,000,000 ea accident ea employee, pol limit	Kentucky AGC	55002	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

Garrett-Stotz Company
 Agency or Brokerage
1601 Alliant Avenue
 Street Address
Louisville, KY 40299
 City
502-415-7000
 Telephone Number
Steven M. Garrett
 Name of Authorized Representative
Owner
 Title

 Authorized Signature
10/26/17
 Date

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.

1.17 DEBARRED FIRMS

PROJECT NAME: WEST HICKMAN ? Wet Weather Storage Facilities Improvements
CONTRACT No. 2 - Pump Station and Wet Weather Storage Tank
LFUCG BID NO.: 140 - 2017

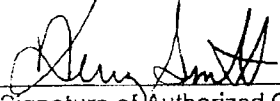
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY

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 SMITH CONTRACTORS, INC. 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.

SMITH CONTRACTORS, INC.
Name of Firm Submitting Bid


Signature of Authorized Official KERRY SMITH

PRESIDENT
Title

11-2-17
Date

1.18 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:

SMITH CONTRACTORS, INC.

Project:

WEST HICKMAN 7 Wet WEATHER STORAGE FACILITIES IMPROVEMENTS
CONTRACT NO. 2 - Pump station & Wet WEATHER STORAGE TANK

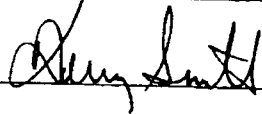
Printed Name:

KERRY SMITH

Title of Authorized Representative:

PRESIDENT

Signature:



Date:

11-2-17

1.19 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:

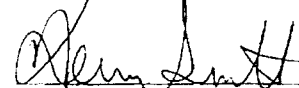
- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection 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.

Kerry Smith - President

Typed Name & Title of Authorized Representative

KERRY SMITH



Signature of Authorized Representative

11-2-17

Date

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

1.20 BID BOND

BID BOND

Bond Number: N/A

KNOW ALL MEN BY THESE PRESENTS, that we Smith Contractors, Inc.

as principal (the "Principal") and Liberty 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% Bid Amount (Five Percent Bid Amount) 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 West Hickman 7 Wet Weather Storage - Contract 2

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 2nd day of November, 2017.

WITNESS / ATTEST:

[Signature]
Principal (Secretary)

Smith Contractors, Inc.
Principal

By: [Signature] (seal)
Name: Kerry Smith
Title: PRESIDENT

[Signature]
Surety (Secretary)
Terri Cook, Attorney-in-Fact

Liberty Mutual Insurance Company
Surety
By: [Signature] (seal)
Name: Christopher A Cyterski
Title: Attorney-in-Fact

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7563357

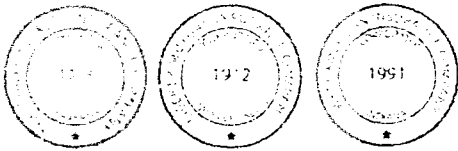
Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint: Betty Hatfield; Christopher A. Cyterski; David Douglas; Sandra Burnash; Terri Cook

all of the city of Louisville, state of KY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of March, 2017



STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 10th day of March, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 23, 2021
Member, Pennsylvania Association of Notaries

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

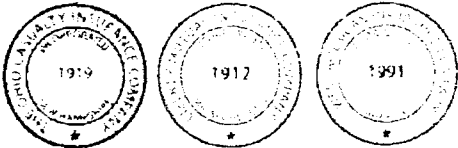
ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned Assistant Secretary The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 2nd day of November, 2017

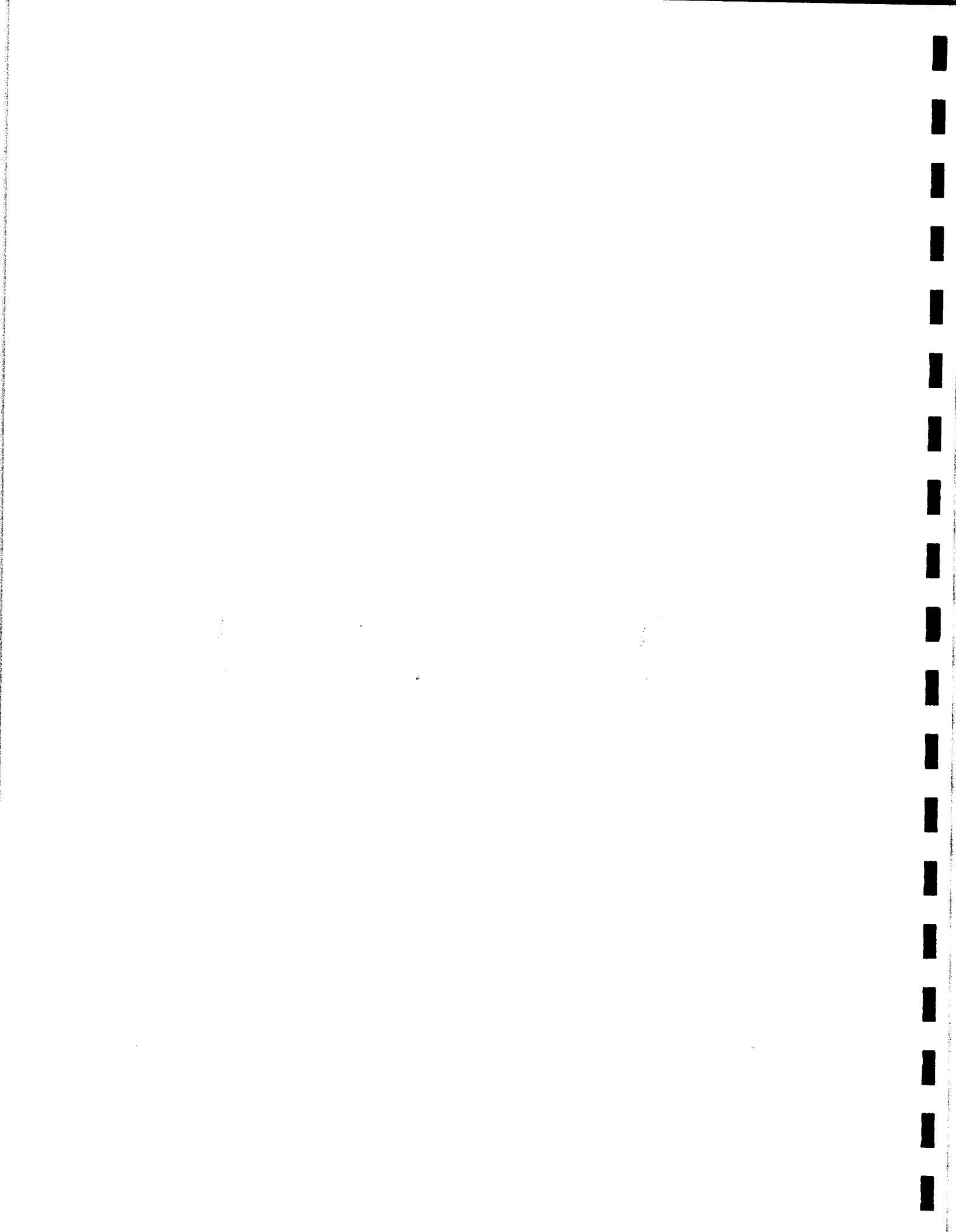


STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

By: Renee C. Llewellyn
Renee C. Llewellyn Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



SECTION 00510 – NOTICE OF AWARD

CONTRACTOR: Smith Contractors, Inc.
P.O.Box 480 1241 Bypass N.
Lawrenceburg, Kentucky 40342

OWNER: Lexington-Fayette Urban County Government
Division of Water Quality
Lexington, Kentucky

PROJECT: West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank

Lexington-Fayette Urban County Government

LFUCG Bid No. 140 - 2017

You are hereby notified that the Owner has considered the Bid submitted by you for the above-described project in response to its Advertisement for Bids dated November 2, 2017

It appears that it is to the best interest of said Owner to accept your Bid in the amount of Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00), and you are hereby notified that your Bid has been accepted for

West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank

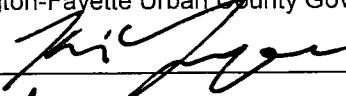
LFUCG Bid No. 140 - 2017

The Contractor is required by these Contract Documents to execute and deliver the formal Agreement (Contract) with the undersigned Owner and to furnish the required Contractor's Performance, Payment, Warranty, and Erosion and Sediment Control Bonds within fifteen (15) days from the date of the delivery of this Notice.

If you fail to execute said Agreement (Contract) and to furnish said Bonds within fifteen (15) days from the date of delivery of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Bid as abandoned and to award the Work covered by your Bid to another, or to re-advertise the Work or otherwise dispose thereof as the Owner may deem appropriate.

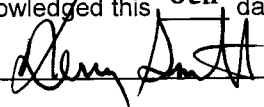
Dated this 8th day of December, 2017.

Lexington-Fayette Urban County Government

By: 
Title: Proc. Inv. Cook

NOTICE OF ACCEPTANCE

Receipt of the above Notice of Award is hereby acknowledged this 8th day of December, 2017.

By: 
Title: President

END OF SECTION



SECTION 00520 – AGREEMENT (CONTRACT)

THIS AGREEMENT, made on the 8th day of December, 2017, by and between Lexington Fayette Urban County Government, acting herein called "OWNER" and Smith Contractors, Inc. doing business as a Corporation located in the City of Lawrenceburg, County of Anderson, State of Kentucky, hereinafter called "CONTRACTOR".

WITNESSETH: That the CONTRACTOR and the OWNER in consideration of Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00) quoted in the BID by the CONTRACTOR, dated November 2, 2017, hereby agree to commence and complete the construction described as follows:

1.01 SCOPE OF WORK

The CONTRACTOR shall furnish all the materials, supplies, machinery, equipment, tools, supervision, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the BID, the Contract Documents, and the Specifications prepared by the Engineer for the:

West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank. LFUCG Bid No. 140 - 2017

1.02 TIME OF COMPLETION

The time period estimated and authorized by the OWNER for Substantial Completion of Work by the AGREEMENT, in full, is hereby fixed as **380 consecutive calendar days**. The time shall begin ten (10) calendar days after CONTRACTOR is issued the Notice to Proceed.

1.03 ISSUANCE OF NOTICE TO PROCEED

Notice to Proceed for Work will be issued in whole or in part of the Work as determined by the OWNER pending the availability of funds. The order of construction will be as determined by the Engineer after consultation with the CONTRACTOR and the OWNER.

1.04 AGREEMENT (CONTRACT) AMOUNT

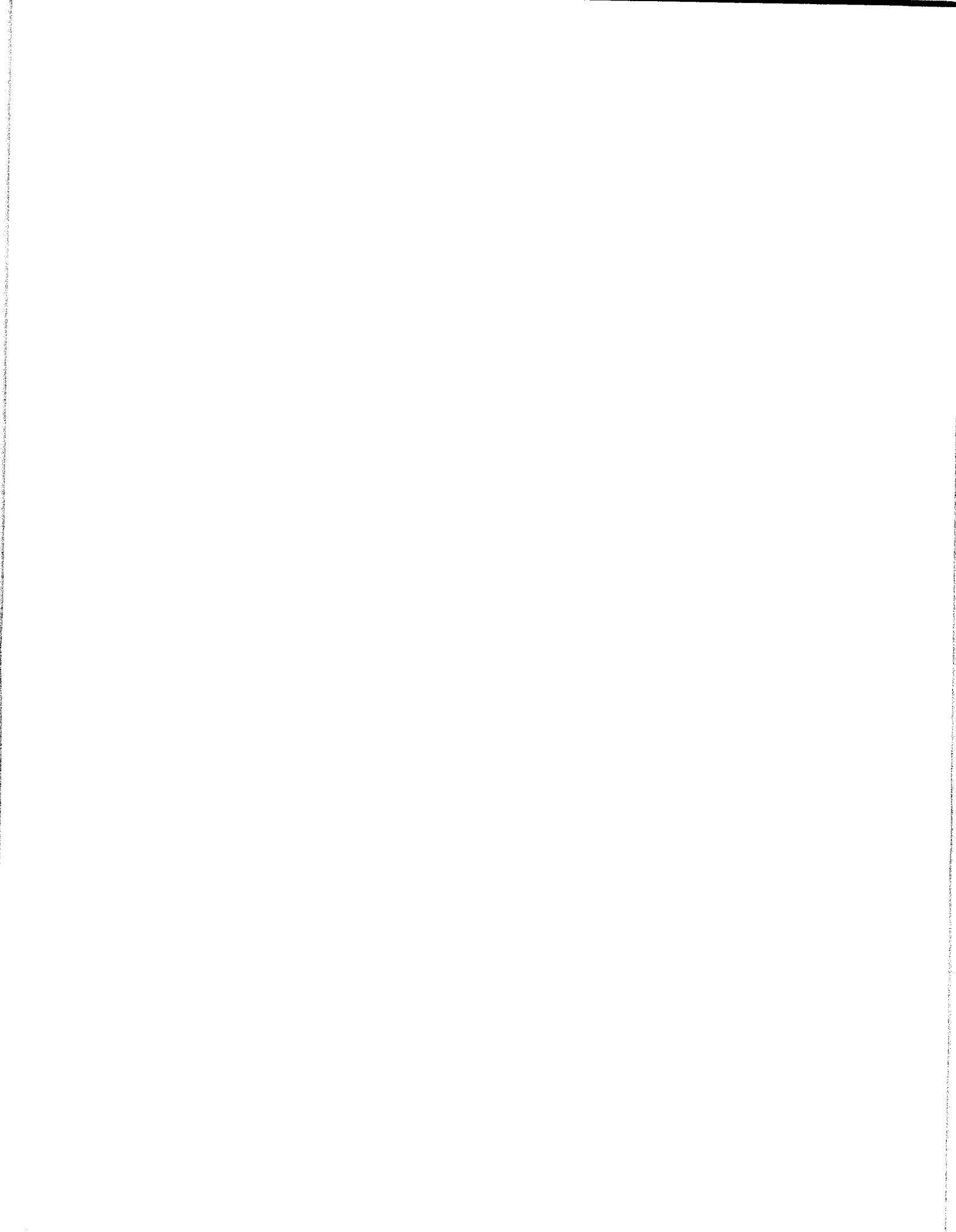
The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the AGREEMENT as quoted in the BID, subject to any additions and deductions, as provided therein.

1.05 PROGRESS PAYMENTS

The OWNER shall make payments on account of the AGREEMENT in accordance with the General Conditions, as recommended by the Engineer and authorized by the OWNER, less the aggregate of previous payments.

1.06 ACCEPTANCE AND FINAL PAYMENT

Final payment shall be due within ninety (90) days after Final Completion of the Work, provided the Work is deemed "Final Completion" and fully accepted by the OWNER.



Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the Engineer that all payrolls, material bills, and other indebtedness connected with the AGREEMENT (CONTRACT) has been paid.

If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the ENGINEER so certifies, the OWNER shall upon certificate of the ENGINEER, and without terminating the AGREEMENT (CONTRACT), make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

1.07 EXTRA WORK

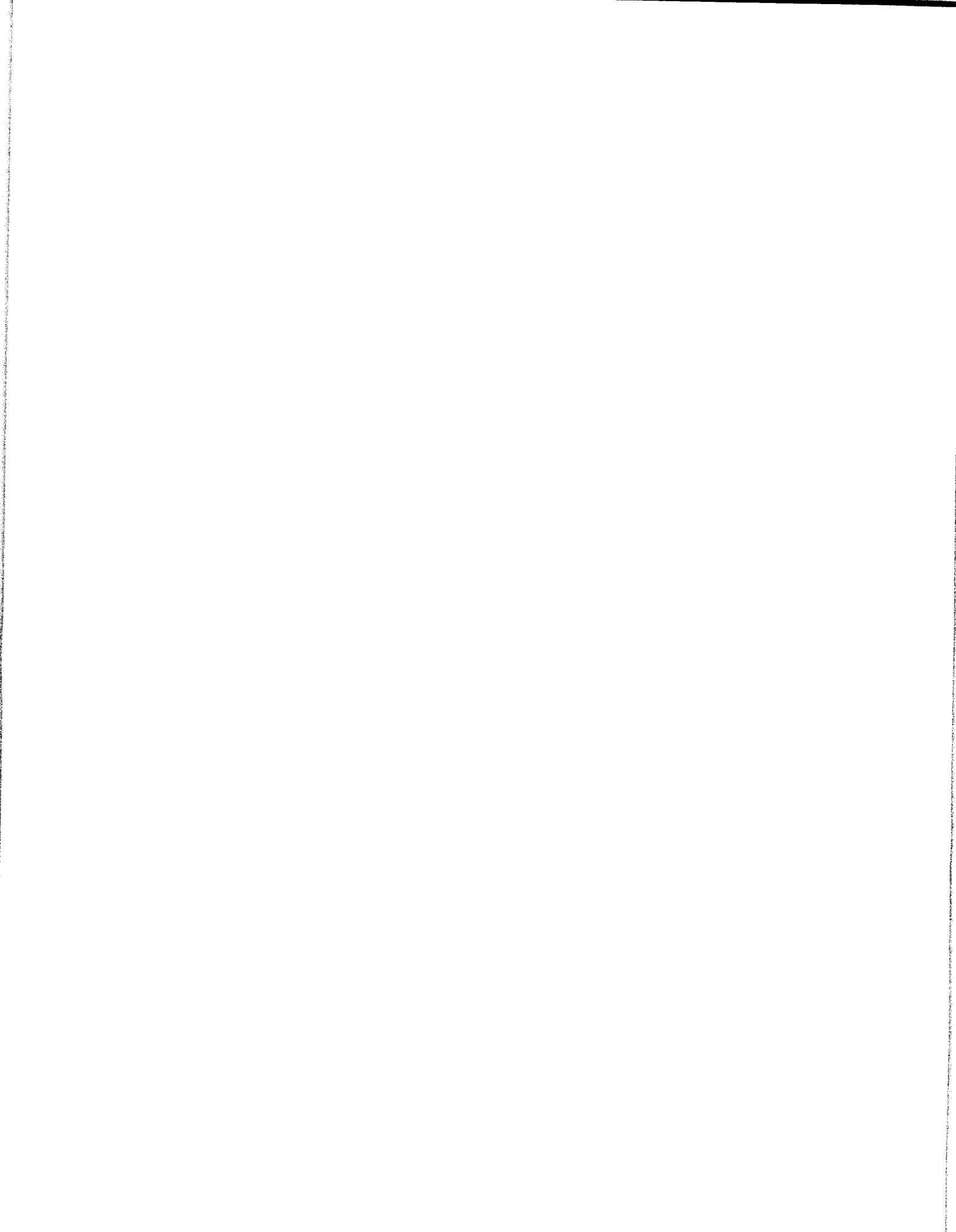
The OWNER, without invalidating the AGREEMENT (CONTRACT) may order extra work or make changes by altering, adding to or deducting from the Work, the AGREEMENT (CONTRACT) amount being adjusted accordingly. All such work shall be executed and paid for in accordance with the General Conditions.

1.08 LIQUIDATED DAMAGES

If the CONTRACTOR shall fail or refuse to complete the Work within the AGREEMENT (CONTRACT) Time, or extension of time granted by the OWNER, then the CONTRACTOR agrees as a partial consideration for the awarding of this AGREEMENT (CONTRACT) that the OWNER may retain the compensation otherwise to be paid to the CONTRACTOR the amount of eight hundred dollars (\$800) per consecutive calendar day that the CONTRACTOR shall be in default after the Final Completion time stipulated in the Contract Documents. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain.

1.09 CONSENT DECREE REQUIREMENTS

- A. The OWNER, the United States Environmental Protection Agency, and the Commonwealth of Kentucky have entered into a Consent Decree in a case styled *United States, et al. v. Lexington-Fayette Urban County Government*, United States District Court for the Eastern District of Kentucky, Case No. 5:06-CV-00386 ("CONSENT DECREE"), that requires OWNER to complete numerous projects related to its sanitary sewer system and stormwater management program within specific periods of time.
- B. **Time is of the essence in the performance of this Agreement (CONTRACT).** CONTRACTOR is aware that the OWNER is subject to penalties for non-compliance with the CONSENT DECREE deadlines. The CONTRACTOR shall be specifically liable and responsible for payment of any and all penalties, fines, or fees assessed against or incurred by the OWNER as a result of any delay in, or non-performance of, any of the CONTRACTOR's obligations or responsibilities under this AGREEMENT (CONTRACT), or for any other damages suffered by OWNER as a result of such delay or non-performance. This shall specifically include, but shall not be limited to, any penalty, fine, fee, or assessment against the OWNER by the U.S. Department of Justice, U.S. Environmental Protection Agency, and/or the Kentucky Energy and Environment Cabinet related to the CONSENT DECREE.
- C. The provisions of the Contract Documents and the various rates of compensation for CONTRACTOR's services provided for elsewhere in this AGREEMENT (CONTRACT) have been agreed to in anticipation of the orderly and continuous progress of the AGREEMENT (CONTRACT) through completion.



- D. If delays result by reason of acts of the OWNER or approving agencies, which are beyond the control of the CONTRACTOR, an extension of time for such delay will be considered. If delays occur, the CONTRACTOR shall immediately notify the OWNER and within five (5) business days from the date of the delay apply in writing to the OWNER for an extension of time for such reasonable period as may be mutually agreed upon between the parties, and if approved, the AGREEMENT (CONTRACT) schedule shall be revised to reflect the extension. Such extension of time to the completion date shall in no way be construed to operate as a waiver on the part of the OWNER of any of its rights in the AGREEMENT (CONTRACT). In the event the parties cannot agree upon an extension of time, the Dispute shall be addressed in the manner outlined hereinafter under this Article.

In the event that the overall delay resulting from the above-described causes is sufficient to prevent complete performance of the AGREEMENT (CONTRACT) within six (6) months of the time specified herein, the fees to be paid to CONTRACTOR shall be subject to adjustment as agreed upon by the parties.

- E. If delays result solely by reason of acts of the CONTRACTOR, the CONTRACTOR 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. Disputes as outlined hereinafter in this Article shall apply in the event the parties cannot mutually agree upon the cause(s) associated with delays in completing project deliverables. The CONTRACTOR 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.

F. DISPUTES

Except as otherwise provided in this AGREEMENT (CONTRACT), any dispute hereunder may be resolved by agreement of the OWNER's Agent (Charles H. Martin, P.E., Director of Water Quality) and the CONTRACTOR. In the absence of such an agreement, the dispute shall be submitted to the OWNER's Commissioner, Department of Public Works and Environmental Quality, whose decision shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, capricious, arbitrary, or so grossly erroneous as necessarily to imply bad faith. Pending a final decision of a dispute hereunder the CONTRACTOR shall proceed diligently with the performance of the AGREEMENT (CONTRACT) in accordance with the direction of the OWNER.

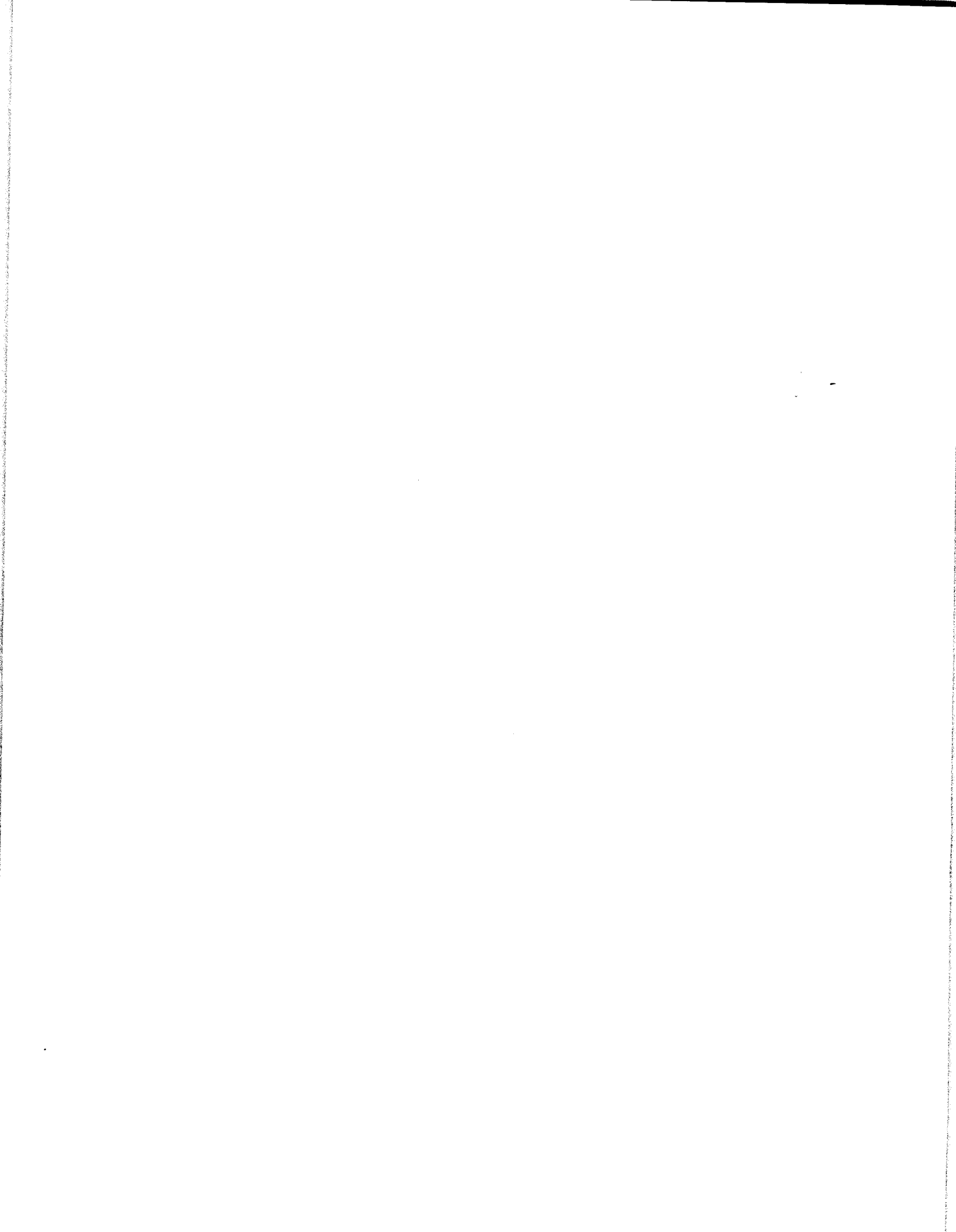
1.10 RIGHT TO REVIEW, AUDIT, AND INSPECT

The CONTRACTOR shall provide to the OWNER or its duly authorized representative(s), at any time during the course of the contract and up to five (5) years thereafter, access to any books, documents, papers, emails, and/or other records or communications which are directly pertinent to this specific contract for the purpose of making audit, examination, excerpts, and transcriptions.

1.11 CONTRACT DOCUMENTS

In general, the Advertisement for Bids, Information Available to Bidders, the Bid, the General Conditions, Performance, Payment, Erosion and Sediment Control and Warranty Bonds, AGREEMENT (CONTRACT), Supplementary Conditions, Supplemental General Conditions for SRF, Technical Specifications, any and all Addenda, and Plan Drawings form the AGREEMENT (CONTRACT) and they are fully a part of the AGREEMENT (CONTRACT) as if hereto attached or herein repeated.

A full listing of the Contract Documents consist of the following:



Specifications: Per Table of Contents
Drawings (Plans): Per Table of Contents

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

(Seal)

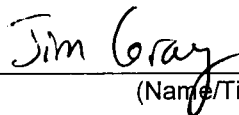
Lexington-Fayette Urban County Government
Lexington, Kentucky

(Owner)

ATTEST:


Clerk of Urban County Council

By: 
(Signature of Mayor)

 , Mayor
(Name/Title)

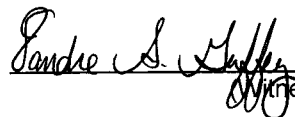
(Seal)

Smith Contractors, Inc.

(Contractor)


(Secretary)*

By: 
(Contractor's Signature)


(Witness)

Kerry Smith - President
(Name/Title)

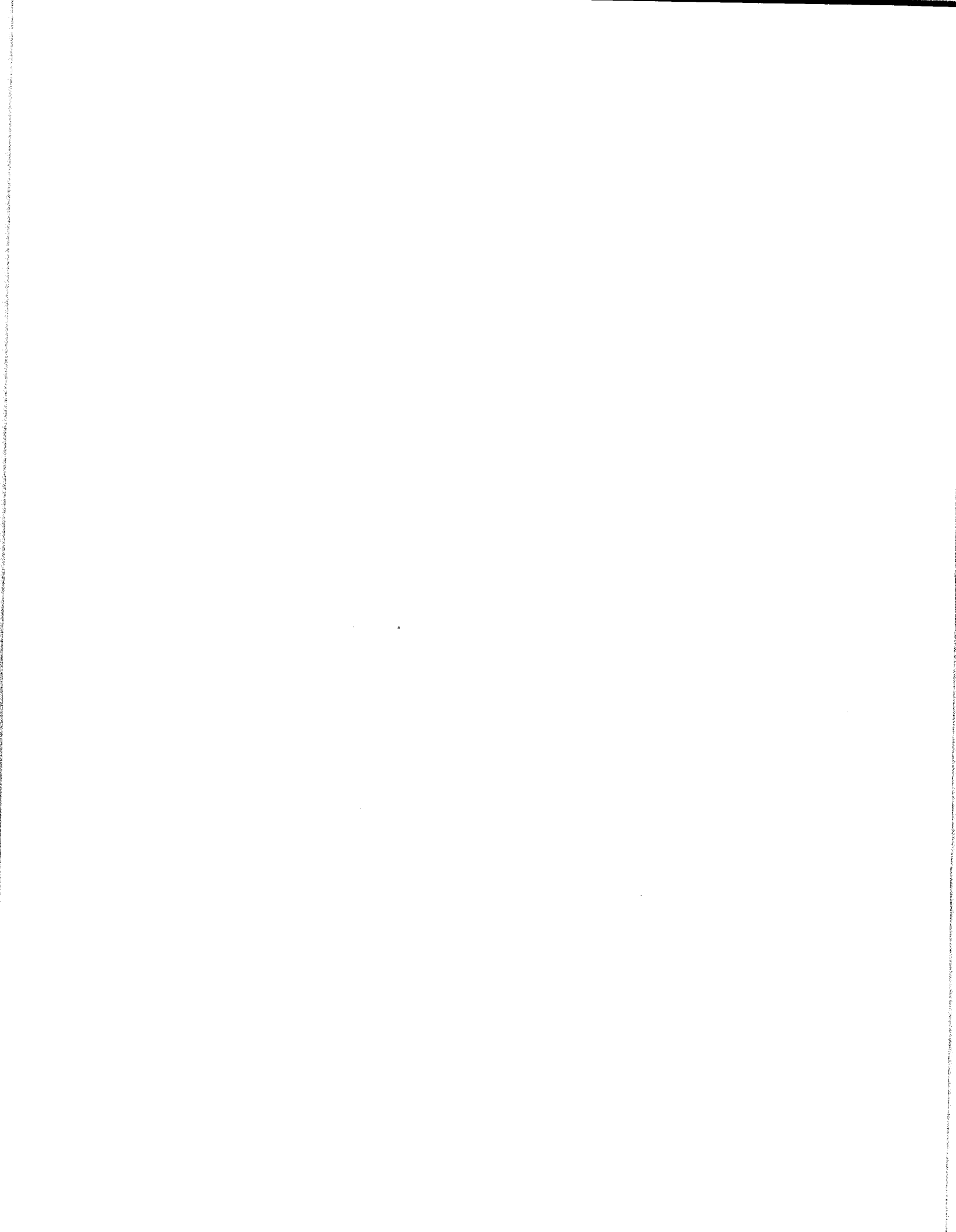
P.O. Box 480
(Address)

Lawrenceburg, KY 40342

*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: Smith Contractors, Inc.
P.O. Box 480 1241 Bypass N.
Lawrenceburg, Kentucky 40342

OWNER: Lexington-Fayette Urban County Government
Lexington, Kentucky

PROJECT: West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2
Pump Station and Wet Weather Storage Tank

Lexington-Fayette Urban County Government

Lexington, Kentucky

LFUCG Bid No. 140 - 2017

Agreement (Contract) Amount:
Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00).

You are hereby notified to commence Work on the referenced project on or before December 18th, 2017 and to substantially complete Work within 380 CONSECUTIVE CALENDAR DAYS thereafter. Your Agreement (Contract) completion date is therefore January 2, 2019.

The Agreement (Contract) provides for assessment of the sum of Eight Hundred Dollars (\$ 800) as liquidated damages for each consecutive calendar day after the above established Agreement (Contract) completion date that the Work remains incomplete.

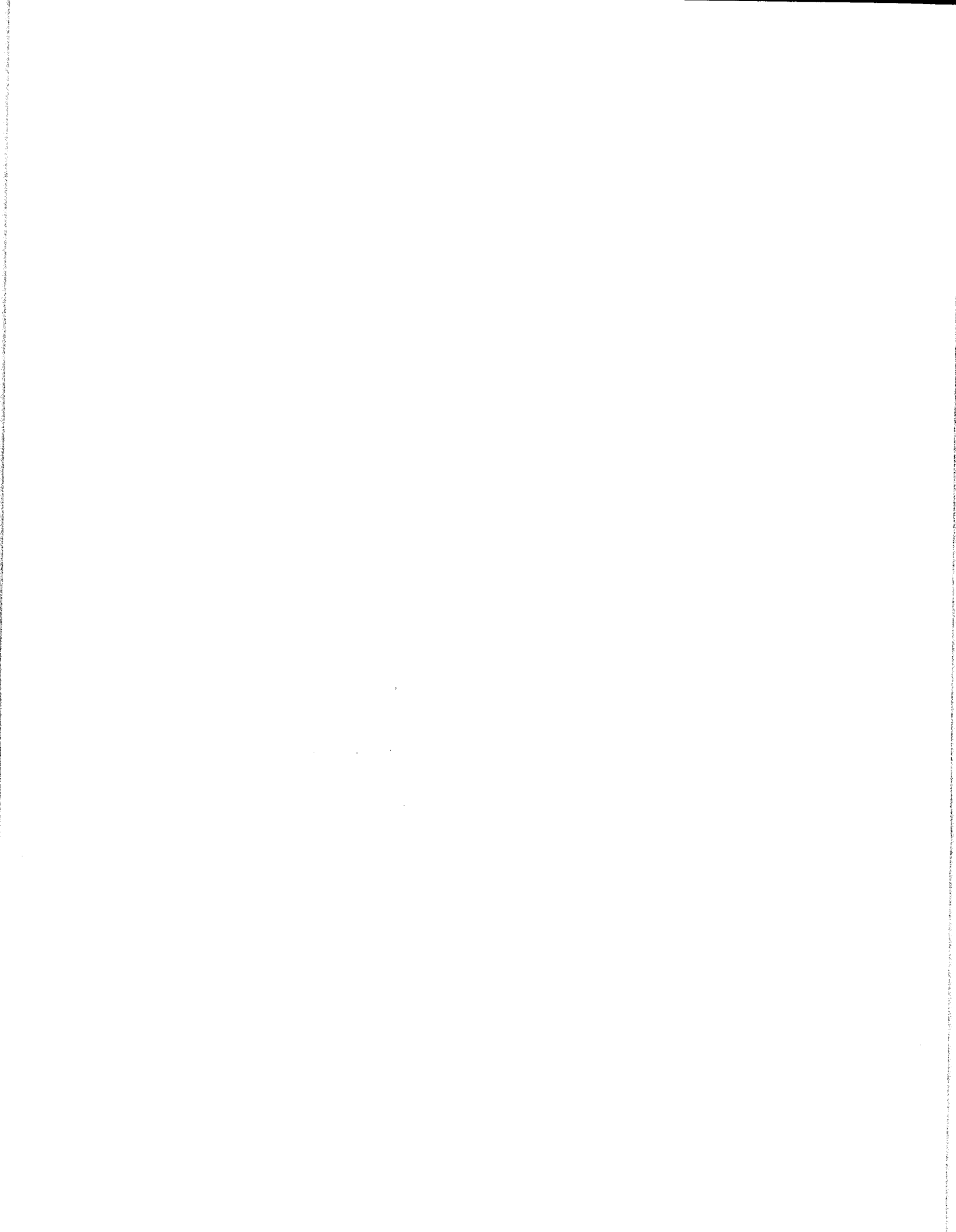
Lexington-Fayette Urban County Government

By: 

Title: PROV. ENG. CORO.

Date: 12/18/17

END OF SECTION



1.01 PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Smith Contractors, Inc.
P.O. Box 480
1241 Bypass N.
Lawrenceburg, KY 40342
a Corporation, hereinafter called Principal, and

Liberty Mutual Insurance Co.
2000 Westwood Drive 175 Berkley Street
Wausau, WI 54402-8017 Boston, MA 02116
hereinto called Surety, are held and firmly bound unto

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

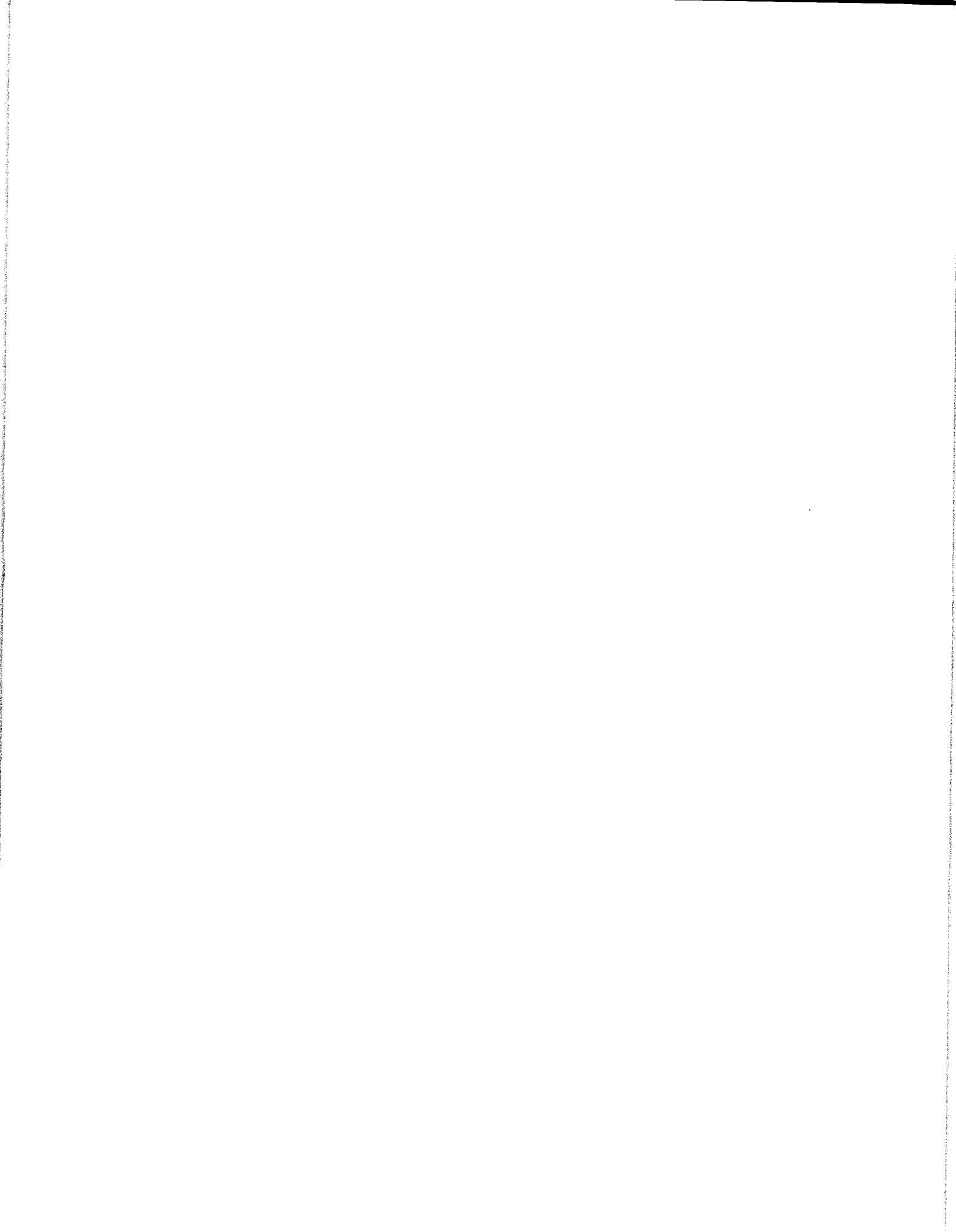
Obligee, hereinafter called "OWNER" in the penal sum of:

Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00) 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
West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 –Pump Station and Wet
Weather Storage Tank, LFUCG Bid No. 140 - 2017 in accordance with Contract Documents prepared by
HDR Engineering, Inc. and dated December 8th, 2017, 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 five counterparts, each one of (number)

which shall be deemed an original, this the 8th day of December, 2017.

ATTEST:

[Signature]
(Principal) Secretary

Smith Contractors, Inc.
Principal

By: [Signature] (s)

Address
PO Box 480, 1241 Bypass N
Lawrenceburg, KY 40342

[Signature]
Witness as to Principal

P.O. Box 480
Address

Lawrenceburg, KY 40342

Liberty Mutual Insurance Co.
Surety

ATTEST:

[Signature]
(Surety) Secretary

By: [Signature]
Attorney-in-Fact Betty Hatfield
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222

Address
Betty Hatfield

(SEAL)

Chris Cyterski
Witness to Surety

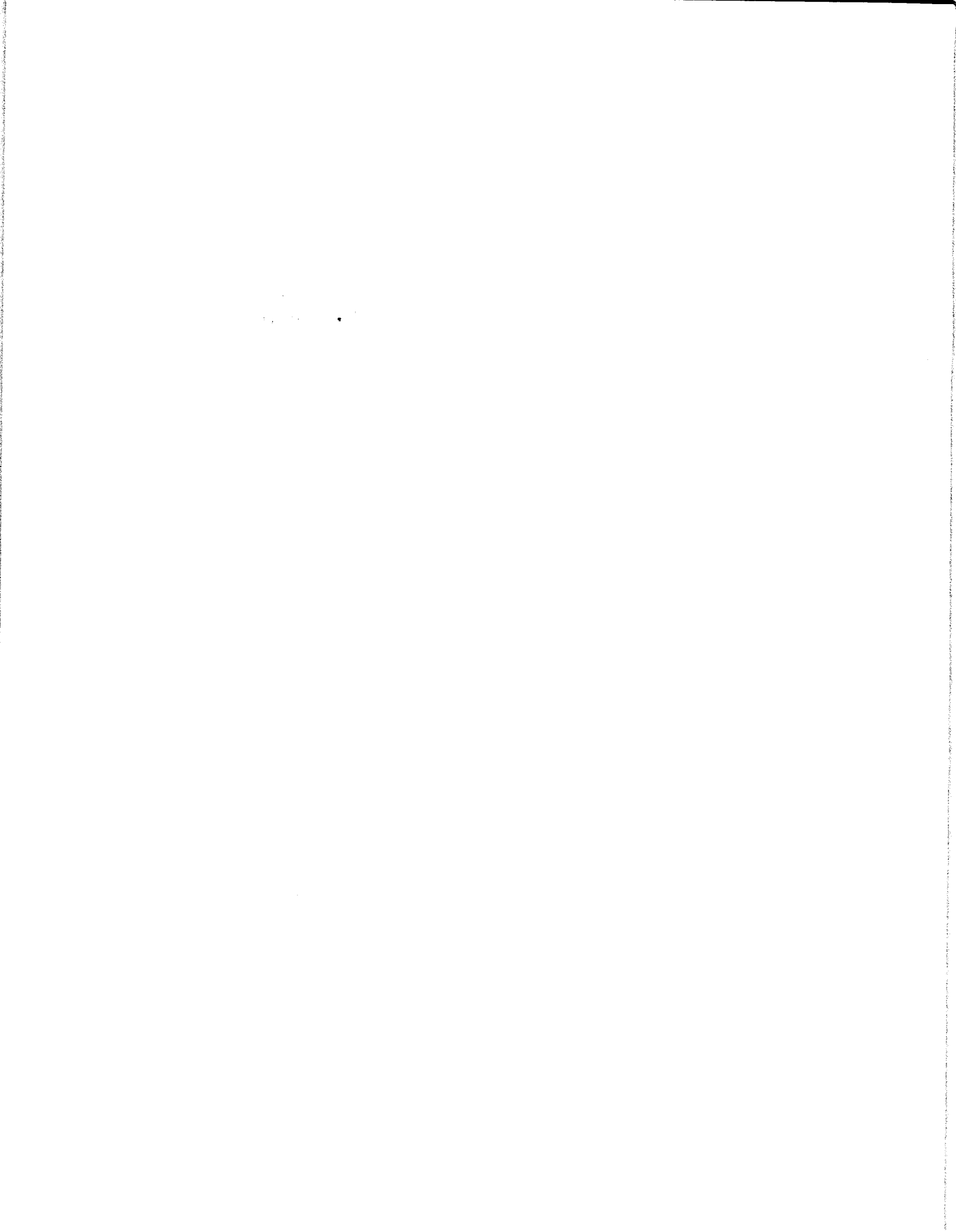
Title: Attorney-in-Fact
Surety

Address
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222

By: [Signature]

Title: Attorney-in-Fact

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



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7663963

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Betty Hatfield; Christopher A. Cyterski; David Douglas; Sandra Burnash; Terri Cook

all of the city of Louisville, state of KY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of March, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 10th day of March, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

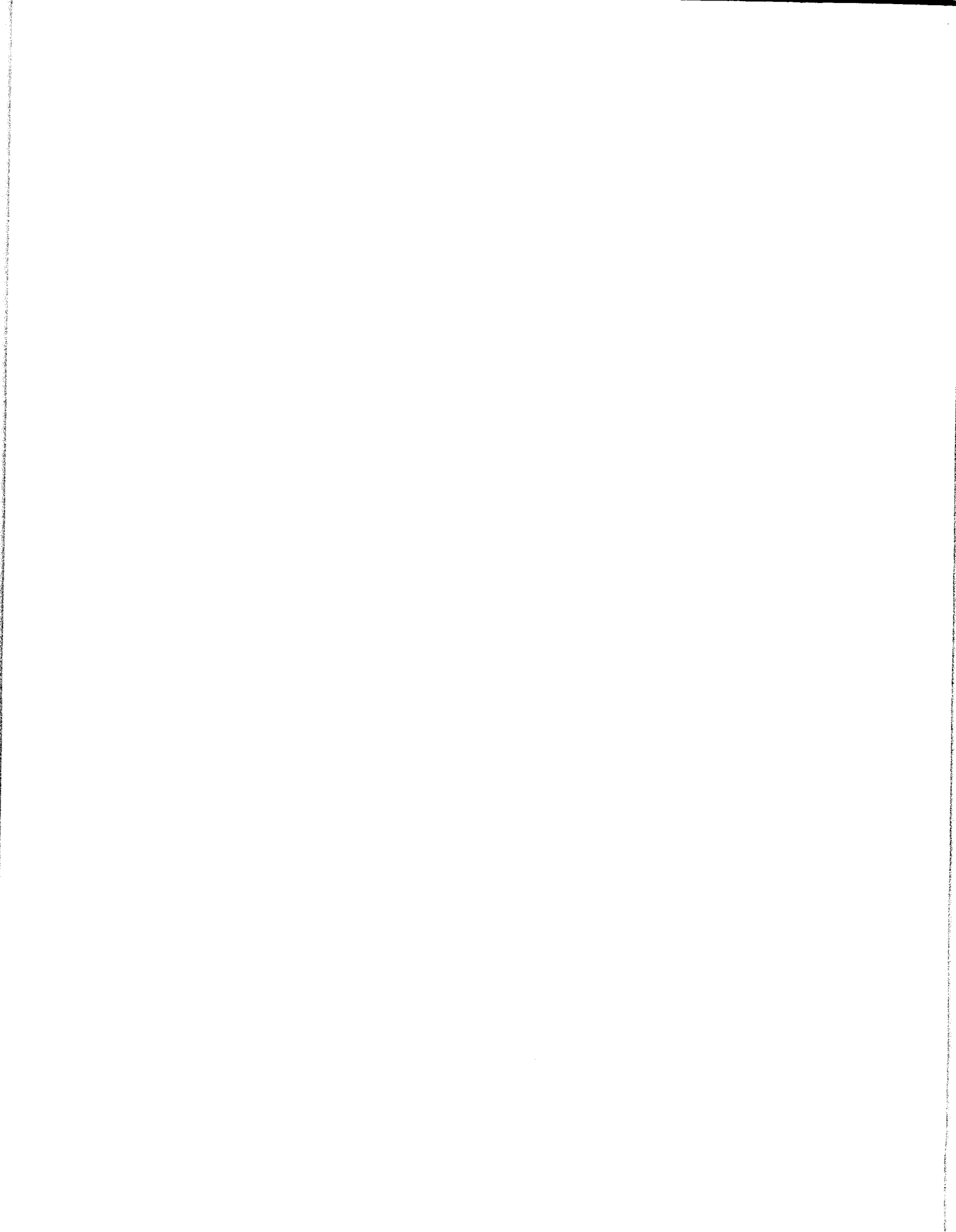
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8th day of December, 2017



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



1.02 PAYMENT BOND

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

Smith Contractors, Inc.
P.O. Box 480
1241 Bypass N.
Lawrenceburg, KY 40342
a Corporation, hereinafter called Principal, and

Liberty Mutual Insurance Co.
~~2000 Westwood Drive~~ 175 Berkley Street
~~Wausau, WI 54402-8017~~ Boston, MA 02116
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:

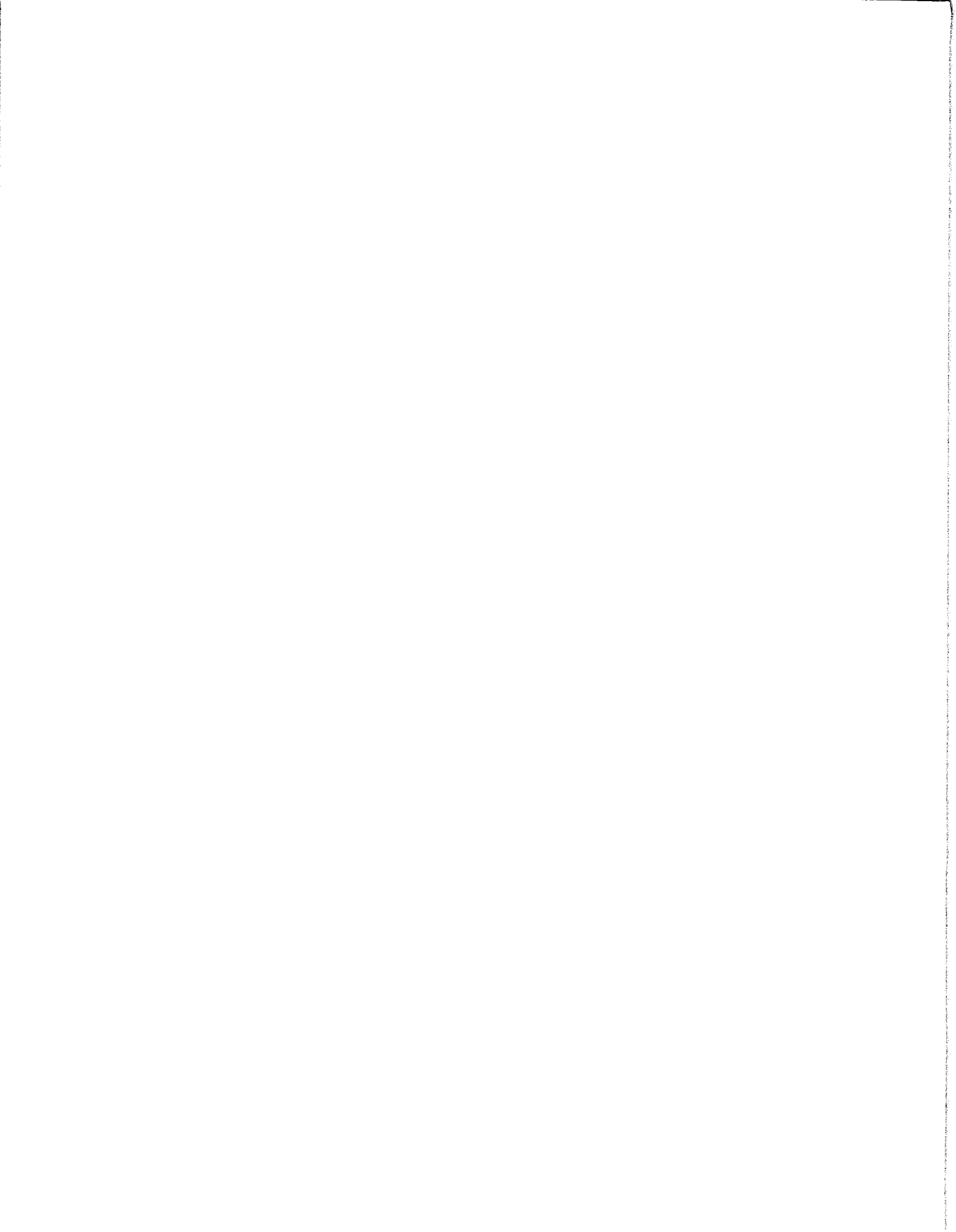
Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00) for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 –Pump Station and Wet Weather Storage Tank, LFUCG Bid No. 140 -2017 in accordance with Contract Documents prepared by HDR Engineering, Inc. and dated December 8th, 2017, 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:

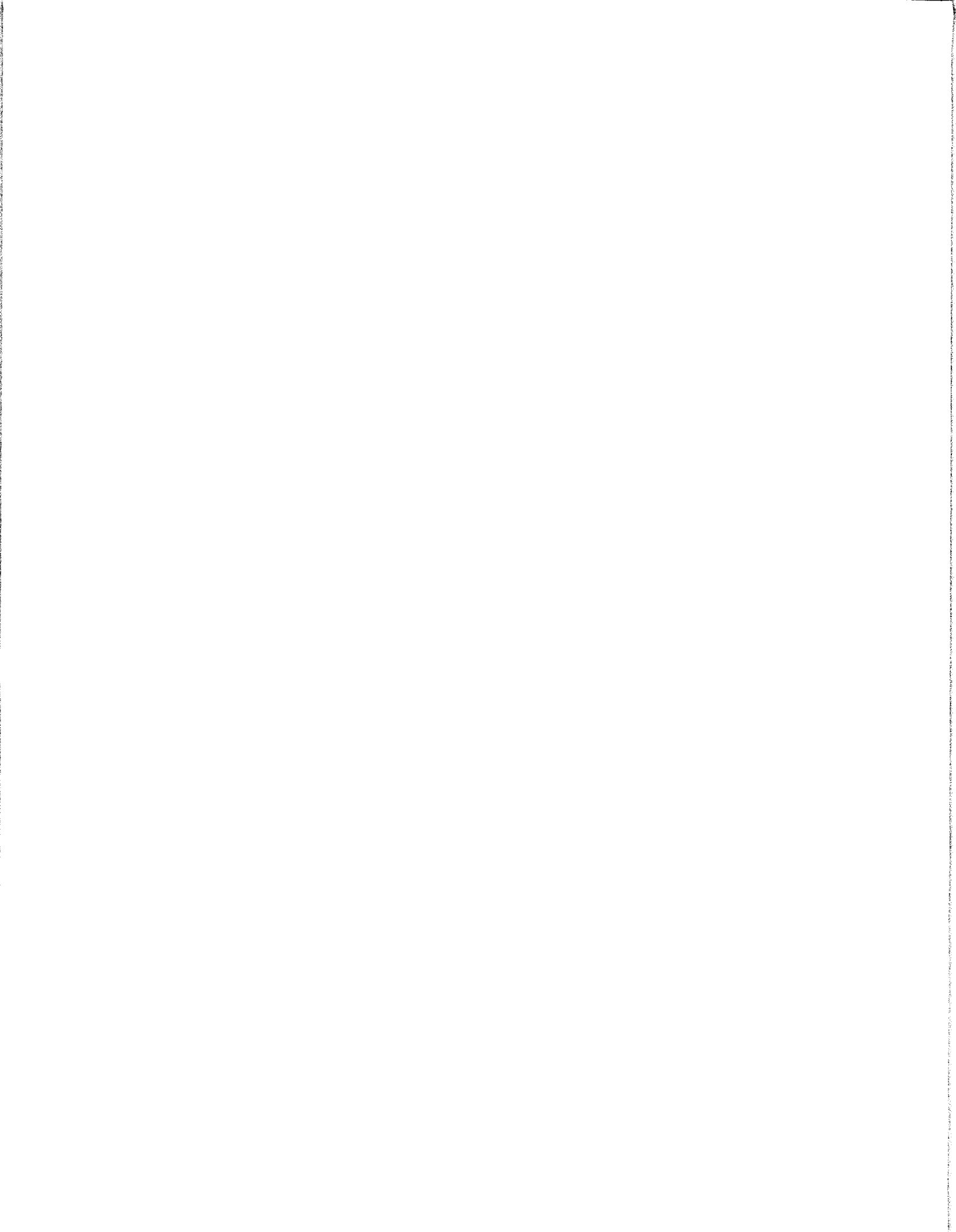
1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor material, or both, used or reasonably required for use in the performance of the Agreement (Contract), labor and material being construed to include that part of water, gas, 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 five counterparts, each one of (number)

which shall be deemed an original, this the 8th day of December, 2017.

ATTEST:

[Signature]
(Principal) Secretary

Smith Contractors, Inc.
Principal

By: [Signature] (s)
PO Box 480, 1241 Bypass N.
Lawrenceburg, KY 40342
Address

[Signature]
Witness as to Principal

P.O. Box 480
Address

Lawrenceburg, KY 40342

Liberty Mutual Insurance Co.
Surety

ATTEST:

[Signature]
(Surety) Secretary

By: [Signature]
Attorney-in-Fact Betty Hatfield
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222
Address

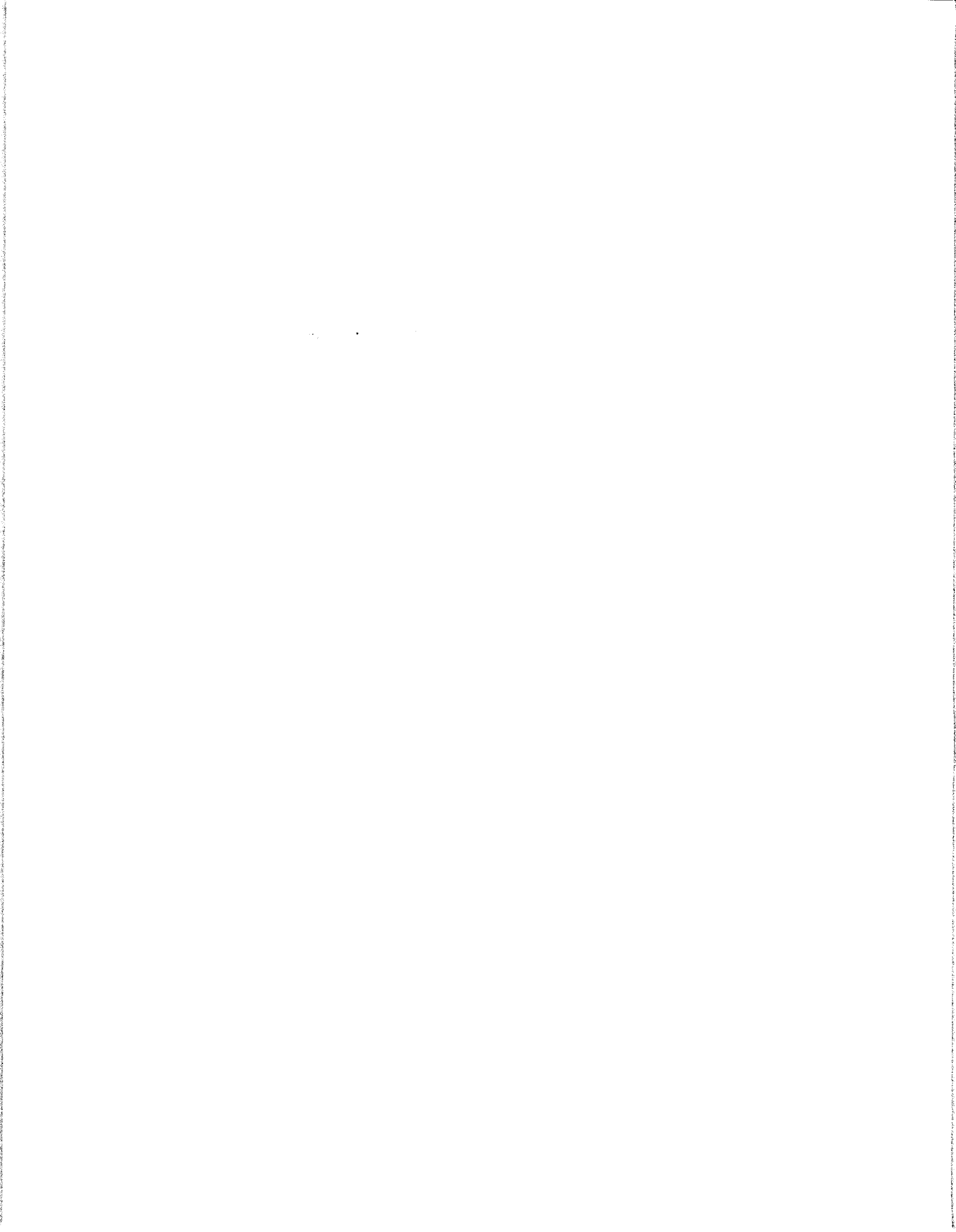
(SEAL)

Chris Cyterski
Witness to Surety
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222
Address

Title: Attorney-in-Fact
Surety
By: [Signature]

Title: Attorney-in-Fact

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



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7663964

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Betty Hatfield; Christopher A. Cyterski; David Douglas; Sandra Burnash; Terri Cook

all of the city of Louisville, state of KY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of March, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 10th day of March, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

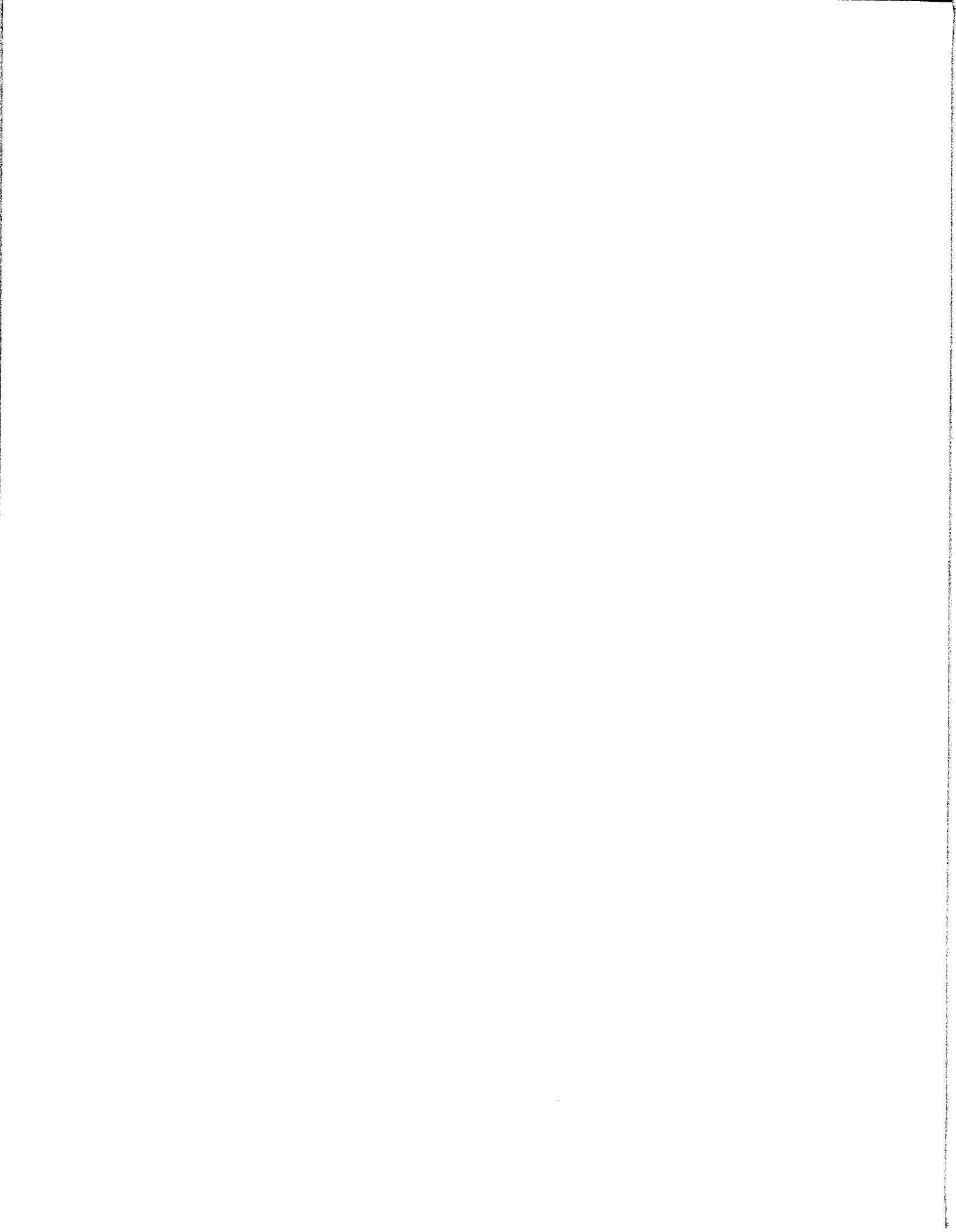
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8th day of December, 2017.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



1.03 EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

EROSION AND SEDIMENT CONTROL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

Smith Contractors, Inc.
P.O. Box 480
1241 Bypass N.
Lawrenceburg, Kentucky 40342
a Corporation, hereinafter called Principal, and

Liberty Mutual Insurance Co.
~~2000 Westwood Drive~~ 175 Berkley Street
~~Waukegan, WI 54982-8017~~ Boston, MA 02116
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:

(1% of Total Bid Price) One hundred four thousand, five hundred thirty dollars (\$104,530), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

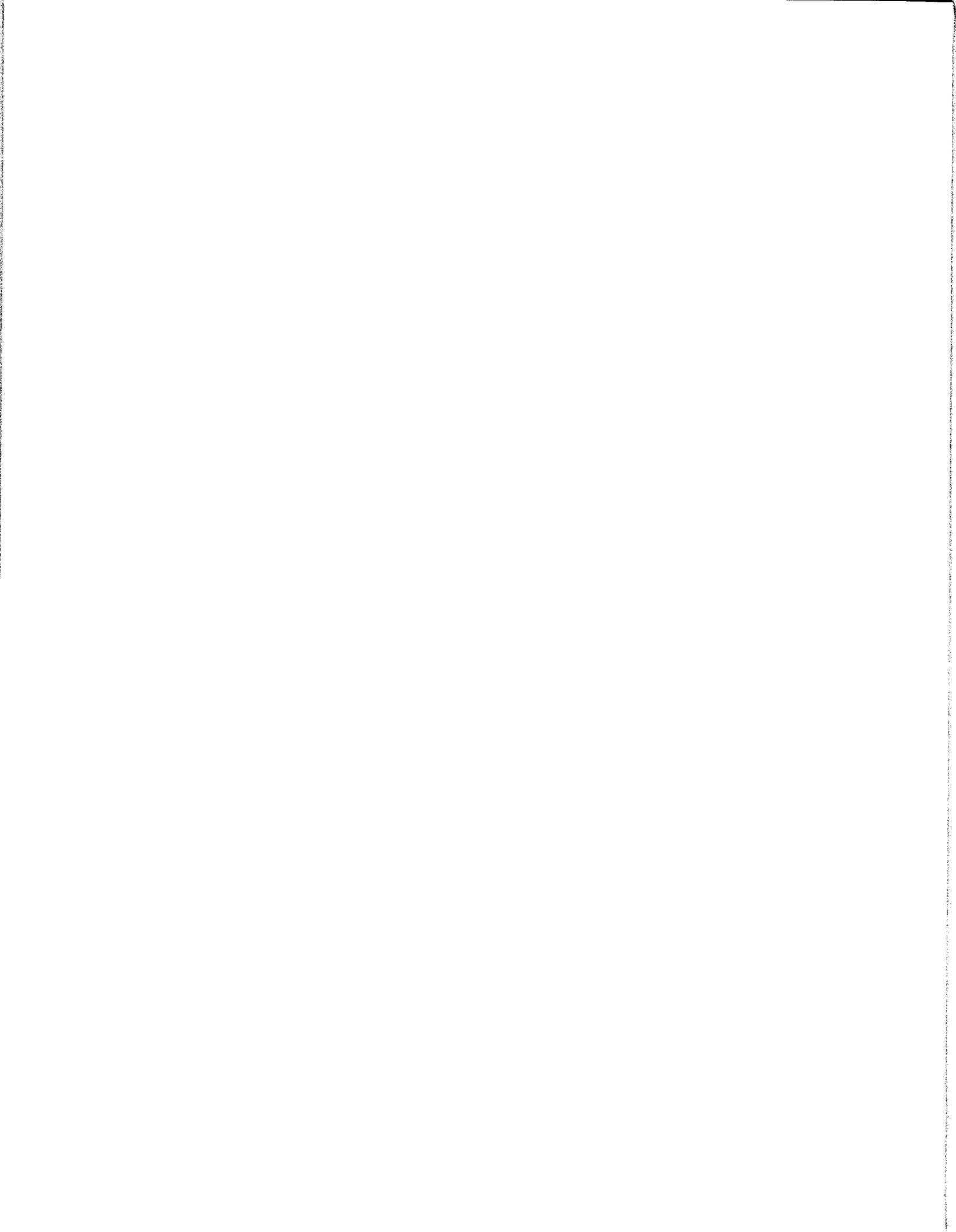
WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 -- Pump Station and Wet Weather Storage Tank, LFUCG Bid No. 140 - 2017 in accordance with Contract Documents prepared by HDR Engineering, Inc. and dated ~~December 8th, 2017~~, 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:

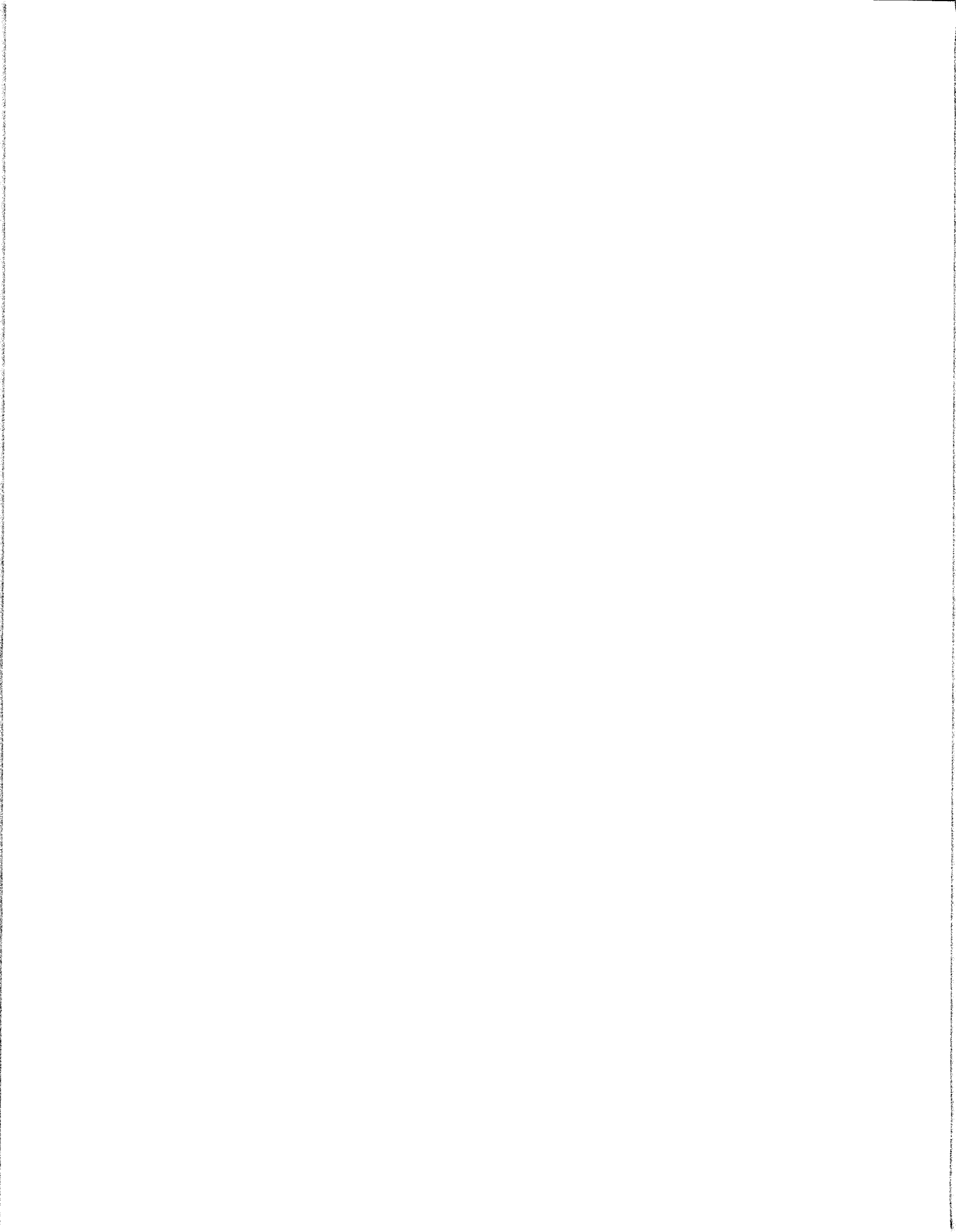
1. Complete the installation, maintenance, and removal of the soil erosion and sediment controls and final stabilization of the site in accordance with the Agreement (Contract), the LFUCG Land Disturbance Permit, Chapter 16 Article X Division 5 of the LFUCG Code of Ordinances, and the KPDES General Permit 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 five counterparts, each one of (number)

which shall be deemed an original, this the 8th day of December, 2017.

ATTEST:

Don Smith
(Principal) Secretary

Smith Contractors, Inc.
Principal

By: *Don Smith* (s)
PO Box 480, 1241 Bypass N
Lawrenceburg, KY 40342
Address

Emma A. Gully
Witness as to Principal
P.O. Box 480
Address
Lawrenceburg, KY 40342

Liberty Mutual Insurance Co.
Surety

ATTEST:
Kevin Coe
(Surety) Secretary

By: *Betty Hatfield*
Attorney-in-Fact
Address: Betty Hatfield
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222

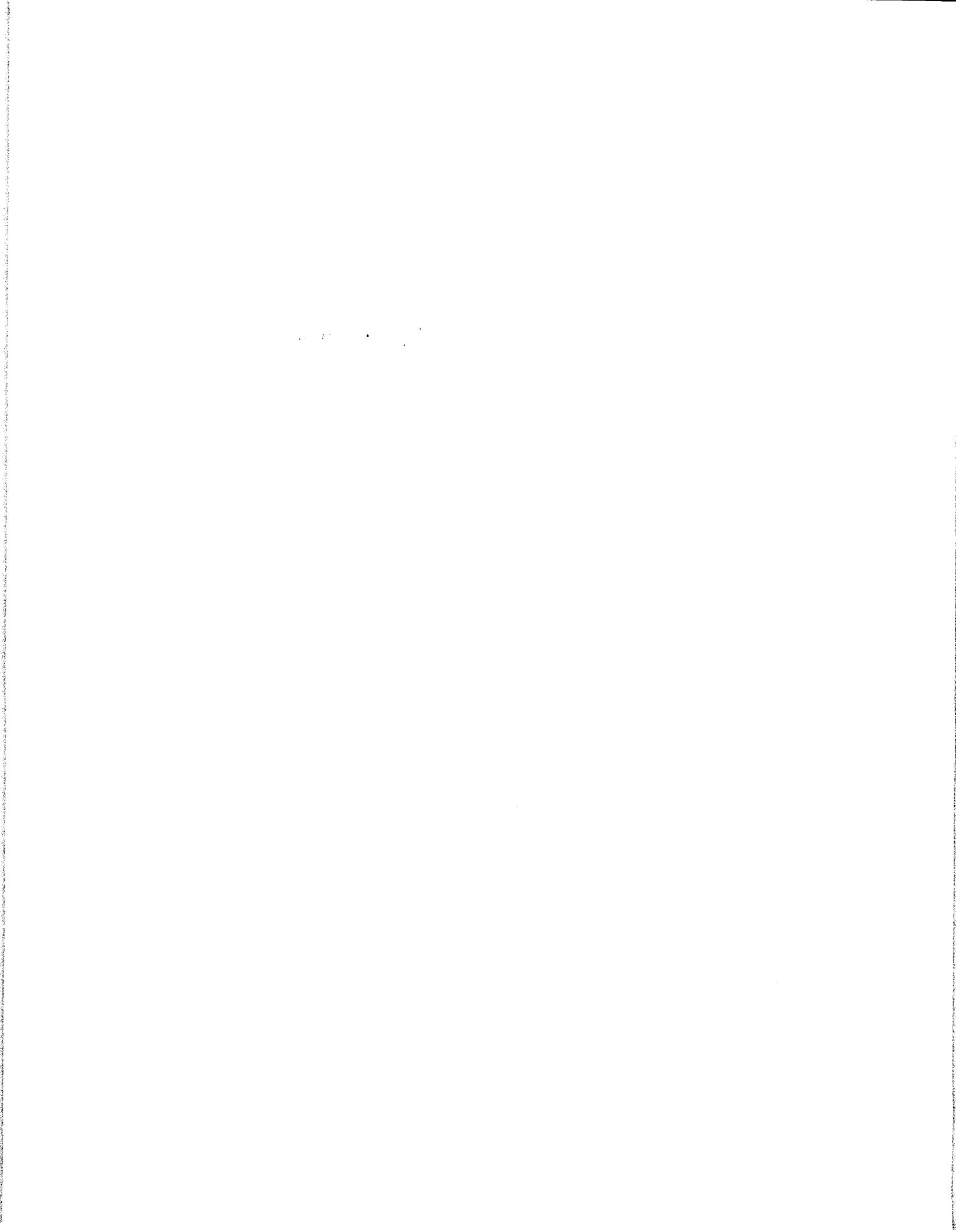
(SEAL)

Chris Cyterski
Witness to Surety
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222
Address

Title: Attorney-in-Fact
Surety
By: *Chris Cyterski*

Title: Attorney-in-Fact

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



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7663965

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Betty Hatfield; Christopher A. Cyterski; David Douglas; Sandra Burnash; Terri Cook

all of the city of Louisville, state of KY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of March, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 10th day of March, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

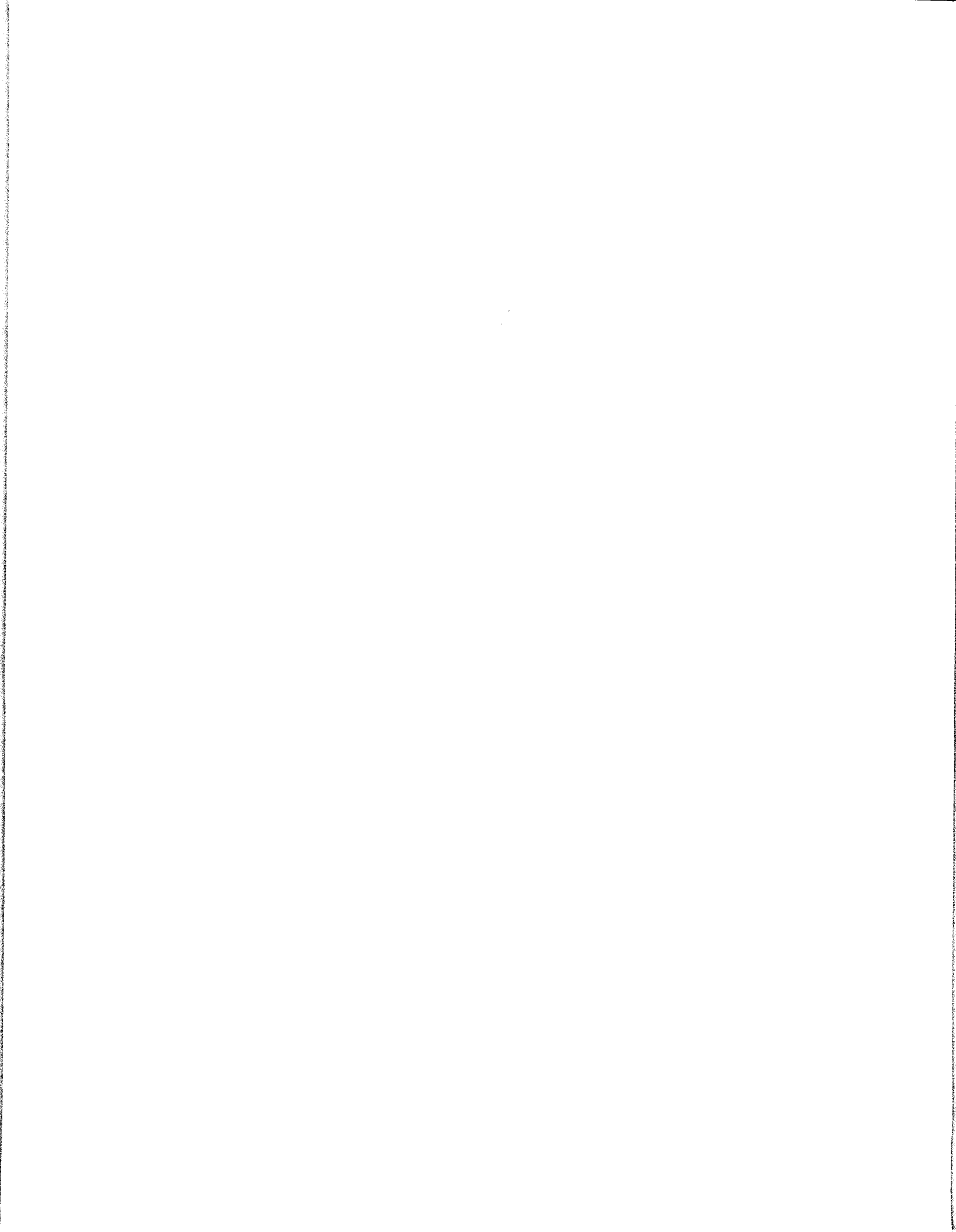
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8th day of December, 2017.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



1.04 WARRANTY BOND

WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS, that

Smith Contractors, Inc.
P.O. Box 480
1241 Bypass N.
Lawrenceburg, Kentucky 40342
a Corporation, hereinafter called Principal, and

Liberty Mutual Insurance Co.
~~2000 Westwood Drive~~ 175 Berkley Street
~~Wausau, WI 54402-9017~~ Boston, MA 02116
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 Ten Million Four Hundred Fifty Three Thousand Dollars (\$10,453,000.00), for the payment of whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents. 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).

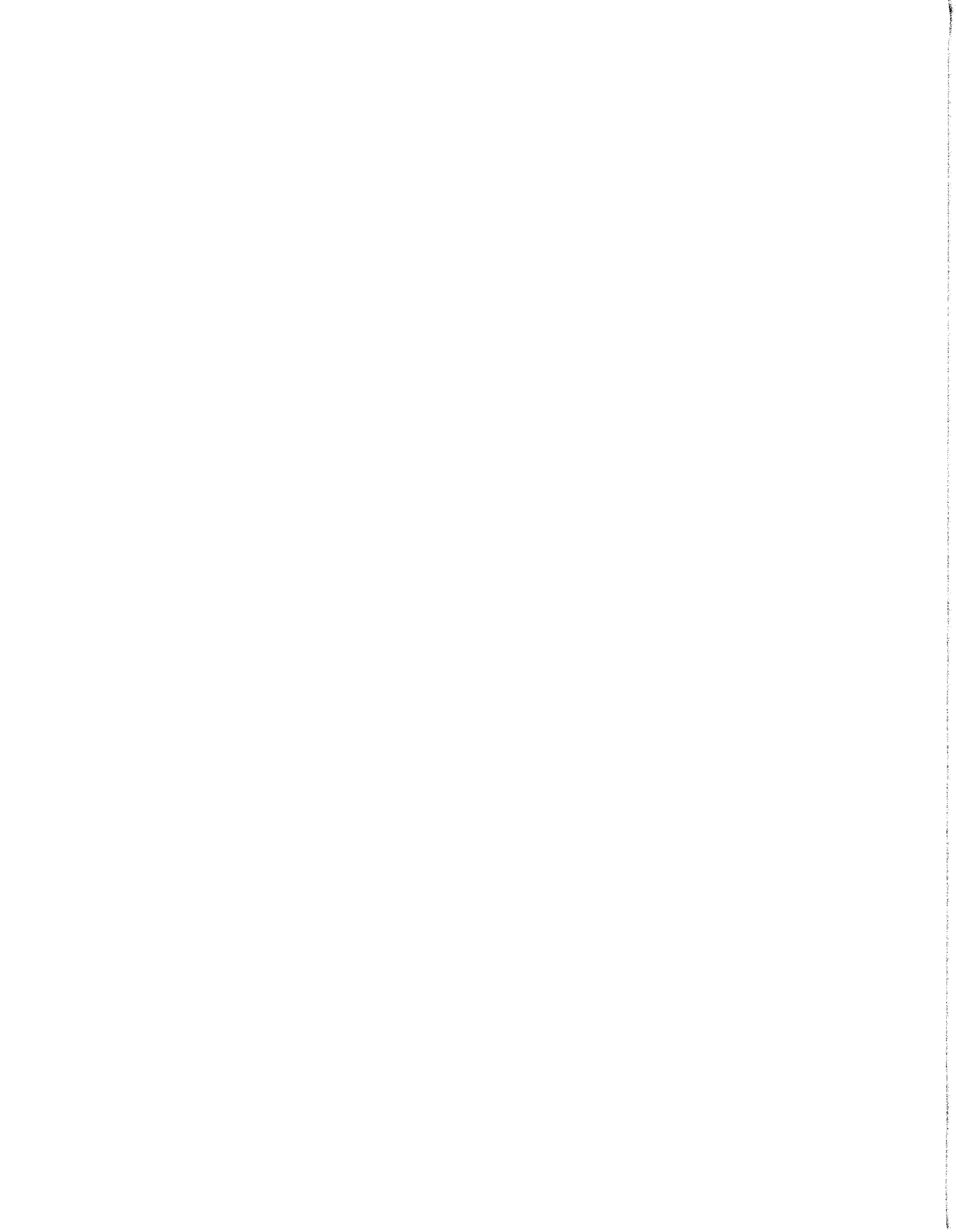
WHEREAS, Principal by written agreement is entering into an Agreement (Contract) with OWNER for the West Hickman 7 Wet Weather Storage Facilities Improvements: Contract No. 2 –Pump Station and Wet Weather Storage Tank, LFUCG Bid No. 140 - 2017 in accordance with Contract Documents prepared by HDR Engineering Inc. and dated ~~December 8th, 2017~~ 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 five counterparts, each one of (number)

which shall be deemed an original, this the 8th day of December, 2017.

ATTEST:

[Signature]
(Principal) Secretary

Smith Contractors, Inc.
Principal

By: [Signature] (s)
PO Box 480, 1241 Bypass N
Lawrenceburg, KY 40342
Address

[Signature]
Witness as to Principal

P.O. Box 480
Address

Lawrenceburg, KY 40342

Liberty Mutual Insurance Co.
Surety

ATTEST:

[Signature]
(Surety) Secretary

By: [Signature]
Attorney-in-Fact Betty Hatfield
9300 Shelbyville Road, Suite 704
Louisville, KY 40222
Address

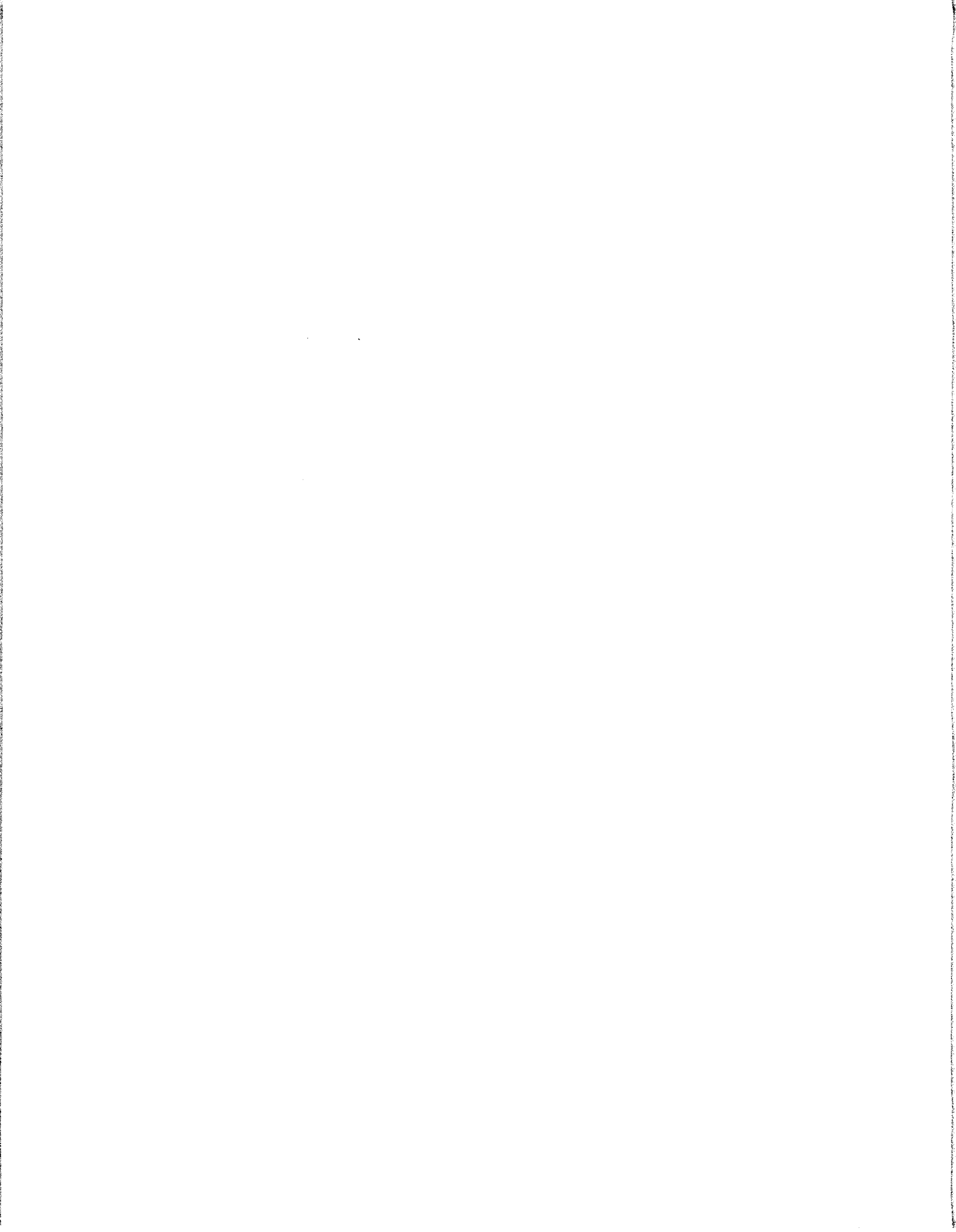
(SEAL)

Chris Cyterski
Witness to Surety
9300 Shelbyville Rd, Suite 704
Louisville, KY 40222
Address

Title: Attorney-in-Fact
Surety
By: [Signature]

Title: Attorney-in-Fact

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



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Certificate No. 7663966

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Betty Hatfield; Christopher A. Cyterski; David Douglas; Sandra Burnash; Terri Cook

all of the city of Louisville, state of KY each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of March, 2017



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company
By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

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COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

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I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

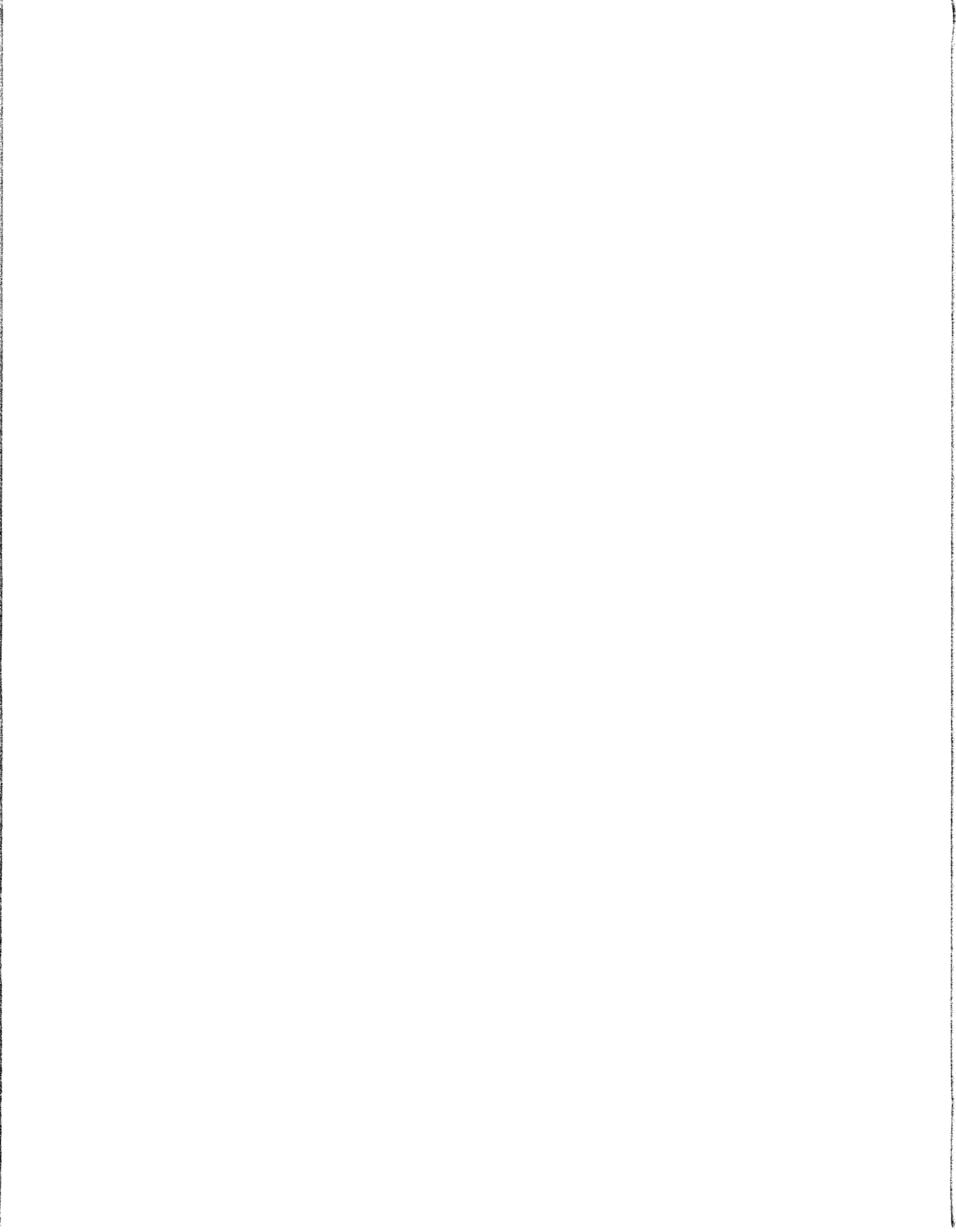
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8th day of December, 2017



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.





SMITH-3

OP ID: BD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

12/15/2017

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 Garrett-Stotz Company 1601 Alliant Avenue Louisville, KY 40299 Steven M. Garrett 502-415-7000	CONTACT NAME: Beth Jost PHONE (A/C, No, Ext): 502-415-7000 FAX (A/C, No): 502-415-7001 E-MAIL ADDRESS: bjust@garrett-stotz.com												
INSURER(S) AFFORDING COVERAGE													
INSURED: Smith Contractors, Inc. Kerry Smith PO Box 480 Lawrenceburg, KY 40342	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">INSURER A: Amerisure Mutual Insurance</td> <td style="text-align: right;">NAIC # 23396</td> </tr> <tr> <td>INSURER B: KY AGC SIF</td> <td style="text-align: right;">NA</td> </tr> <tr> <td>INSURER C: Hanover American Ins. Co.</td> <td style="text-align: right;">36064</td> </tr> <tr> <td>INSURER D: Greenwich Insurance Company</td> <td style="text-align: right;">22322</td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>	INSURER A: Amerisure Mutual Insurance	NAIC # 23396	INSURER B: KY AGC SIF	NA	INSURER C: Hanover American Ins. Co.	36064	INSURER D: Greenwich Insurance Company	22322	INSURER E:		INSURER F:	
INSURER A: Amerisure Mutual Insurance	NAIC # 23396												
INSURER B: KY AGC SIF	NA												
INSURER C: Hanover American Ins. Co.	36064												
INSURER D: Greenwich Insurance Company	22322												
INSURER E:													
INSURER F:													

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

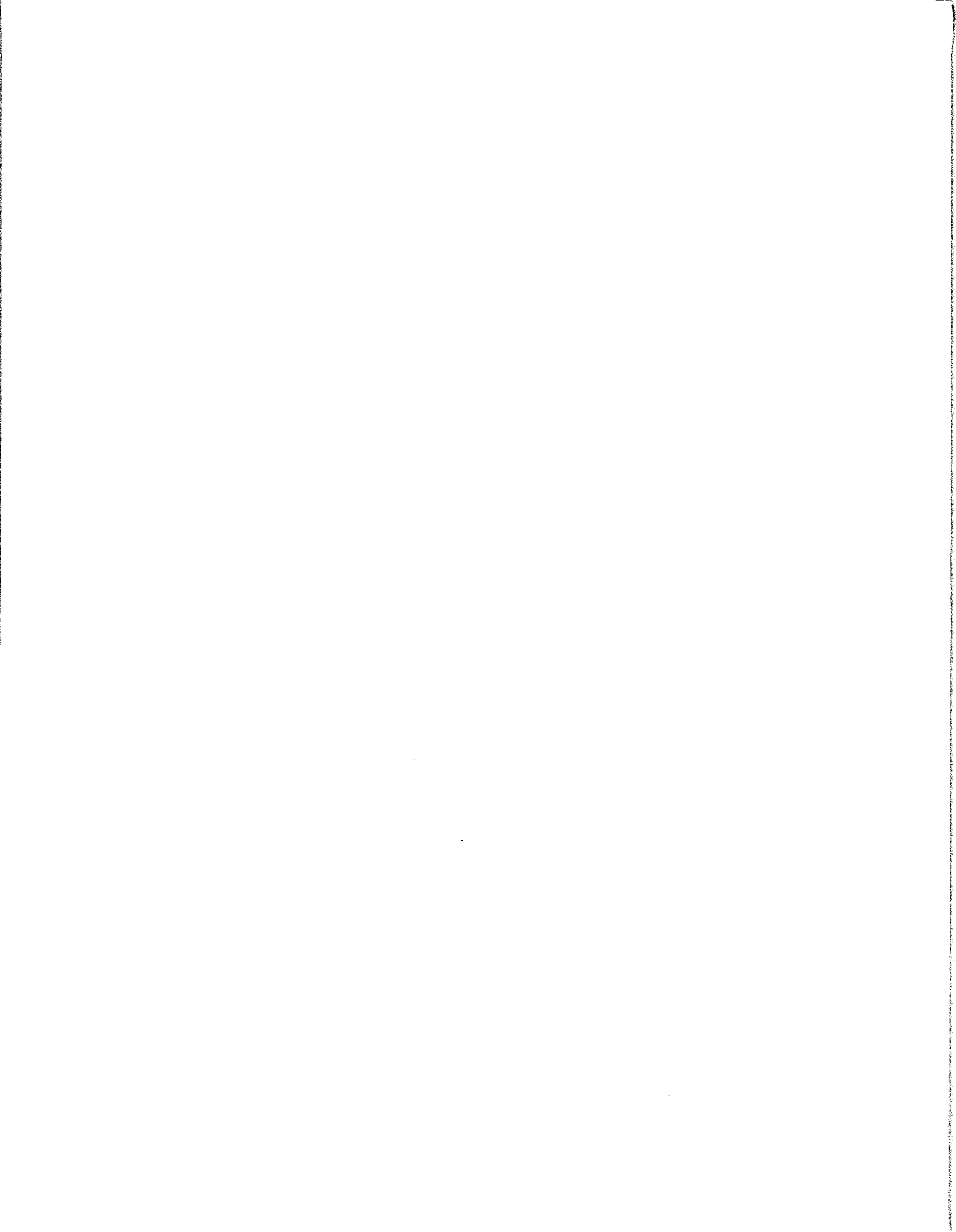
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE 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 SUBR INSD 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: POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X	CPP2026088	01/01/2018	01/01/2019	EACH OCCURRENCE \$ 1,000,000									
						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000									
						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									
						Emp Ben. \$ 1,000,000									
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY		CA2026087	01/01/2018	01/01/2019	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"/> EXCESS LIAB DED <input checked="" type="checkbox"/> RETENTION \$ 0 <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE		CU2026089	01/01/2018	01/01/2019	EACH OCCURRENCE \$ 10,000,000									
						AGGREGATE \$ 10,000,000									
						\$									
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	7132	01/01/2018	01/01/2019	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">PER STATUTE</td> <td style="width: 10%;">OTH-ER</td> <td style="width: 80%;">E.L. EACH ACCIDENT \$ 4,000,000</td> </tr> <tr> <td></td> <td></td> <td>E.L. DISEASE - EA EMPLOYEE \$ 4,000,000</td> </tr> <tr> <td></td> <td></td> <td>E.L. DISEASE - POLICY LIMIT \$ 4,000,000</td> </tr> </table>	PER STATUTE	OTH-ER	E.L. EACH ACCIDENT \$ 4,000,000			E.L. DISEASE - EA EMPLOYEE \$ 4,000,000			E.L. DISEASE - POLICY LIMIT \$ 4,000,000
PER STATUTE	OTH-ER	E.L. EACH ACCIDENT \$ 4,000,000													
		E.L. DISEASE - EA EMPLOYEE \$ 4,000,000													
		E.L. DISEASE - POLICY LIMIT \$ 4,000,000													
C	Builders Risk		IHWA855434	06/15/2017	06/15/2018	Limit \$ 15,000,000									
D	Pollution		PEC0049557	01/01/2018	01/01/2019	Limit \$ 5,000,000									

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project: Lexington - West Hickman 7
 Lexington Fayette Urban County Government is named as additional insured as required by written contract. Insurance is primary and non-contributory. A 30 day written notice applies except for non payment of premium.

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
---	--



1.05 RISK MANAGEMENT PROVISIONS INSURANCE AND INDEMNIFICATION

A. DEFINITIONS

The Contractor understands and agrees that the Risk Management Provisions of this Agreement (Contract) define the responsibilities of the Contractor to the Owner.

As used in these Risk Management Provisions, the terms "Contractor" and "Owner" shall be defined as follows:

1. "Contractor" means the contractor and its employees, agents, servants, owners, principals, licensees, assigns and subcontractors of any tier.
2. "Owner" means the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, boards, consultants, assigns, volunteers and successors in interest.

B. INDEMNIFICATION AND HOLD HARMLESS PROVISION

1. It is understood and agreed by the parties that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.
2. Contractor shall indemnify, save, hold harmless and defend the Owner from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by Contractor's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the Contractor; and (b) not caused solely by the active negligence or willful misconduct of the Owner.
3. In the event the Owner is alleged to be liable based upon the above, Contractor shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by the Owner, which approval shall not be unreasonably withheld.
4. These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this Agreement (Contract).
5. The Work and services performed hereunder involve a Consent Decree as further explained in of Section 00100, provision 1.13 of these specifications. The provisions of that provision are incorporated herein by reference as if expressly stated.

6. Owner is a political subdivision of the Commonwealth of Kentucky. Contractor acknowledges and agrees that the Owner is unable to provide indemnity or otherwise save, hold harmless, or defend the Contractor in any manner.

C. FINANCIAL RESPONSIBILITY

The Contractor understands and agrees that it shall, prior to final acceptance of its Bid and the commencement of any Work, demonstrate the ability to assure compliance with the Indemnity Agreement and other provisions of this Agreement (Contract).

D. INSURANCE REQUIREMENTS

Bidders' attention is directed to the following insurance requirements, as Bidders must confer with their respective insurance agents, brokers, or carriers to determine in advance of Bid submission the availability of the insurance coverage's and endorsements required herein. If an apparent low Bidder fails to comply strictly with the insurance requirements below, that Bidder shall be disqualified from the award of the Agreement (Contract), at the Owner's discretion.

1. Minimum Scope of Insurance

Coverage shall be at least as broad as:

- a. Insurance Services Office Commercial General Liability Coverage (Occurrence Form CG 00 01) or Insurance Services Office Form (CG 00 090 11 88 Owners and Contractors Protective Liability Coverage Form - Coverage for Operations of Designated Contractor).
- b. Insurance Services Office Form number CA 0001 covering Automobile Liability, code 1 (any auto).
- c. Workers Compensation Insurance as required by the Commonwealth of Kentucky and Employer's Liability Insurance.
- d. Builders Risk (Course of Construction) Insurance covering all risk of loss (including Earthquake & Flood Protection) less policy exclusions.
- e. Completed Operations Policy Duration Form 2010 & 2037
- f. Surety bonds as described below.
- g. Professional liability (if Design/Build).
- h. Contractor's Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards).

2. Required Insurance Coverage

Contractor shall procure and maintain for the duration of this Agreement (Contract) the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to Owner in order to protect Owner against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by Contractor. The cost of such insurance shall be included in any Bid.

Coverage

Limits

- | | |
|--|---|
| 1. General Liability, including Operations Products and Completed Operations | \$1,000,000 per occurrence, \$2,000,000 aggregate for bodily injury, personal injury and property damage with a \$5,000,000 umbrella. If Commercial General Liability Insurance or other form with a general aggregate limit is used the general aggregate limit shall be at \$5,000,000 or higher. |
| 2. Automobile Liability | \$1,000,000 combined single limit for bodily injury and property damage. |
| 3. Workers Compensation | As required by the Commonwealth of Kentucky |
| 4. Employers' Liability | \$1,000,000 each accident, \$2,000,000 policy limit Bodily injury by disease, \$1,000,000 each employee bodily injury by disease. |
| 5. Builder's Risk – Installation Floater | Completed value of the project with no coinsurance penalty provisions. Coverage includes LFUGG, all contractors and subcontractors involved in the project. |
| 6. Professional Liability | \$5,000,000 as needed for design/build. |
| 7. Contractors Pollution - Asbestos Legal Liability | \$2,000,000 each occurrence - \$5,000,000 policy aggregate, including errors and omissions. |
| 8. Umbrella or Excess Liability Policy | \$5,000,000 per occurrence |

The policies above shall contain the following conditions:

- a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky (DOI). Owner shall be named as additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.
- b. The General Liability Policy shall be primary to any insurance or self-insurance retained by Owner.
- c. The General Liability Policy shall include a Products and Completed Operations endorsement or Premises and Operations Liability endorsement unless it is deemed not to apply by Owner.
- d. The General Liability Policy shall include an Explosion-Collapse Underground (XCU) endorsement.

- e. The General Liability Policy shall include a Pollution Liability and/or Environmental Casualty endorsement unless it is deemed not to apply by Owner.
- f. Owner shall be provided at least thirty (30) days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.
- g. Said coverage shall be written by insurers acceptable to Owner and shall be in a form acceptable to Owner. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.
- h. Owner requests that the Bidder obtain an Umbrella Liability policy with a limit of liability of \$_____ and that this policy be renewed for one (1) year after completion of this project.
- i. **All certificates of insurance shall name Lexington-Fayette Urban County Government as additional insured.**

2. Renewals

After insurance has been approved by Owner, evidence of renewal of an expiring policy must be submitted to Owner, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

3. Deductibles and Self-Insured Programs

IF CONTRACTOR INTENDS TO SUBMIT SELF-INSURANCE PLAN, IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO BID OPENING DATE.

Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of Contractor's financial capacity to respond to claims. Any such programs or retentions must provide Owner with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If Contractor satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, Contractor agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of Bid and the commencement of work:

- a. Contractor's latest audited financial statement, including auditor's notes.
- b. Any records of any self-insured trust fund plan or policy and related accounting statement.
- c. Actuarial funding reports or retained losses.
- d. Risk Management Manual or a description of self-insurance and risk management program.
- e. A claim loss run summary for the previous five (5) years.
- f. Self-Insured Associations will be considered.

4. Safety and Loss Control

Contractor shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and the Owner.

5. Verification of Coverage

Prior to award of bid, Contractor agrees to furnish Owner with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf. If requested, Contractor shall provide Owner copies of all insurance policies, including all endorsements.

6. Right to Review, Audit and Inspect

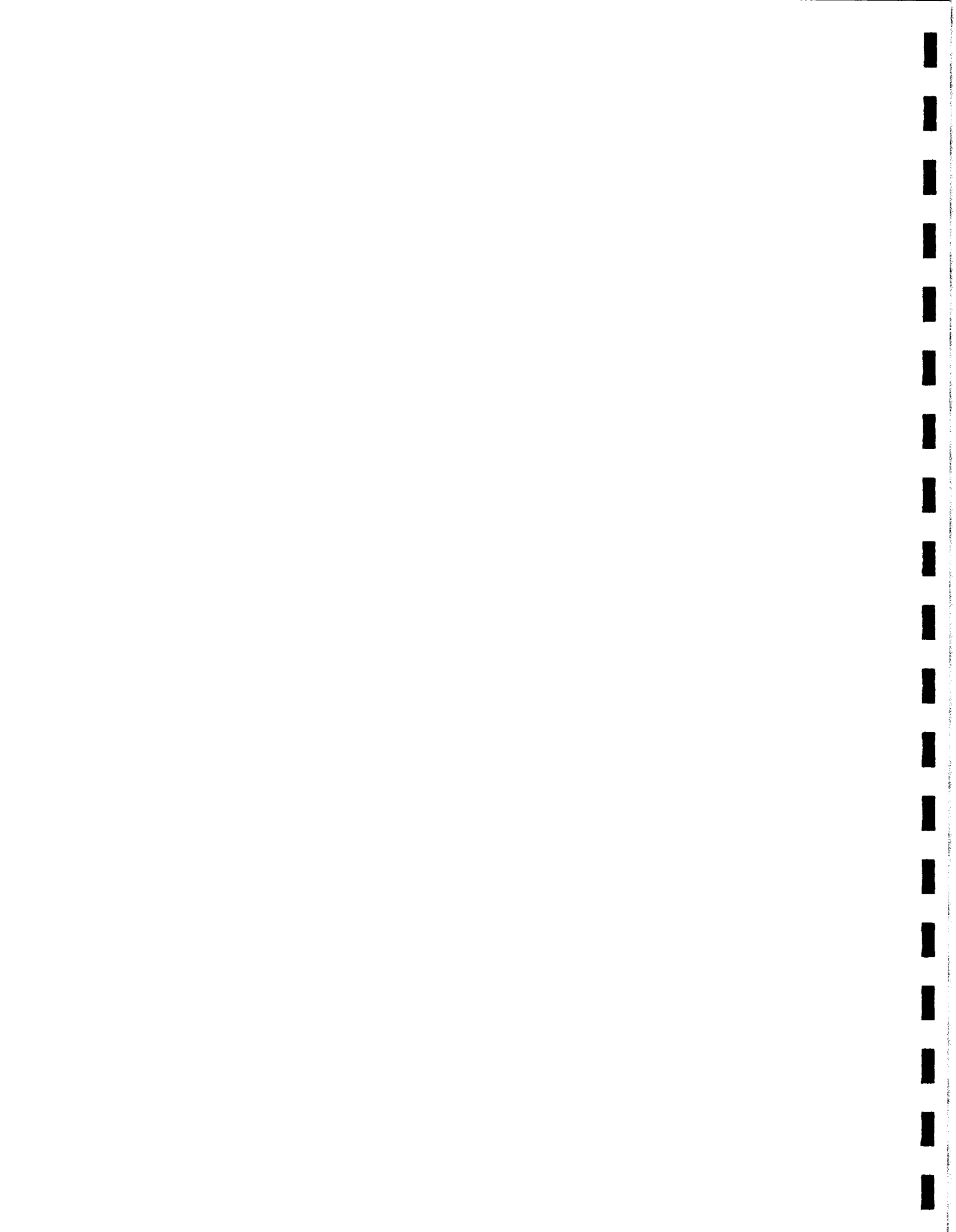
Contractor understands and agrees that Owner may review, audit and inspect any and all of Contractor's records and operations to insure compliance with these Insurance Requirements.

7. Contractor understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default under this Agreement (Contract). Contractor also agrees that Owner may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging Contractor for any such insurance premiums purchased, or suspending or terminating this Agreement (Contract).

1.06 CERTIFICATE OF LIABILITY INSURANCE

(Insert Contractor's Certificate)

END OF SECTION



SECTION 00700 – GENERAL CONDITIONS

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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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;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
- 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are

required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

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

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any

disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

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

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the

extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. 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 that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and

tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing

in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

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

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not 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.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and

testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

- 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 of time 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 in regards to 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 on the basis of 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 make an inspection of 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 Substantial Completion, and the certificate shall fix the time within which such items shall be completed or corrected, said time to be within Contract Time.
- 14.04.B In accordance with KRS 371.410, Substantial Completion is the point at which, as certified in writing by the contracting entity, 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 Prior to Substantial Completion of the Project, OWNER may request Contractor in writing to permit him to use a specified part of the Project which he believes he may use without significant interference with construction of the other parts of the Project. If Contractor agrees, he will certify to OWNER and Engineer that said part of the Project is substantially complete and request the Engineer to issue a certificate of Substantial Completion for that part of the Project. Within a reasonable time thereafter, OWNER, Contractor and Engineer shall make an inspection of that part of the Project to determine its status of completion. If Engineer and OWNER do not consider that it is substantially complete, Engineer will notify Contractor in writing giving his reasons therefor. If Engineer and OWNER consider that part of the Project to be substantially complete, Engineer will execute and deliver to OWNER and Contractor a certificate to that effect, fixing the date of Substantial Completion as to that part of the Project, attaching thereto a tentative list of items to be completed or

corrected before Substantial Completion of the entire Project and fixing the responsibility between OWNER and Contractor for maintenance, heat, and utilities as to that part of the Project. OWNER shall have the right to exclude Contractor from any part of the Project which Engineer has so certified to be substantially complete, but OWNER shall allow Contractor reasonable access to complete items on the tentative list.

- 14.05.B Equipment Warranty will not begin until after successful start-up, training, and acceptance by Owner for Partial Utilization. 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, form 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 of 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: _____

ADDRESS: _____

RE: Project Title: _____
Lexington Fayette Urban County Government
Lexington, Kentucky
LFUCG Bid No.: _____

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

SECTION 00890 – PERMITS

END OF SECTION



**KENTUCKY
AMERICAN WATER**

2300 Richmond Road
Lexington, KY 40502
Customer Service: (800) 678-6301
Fax: (859) 268-6315
www.kentuckyamwater.com

NEW SERVICE PROCESS

(2" and smaller)

STEP 1

To request new service we will need the following:

- Tap Application Form
- Contract or Master Agreement Number*
- State Plumbing Inspection to verify if inspection is complete
(Visit www.approvedwaterservices.com for updates)
- Tap Fee
- Backflow Prevention Survey (for non-residential services only)

Fees effective August 28, 2016:

5/8" meter	\$1,280.00
1" meter	\$2,201.00
2" meter	\$4,238.00

**You may fill out a master agreement form to avoid having to complete a contract with each application.*

STEP 2

Submit completed tap application form** and fee by mail or deliver to:

ATTN: New Services
Kentucky American Water
2300 Richmond Road
Lexington, KY 40502

STEP 3

Once all information is submitted:

- If requesting a new installation, service will be installed within 20 to 25 business days.
- If setting is already installed (dual setting), an order is sent to field representative and meter is installed within 5 to 10 business days.
- Order is returned to office and account is set up for billing.

*** Incomplete applications will be returned.*

STEP 4

To inquire or follow up on application process:

- Call and leave a message on 24-hour Tap Line at (859) 268-6379
- Fax inquiry to the attention of "New Services" at (859) 268-6315

REMEMBER: When inquiring about the status of your application, remember to leave:

- Name and contact phone number
- Address about which you are inquiring

You should receive a response or return call the same day or within 24 hours (one business day). You may also contact our Customer Service Center at 1-800-678-6301, and if they are unable to assist you (due to the process being handled locally), they will get a message to our local dispatcher who will contact you.

All new customers should call the Customer Service Center (available 24 hours a day, seven days a week) at 1-800-678-6301 to have service set up in their names. All information can be found on our Web site at www.kentuckyamwater.com.

NEW TAP APPLICATION



PLEASE COMPLETE AND RETURN TO:

Attn: New Taps
 Kentucky American Water
 2300 Richmond Road
 Lexington, KY 40502
 24-Hour Tap Line #: (859) 268-6379
 Fax #: (859) 268-6315
 www.kentuckyamwater.com

FOR OFFICE USE ONLY:			
Plumbing Permit #:			
Inspection Date:			
Customer #:	Account #:		
Premise#:			
Private Setting:	Yes	No:	
<i>If yes, inspected and approved by :</i>			
WBS#	Spec Conn Agmt (or Multiple Svc Agmt) #:		
Type of service:		Size:	
Amount Paid		Date Paid:	

IMPORTANT: This application must be completed and returned with the tap fee. Proof of inspection and approval of water service by State Plumbing Inspector required. A signed "Contract for New Service" is required unless a "Master Service Agreement" has been executed. Allow 20-25 days for service to be installed after all paperwork is received. (PLEASE NOTE- Services larger than 2" are applied for and coordinated through the New Development/Construction Department. Installation time will vary, but will be a minimum of 90 days after application is made.)

PLEASE ENSURE ADDRESS IS MARKED AND VISIBLE FROM THE STREET

The undersigned makes application for water service at Address _____
 County _____ Subdivision _____ City _____ Zip _____

and hereby requests Kentucky American Water to make a connection to its main. **Kentucky American Water will specify the location, size, kind and quality of all material entering into the service connection and will set and turn on the meter.** The undersigned has completed the following requirements for the installation of a water meter at the above address:

1. Service line has been installed to the point where the meter is to be permanently connected **and** visibly marked by the customer to identify the connection point. **Non-residential service lines are required to have a testable approved backflow prevention device installed.**
2. The service line which connects the customer supply at the meter setting is _____ inch (minimum 3/4") and will require a _____-inch meter to be set (**1 1/2" and larger meters require a completed Customer Data Sheet**). The service line is at 30 inches below ground level. **Service lines up to 2"** will have Type "L" or "K" copper line installed at the connection point or affixed with a male adapter at the connection point if the customer's line is other than Type "L" or "K" copper. **Service lines larger than 2"** will have Ductile Iron pipe or C-900 plastic pipe installed to the connection point. If another type of pipe is used at the connection point, the customer is required to make the connection; and
3. This service line is equipped with an easily accessible stop and waste valve inside and near the foundation of the building being supplied.

THE UNDERSIGNED AGREES TO THE FOLLOWING:

- Comply with all rules and regulations of Kentucky American Water, as approved by the Kentucky Public Service Commission.
- Comply with local codes and ordinances in the construction, use and alteration of the plumbing system.
- If non-residential, shall install an approved backflow prevention device to avert a cross connection or backflow condition.
- Shall not create an electric shock hazard by improper electric grounding to the plumbing system. Kentucky American Water assumes no responsibility for continuity of electrical grounding systems by the installation or removal of its meter.
- Must, at all times, take necessary measures to protect the meter box, meter setting and service line and is responsible for damages to Kentucky American Water property caused by them, their contractor and/or subcontractors.

THIS METER SERVES THE FOLLOWING PREMISE TYPE (CHECK ONE):

- Residential (single premise residence, duplex or multiple premise residence where each unit is served by its own meter).
- Commercial (multiple premise residence [apartment building] served by a single meter, private educational institutions, all businesses where water is not used principally in manufacturing or processing of a product. Commercial includes laundries, hotels, motels, restaurants, bars, non-government office buildings, non-government hospitals and other medical facilities, retail shops, etc.)
- Industrial (manufacturing or processing establishments where the water is used principally in the manufacturing or processing of a product. Industrial includes factories, refineries, bottling plants, etc.)
- Other Public Authority (OPA) (municipal, county, state or federal agencies). OPA includes municipal buildings, public schools, public libraries, government hospitals, fire stations, public housing developments, etc.
- Sales for Resale (sales to private or public water utilities where the water is to be resold to the customers of the utility).

SEWER SERVICE PROVIDED BY (CHECK ONE):

- LFUGG
- GEORGETOWN MUNICIPAL
- ROCKWELL VILLAGE
- TREE HAVEN
- SEPTIC
- IRRIGATION ONLY
- OTHER
- N/A (FIRE HYDRANT/FIRE SERVICE)

Owner/Builder _____

Master Agreement Number (if applicable) _____

Phone: _____ Plumber Name _____

Authorized Signature _____ Title _____ Date _____

CONTRACT FOR NEW SERVICE



**KENTUCKY
AMERICAN WATER**
(800) 676-0007
(859) 268-6315 (FAX)
www.kentuckyamwater.com

FOR KENTUCKY AMERICAN WATER OFFICE USE ONLY:

Premise No.: _____ Acct. No.: _____ Customer No.: _____
Application for Special Connection No.: _____ WBS No.: _____
Type of Service: _____
Person assigned: _____

I hereby make application and authorize Kentucky American Water to place a meter and turn on the water at the following address, and I agree to pay all bills by the due date specified on the bill for water furnished to any address where I either have an interest in the ownership of the property, directly or indirectly, or have requested service, and I hereby agree to continue to be responsible for the same until I notify Kentucky American Water in writing to the contrary.

I agree to take the necessary measures to protect the meter box, meter setting and the service during the installation of new services. I will be responsible for damages to Kentucky American Water property caused by me, my contractor and/or sub-contractor during on-site construction.

I agree to abide by the local codes and ordinances in the construction, use, and alteration of my plumbing system. I shall not create an electric shock hazard by improper electric grounding to the plumbing system. I agree to install an approved, testable backflow prevention device on all nonresidential incoming lines and irrigation systems to prevent the creation of a cross connection or backflow condition.

Kentucky American Water assumes no responsibility for continuity of electrical grounding systems by the installation or removal of its meter.

I agree to abide by and comply with all rules, regulations and rates of Kentucky American Water, as approved by the Public Service Commission of the Commonwealth of Kentucky and as changed from time to time.

If, at any time, any bill owed by me to Kentucky American Water, whether collectible under this Agreement or otherwise, is not paid when due and payable, then Kentucky American Water shall have the right to discontinue the supply of water to the location.

PLEASE COMPLETE THE FOLLOWING INFORMATION (return with deposit and signed agreements)

Service Address _____

City _____ State _____ Zip Code _____

Is this a multi-unit building? Yes No If yes, how many units _____

Please check primary use of service: Residential Commercial Industrial OPA

Please check type (s) of service use (if more than one type or number, individual application is required for each service)

Domestic Irrigation Fire service -- size: _____ Fire hydrant -- quantity: _____ Other

Billing Name _____

Billing Address, if different from service address _____

City _____ State _____ Zip Code _____

Telephone number: (Home) _____ (Office) _____

Name of person filling out form _____

Contact Person _____ Phone Number _____

Do you own or lease this building? Own _____ Lease _____

Authorized Signature _____ Title _____ Date _____



**KENTUCKY
AMERICAN WATER**

2300 Richmond Road
Lexington, KY 40502
1-800-678-6301
www.kentuckyamwater.com

MASTER AGREEMENT FOR NEW SERVICE

Agreement Number _____

Customer Name _____

Billing Address _____

_____ Zip Code _____

Daytime Phone Number _____ Evening/Weekend Phone _____

Have you had water service with Kentucky American Water before? YES NO (Circle one)

I hereby make application and authorize Kentucky American Water to place a meter and turn on the water for all addresses for which a Tap Application is signed by me or a representative and I agree to pay all bills by the due date specified on the bill for water furnished to any address which I either have an interest in the ownership of the property, directly or indirectly or have requested service, and I hereby agree to continue to be responsible for the same until I notify Kentucky American Water in writing to the contrary.

I agree to take the necessary measures to protect the meter box, meter setting and the service during the installation of new services. I will be responsible for damages to Kentucky American Water property caused by me, my contractor and/or sub-contractor during on-site construction.

I agree to abide by local codes and ordinances in the construction, use and alteration of my plumbing system. I shall not create cross connection or backflow conditions. I shall not create an electric shock hazard by improper electric grounding to the plumbing system. Kentucky American Water assumes no responsibility for continuity of electrical grounding systems by the installation or removal of its meter.

I agree to abide by and comply with all rules, regulations and rates of Kentucky American Water as approved by the Public Service Commission of the Commonwealth of Kentucky and as changed from time to time.

If, at any time, any bill owed by me to Kentucky American Water, whether collectible under this agreement or otherwise, is not paid when due and payable, then Kentucky American Water shall have the right to discontinue the supply of water to all addresses for which I have submitted an application for service from Kentucky American Water.

Authorized signature _____ Title _____ Date _____

Please print names of persons authorized to sign for service:

NAME _____

NAME _____

NAME _____

NAME _____

NAME _____

NAME _____

Please notify us of any changes to this authorization list.



KENTUCKY AMERICAN WATER Water Customer Data Sheet

Customer:		Address	
Building Address:			
Subdivision:		Lot No:	
Type of Occupancy:			

Fixture		Number of Fixtures
Bathtub		
Bedpan Washers		
Combination Sink and Tray		
Dental Unit		
Dental Lavatory		
Drinking Fountain - Cooler		
Drinking Fountain - Public		
Kitchen Sink - 1/2" Connection		
Kitchen Sink - 3/4" Connection		
Lavatory Tray - 3/8" Connection		
Lavatory Tray - 1/2" Connection		
Laundry Tray - 1/2" Connection		
Laundry Tray - 3/4" Connection		
Shower Head (Shower only)		
Service Sink - 1/2" Connection		
Service Sink - 3/4" Connection		
Urinal- Pedestal Flush Valve		
Urinal- Wall Flush Valve		
Urinal - Trough (2ft. Unit)		
Wash Sink (each set of faucets)		
Water Closet - Flush Valve		
Water Closet - Tank Type		
Dishwasher - 1/2" Connection		
Dishwasher - 3/4" Connection		
Washing Machine - 1/2" Connection		
Washing Machine - 3/4" Connection		
Washing Machine - 1" Connection		
Hose Connection (Wash Down) - 1/2"		
Hose Connection (Wash Down) - 3/4"		
Hose (50 feet Wash Down) 1/2"		
Hose (50 feet Wash Down) 5/8"		
Hose (50 feet Wash Down) 3/4"		

BACKFLOW PREVENTION SURVEY
(For non-residential customers)

Please complete and return this survey with your tap application so that we can determine the appropriate back flow device requirements for your new service. Should you have any questions or need assistance in completing this survey please call (859) 268-6310.

Service Address:

City:

Please answer the following questions if your service request is for **Commercial, Industrial, or Public Authority Account:**

- Check the box or boxes that best describes the use of water with your facility:
 - Typical, such as bathrooms, drinking fountains, outside water faucets, household laundry or dishwashing appliances
 - Private well(s) supplying any part of your facility
 - Piped into a manufacturing process
 - Piped into a chemical process
 - Piped, underground lawn irrigation system
 - Piped into a swimming pool
 - Piped into water operated/cooled equipment/appliances
- Check the types of backflow prevention devices installed on your plumbing system.
(Residential Dual Check valves are not acceptable)
 - None
 - Reduced Pressure Zone device (RPZ)
 - Testable Double Check Valve (DCV)
 - Pressure Vacuum Breaker (PVB) –for use on underground irrigation systems only
 - Other _____

Please answer the following questions if your service request is for **Fire Protection:**

- Check the box or boxes that best describes your fire protection account:
 - This account serves private hydrants only (no fire sprinkler system in facility)
 - This account serves an installed fire sprinkler system
 - Fire sprinkler system has outside fire department connections for pumping into the system
 - Fire sprinkler system contains antifreeze or other chemicals
 - Fire sprinkler system is also supplied by an auxiliary source of water (i.e., pond, reservoir, or storage tank)
- Check the types of backflow prevention devices installed on your sprinkler system if applicable.
 - None
 - Reduced Pressure Zone device (RPZ)
 - Double Detector Check Assembly (DDCA)
 - Testable Double Check Valve (DCV)
 - Other _____

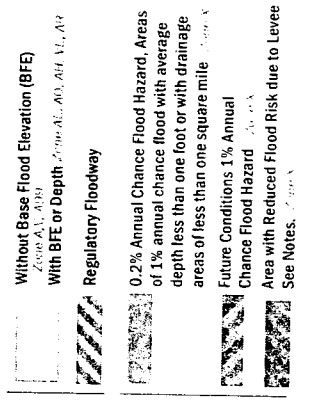
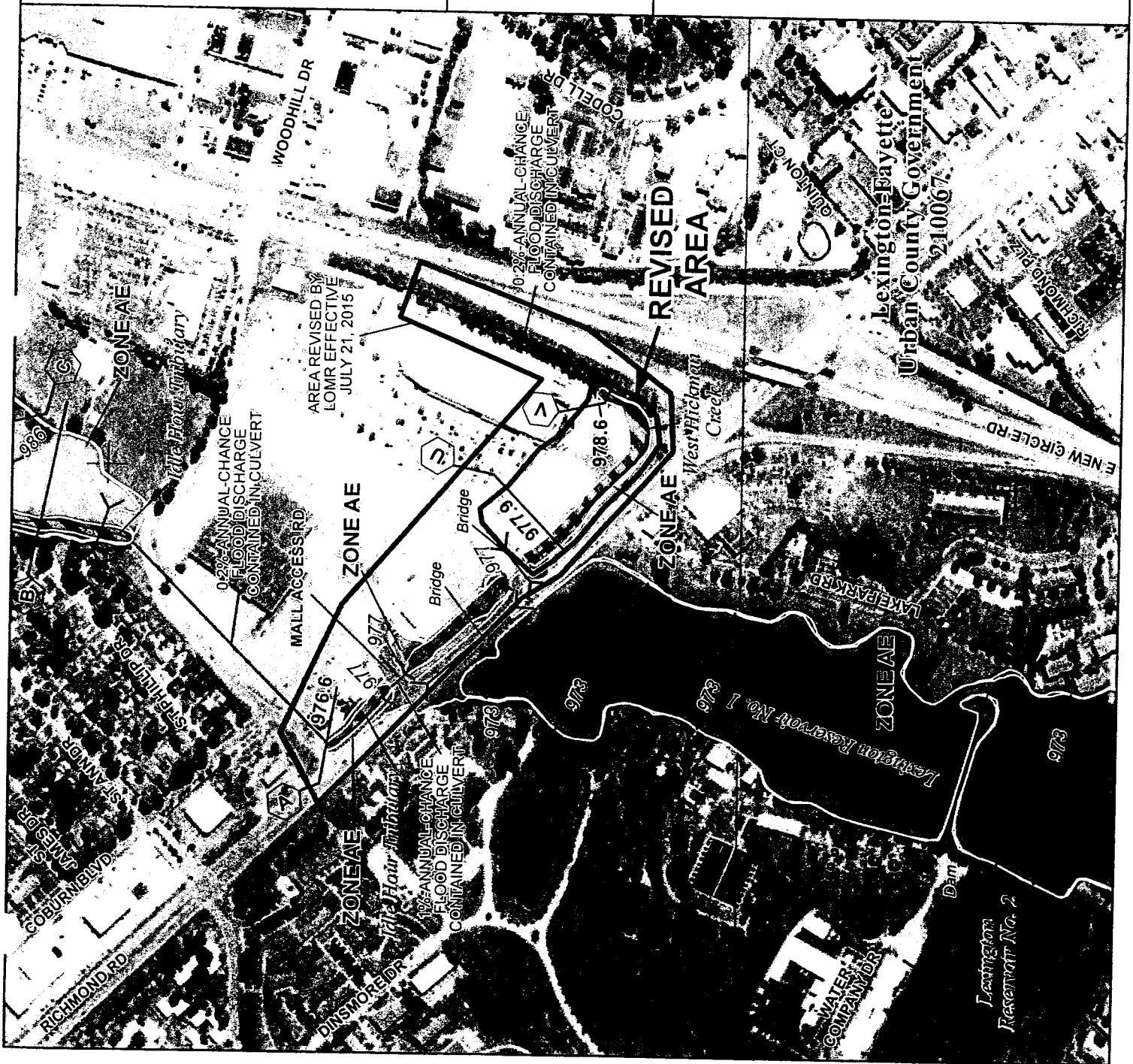
IMPORTANT: If backflow prevention devices are installed on your plumbing/fire sprinkler system, they are required to be tested annually and copies of the test reports must be maintained on file with Kentucky American Water. If you do not have current copies of the test reports on file with us, please attach copies of the test(s) to this survey.

Date

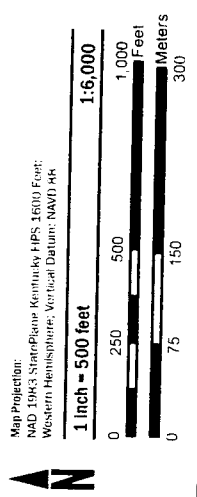
Signature of person completing survey

Phone Number

Please mail or fax completed survey to:
 Kentucky American Water
 2300 Richmond Rd.
 Lexington, KY 40502
 Attn. Cross Connection Supervisor



SCALE
 NOTE: BASEMAP IMAGERY WAS OBTAINED FROM NAIP IN 2014



FEMA
 NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP
 LEXINGTON-FAYETTE URBAN COUNTY
 GOVERNMENT, KENTUCKY
 (ALL JURISDICTIONS)
 PANEL 139 of 325
 COMMUNITY NUMBER: 210067
 PANEL SUFFIX: 0139

REVISED TO REFLECT LOMR EFFECTIVE: December 2, 2016

VERSION NUMBER: 2.1.3.0
 MAP NUMBER: 2100670139E
 MAP REVISED: MARCH 3, 2014

MATTHEW G. BEVIN
GOVERNOR



CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 11, 2017

Mr. Kevin Leveque
125 Lisle Industrial Rd STE 180
Lexington, KY 40511

Re: West Hickman 7 Wet Weather Storage-Contract 1 & 2
Fayette County, Kentucky
Lexington West Hickman WWTP
Activity ID: 2295, APE:20170016
Receiving Treatment Plant KPDES #: KY0021504

Dear Mr. Leveque:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, a wet weather pump station consisting of 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, a mixing pump station with 3 pumps with an output of 4,400 gpm and a 5 MG Wet Weather Storage Tank. The wet weather pump station will include a mechanical bar screen, a manual bar screen, an emergency generator, odor control facilities, conveyor and dumpster. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

Based on DOW records, this project is being funded by a State Revolving Fund (SRF) loan. Therefore, this approval is for the technical aspects of the project only. Currently, an Environmental Review related to your funding application is pending. **Therefore, you are NOT authorized to advertise for bids at this time. Should you choose to proceed with the bidding and award a contract prior to DOW approval, this will be at your own risk and payment from the SRF program is not guaranteed.**

If we can be of any further assistance or should you wish to discuss this correspondence, please do not hesitate to contact me at 502-782-6955.

Sincerely,

A handwritten signature in black ink that reads "Greg Goode".

Greg Goode, P.E.
Engineering Section
Water Infrastructure Branch
Division of Water

GG

Enclosures

c: Fayette County Health Department
HDR Engineering
Division of Plumbing



Sewer Line Construction
 Lexington West Hickman WWTP
 Facility Requirements

Activity ID No.:APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Submittal/Action Requirements:

Condition No.	Condition
S-1	When this project is completed, the applicant shall: submit written certification: Due 30 calendar days after Completion of Construction to the Division of Water that the facilities have been constructed and tested in accordance with the approved plans and specifications and the approval conditions. Such certification shall be signed by a registered professional engineer. Failure to certify may result in penalty assessment and/or future approvals being withheld. [401 KAR 5:005 Section 24(2)]

Narrative Requirements:

Condition No.	Condition
T-1	The integrity of any proposed force main shall be verified by leakage tests. The specifications shall include testing methods and leakage limits. [401 KAR 5:005 Section 8(6)(b)]
T-2	Each high point in the sewer force main shall have an automatic air release valve. [401 KAR 5:005 Section 8(19)]
T-3	Adequate thrust blocks shall be provided at all significant bends in any proposed sewer force main, in order to prevent movement of the main. [Ten States (WW) 49.4]
T-4	The integrity of a new gravity sewer line shall be verified by either the infiltration-exfiltration or low pressure air testing method, and a deflection test shall be performed, if using flexible pipe. The deflection test shall be performed after the final backfill has been in place for at least thirty (30) days with no pipe exceeding a deflection of five (5) percent. Additionally, each new manhole shall be tested for water tightness. [401 KAR 5:005 Section 8(6)(a)]
T-5	The entrance of groundwater into or loss of waste from a new gravity sewer line shall be limited to two-hundred (200) gpd per inch of diameter per mile of the gravity sewer line. This limitation includes manholes, gravity sewer lines, and appurtenances. [401 KAR 5:005 Section 8(5)]
T-6	Pumps and force mains handling raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter. Pump suction and discharge openings, as well as sewer force main pipe, shall be a minimum of four (4) inches in diameter. The above requirements do not apply to grinder pump stations or force mains directly connected to grinder pump stations. [Ten States (WW) 42.33, 49.1]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-7	The plans and specifications submitted for the project are approved by the Department of Environmental Protection as to sanitary features, subject to the requirements contained within the permit. [401 KAR 5:005 Section 24(3)]
T-8	Authority to construct these sewers is hereby granted. This approval is issued under the provisions of KRS Chapter 224.10-100 (19) regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any permits or licenses required by this cabinet and other state, federal, and local agencies. [401 KAR 5:005 Section 24(3)(c)2]
T-9	A permit to construct a facility shall be effective and valid for twenty-four (24) months upon issuance unless otherwise conditioned. If construction has not commenced within twenty-four (24) months following a permit's issuance, a new permit shall be obtained before construction may begin. [401 KAR 5:005 Section 24(1)]
T-10	The permit is issued to the applicant, and the permittee shall remain the responsible party for compliance with all applicable statutes and administrative regulations until a notarized applicable change in ownership certification is submitted and the transfer of ownership is acknowledged by the cabinet. [401 KAR 5:005 Section 28(f)]
T-11	The issuance of a permit by the cabinet does not convey any property rights of any kind or any exclusive privilege. [401 KAR 5:005 Section 24(5)]
T-12	There shall be no deviations from the plans and specifications submitted with the application or the conditions specified, unless authorized in writing by the cabinet. [401 KAR 5:005 Section 24(3)(b)1]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-13	For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250, if the following requirements of 401 KAR 4:050 Section 2 are met: <ol style="list-style-type: none"> 1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet. 2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain, unless the applicant has received prior approval from the cabinet to fill within the flood plain. 3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches of clear cover above the top of the pipe or conduit at all points. 4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete. 5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength.
T-14	Contact the Floodplain Management Section of the Surface Water Permits Branch at (502) 564-3410 with any question on these requirements. [KRS 151.250 & 401 KAR 4:060]
T-15	If any portion of the sewer project will be constructed in or along a stream or wetland, contact the Water Quality Certification Section, located within the Water Quality Branch, at 502-564-3410, to determine if a 401 certification will be required. [KRS 224.16-050]
T-16	Facilities shall be designed and constructed in accordance with the "Recommended Standards for Wastewater Facilities" of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers, commonly referred to as "Ten States' Standards", 2004 edition. [401 KAR 5:005 Section 7(1)(a)]
T-17	Gravity sewer lines and force mains shall be designed and constructed to give mean velocities, when flowing full, of not less than two (2) feet per second. Velocity calculations shall incorporate roughness coefficients pursuant to 401 KAR 5:005 Section 8(8). [401 KAR 5:005 Section 8(8)]
T-18	Sewer line pipe material, joints, fittings, and installation shall conform to the latest ASTM specifications. [Ten States (WW) 33.7-33.9]
T-18	Gravity sewer lines and force mains shall have a minimum of thirty (30) inches of cover or provide comparable protection. [401 KAR 5:005 Section 8(9)]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-19	Sewer lines crossing water mains shall be laid to provide a vertical distance of eighteen (18) inches between the outside of the water main and the outside of the sewer line. This shall be the case where the water main is either above or below the sewer line. The crossing shall be arranged so that the sewer line joints are equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main. [Ten States (WW) 38.32]
T-20	Sewer lines shall be laid at least ten (10) feet horizontally from any existing or proposed water main. The distance shall be measured from edge to edge. [Ten States (WW) 38.31]
T-21	If gravity sewer lines and force mains are to be constructed in fill areas, the fill areas shall be compacted to ninety-five (95) percent density as determined by the Standard Proctor Density test or to a minimum of ninety (90) percent density as determined by the Modified Proctor Density test prior to the installation of the sewer lines. [401 KAR 5:005 Section 8(10)]
T-22	An audible and visible alarm shall be provided at any proposed wastewater pump station. [Ten States (WW) 46]
T-23	All proposed pump station wetwells shall be sized such that, based on the average flow, the time to fill the wetwell from the pump-off elevation to the pump-on elevation shall not exceed thirty (30) minutes. [401 KAR 5:005 Section 8(16)]
T-24	All pump stations shall provide a minimum of two (2) hours of detention time, based on the average design flow, above the high level alarm elevation or provide an alternate source of power with wetwell storage providing sufficient time for the alternate power source to be activated. [401 KAR 5:005 Section 8(18)]



Matthew G. Bevin
Governor

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
Department of Highways, District 7 Office
763 West New Circle Road
Lexington, Kentucky 40511
(859) 246-2355
www.transportation.ky.gov/

Greg Thomas
Secretary

July 7, 2017

Lexington Fayette Urban Co. Govt.
125 Lisle Industrial Avenue Suite 180
Lexington, Kentucky 40511

Subject: Permit #: 07-2017-00288
Permit Type: Utilities - Sewer
Approval

Dear Applicant:

Attached is your permit approval and documentation for the subject permit.

Be advised that all work must be done in conformity with permit and application conditions. If you have any questions, please contact the Permits Section at this office.

Sincerely,

A handwritten signature in black ink, appearing to read "Jarrod Stanley".

Jarrod Stanley
D7 Engineering Support - TEBM

Attachments



An Equal Opportunity Employer M/F/D



Kentucky Transportation Cabinet
Department of Highways
Permits Branch

TC 99-1 (A)
8/2012
Page 1 of 4

APPLICATION FOR ENCROACHMENT PERMIT

Permittee Information				KYTC No. <u>07-2017-00285</u>			
Name	Lexington Fayette Urban County Government	Permit Information					
Address	125 Lisle Industrial Avenue suite 180			Address			
City	Lexington			City	Lexington		
State	KY	Zip	40511	State	KY	Zip	40511
County	Fayette			County	Fayette		
Phone#	859 258 - 3415			Route No.	Ky Route 4	Mile-Point	14.8
Contact	Vernon Azevedo P.E.			Longitude (X)	84 deg 27 min 29.30 sec		<u>38.013</u>
Phone	859 425 - 2438	Cell	859 771 - 1155	Latitude (Y)	38 deg 00 min 48.00 sec		<u>-84.458</u>
Email	wazevedo@lexingtonky.gov			<i>Information below to be filled out by KYTC</i>			
Contact	Benton Hanson, P.E.			<input type="checkbox"/> Air Right	<input type="checkbox"/> Entrance		
Phone	859 629-4838	Cell	859 361- 5983	<input checked="" type="checkbox"/> Utilities	<input type="checkbox"/> Other: _____		
Email	Benton.hanson@hdrinc.com			<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input checked="" type="checkbox"/> X-Ing	
				Access:	<input type="checkbox"/> Full	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> by Permit

General Description of Work:

Construction of a new 20" sewage force main and 16" gravity sewer both contained within a 54" or 60" steel casing pipe under KY HWY 4 (New Circle Road) near Richmond Road for a LFUCG sewer improvement project (West Hickman 7 Wet Weather Storage Facility).
This request includes project site access off the Southbound Exit Ramp off New Circle Rd. to Richmond Rd. and a possible Recovery Pit (if needed) between the Ex-Ramp to the Northbound lanes of New Circle Road and Northbound New Circle Rd. (see attached plan sheets)

THE UNDERSIGNED PERMITTEE(S) (being the authorized representative(s) or owner(s)) DO AGREE TO ALL TERMS AND CONDITIONS ON THE TC 99-1 (A).

Signature *[Signature]* Date 5/17/17
KEVIN LOVINSKY, PE

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application will become void if not approved by the cancellation date. The cancellation date will be one year from the date the permittee submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. INDEMNITY:
 - A. PERFORMANCE BOND: The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. PAYMENT BOND: At the discretion of the department, a payment bond will be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. LIABILITY INSURANCE: Liability insurance will be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the Indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit will be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agrees to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, and/or add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, and/or other corrective measures must be completed will be specified in the notice.



APPLICATION FOR ENCROACHMENT PERMIT

9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns, and/or the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____ subscribed and sworn by _____, on this date _____.

11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.

12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agrees as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.

13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, shall defend, protect, indemnify and save harmless the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.

14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department may and shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.

15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.



Kentucky Transportation Cabinet
Department of Highways
Permits Branch

TC 99-1 (A)
1/2015
Page 4 of 4

APPLICATION FOR ENCROACHMENT PERMIT

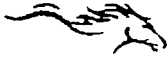
16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)

18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.

19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.

20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.



Kentucky Transportation Cabinet
Department of Highways
Division of Maintenance
Permits Branch

TC 99-1 (B)
03/2016
Page 1 of 1

ENCROACHMENT PERMIT

KEPT No.: 07-2017-00288
Permittee: Lexington Fayette Urban Co. Govt.
Permit Type / Subtype: Utilities / Sewer
Work Completion Date: 1/1/2018

INDEMNITIES		
Type	Amount Required	Tracking Number
Performance Bond	\$0.00	
Cash/Check	\$0.00	
Self-Insured	\$10,000.00	0009633
Payment Bond	\$0.00	
Liability Insurance	\$0.00	

This permit has been: APPROVED DENIED

Jarrod Stanley D7 Engineering Support - TEBM 7/6/2017
SIGNATURE TITLE DATE

The TC 99-1(B), including the application TC-99 1(A) and all related and accompanying documents and drawings make up the permit. It is not a permit unless both the TC 99-1(A) and TC 99-1(B) are both present.

LOCATION(S)			
Description	County - Route	Latitude	Longitude
KY 4 MP 14.8	Fayette - KY 4	38.013710	-84.458099

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
ENCROACHMENT PERMIT MISCELLANEOUS REQUIREMENTS

THE FOLLOWING STIPULATIONS ARE REQUIREMENTS FOR YOUR APPROVED PERMIT NO. 07-2017-00288

- All roadside features (ditches, slopes, sidewalks, signs, etc.) shall be restored and seeded to match existing conditions.
- Any roadway damage as a result of the permitted work shall be the responsibility of the applicant to repair.
- Entrance shall not be used within the hours of 7:00am-9:00am, and 3:00pm-6:00pm, weekdays.
- The permittee shall be responsible for complying with appropriate temporary traffic control as described in the latest edition of the MUTCD (Manual on Uniform Traffic Control Devices).
- It shall be the responsibility of the permittee to advise the KYTC District 7 Public Information Officer and local media of the location (including mile points) and duration of any proposed lane closures, a minimum of three (3) days prior to the closure.
 - KYTC District 7 Public Information Officer Contact Info:
 - Email: NatashaF.Lacy@ky.gov
 - Phone: (859) 246-2355
 - Address: 763 West New Circle Road, Lexington, KY 40512



STEVE BISHOP
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
500 PUBLIC SQUARE, FLOPPY
FRANKFORT, KENTUCKY 40601
LEONARD K. PETERSON
SECRETARY

LEONARD K. PETERSON
SECRETARY

October 16, 2016

LFUCG - Division of Water Quality/West Hickman Sewer Trunk
125 Lisle Industrial Ave Ste 180
Lexington, KY 40511

RE: Installation of subfluvial utility crossing of a 20" force main and a 16" gravity sewer line adjacent and 6' apart by open cut method across the floodplain of West Hickman Creek at about stream mile 1.6, with coordinates of 38.014033, -84.459258, in Lexington, Fayette County. AI: 123077

Dear LFUCG - Division of Water Quality:

A construction permit pursuant to KRS 151.250 is not required for a subfluvial utility or pipe crossing provided that the construction of the crossing meets specific criteria (see enclosed sheet, Section 2) set forth by Administrative Regulations 401 KAR 4:050. We have reviewed the construction drawings and other submitted information for the referenced project and determined that all the exemption criteria will be met. *Therefore, a stream construction permit will not be required.* Any deviation from the project scope shall require a revised application which may result in the issuance of a permit should it be required.

If this activity will result in a discharge of dredged or fill material into waters of the United States, additional permits may be required from the U.S. Army Corps of Engineers and the Kentucky Division of Water. Examples of discharges include but are not limited to placement of dirt, culverts, rock or pipelines in a stream or wetland. Please contact the Water Quality Certification Section staff at 502/564-3410 for additional information.

This exemption is issued from the standpoint of stream obstruction only and does not constitute certification of any other aspect of proposed construction. The applicant is liable for any damage resulting from the construction, operation or maintenance of the project and is responsible for obtaining any other permits or licenses required by this cabinet and other state, federal and local agencies. This document is being furnished to you in lieu of a Stream Construction Permit for the referenced activity.

If you have any questions, please call Soheyl Bigdeli at (502) 564-3410.

Sincerely,

Ron Dutta, P.E., Supervisor
Floodplain Management Section
Surface Water Permit Branch
Division of Water

SB/RD

Copies: Copies: Frankfort Regional Office
Doug Burton – Fayette County Floodplain Coordinator
Kevin Levesque, agent by email: klevesque@lexingtonky.gov
Benton Hanson, engineer by email: Benton.Hanson@hdrinc.com
File

401 KAR 4:050, Section 2

A construction permit pursuant to KRS 151.250 shall not be required for a subfluvial utility or pipeline crossing provided that the construction of the crossing meets the following criteria:

- 1) During the construction of the crossing, no material may be placed in the stream or in the floodplain of the stream to form construction pads, coffer dams, access roads, etc.. unless prior approval has been obtained from the Cabinet.
- 2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the floodplain unless the applicant has received prior approval from the Cabinet to fill within the floodplain.
- 3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches clear to the top of the pipe or conduit at all points.
- 4) For subfluvial crossings of non-erodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.
- 5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the Division with sufficient information to show that the pipe and joints have sufficient strength.

SECTION 00910 - ADDENDA

(Insert Addenda as they are issued.)

END OF SECTION

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
NOTIFICATION OF CONSTRUCTION PROJECT**

INVITATION FOR BIDS: #140--2017

PROJECT TITLE: West Hickman 7 Pump Station and Wet Weather Storage Tank

SCOPE OF WORK: The project includes providing all construction supervision, labor, materials, tools, test equipment necessary for the construction of the **West Hickman 7 (WH7) Wet Weather Storage Facilities Improvements: Contract No. 2 –Pump Station and Wet Weather Storage Tank**. The project includes but is not limited to a LFUCG Class A pumping station with mechanical screening, screenings compactor, four (4) submersible sewage pumps, two (2) sump pumps, diversion structure, building with screening room, dumpster room, odor control room, electrical room and emergency generator all on the Wet Weather Pump Station site. On the Wet Weather Storage Tank site there will be a 5.0 MGD storage tank, flow control structure, mixing pump station, building with odor control room, chemical feed room, blower room, electrical room and emergency generator.

Question and answer deadline will be October 20, 2017, at 5:00 P.M. all questions shall be sent to brianm@lexingtonky.gov

BID OPENING DATE: October 31, 2017

TIME: 2:00 PM

LFUCG PROJECT MANAGER: Kevin Levesque

PLANS AVAILABLE FROM: Lynn Imaging
328 Old Vine St
Lexington KY 40507
<http://www.lynnimaging.com/planroom>
(859) 255-1021

DEPOSIT REQUIRED: Cost of Duplication REFUNDABLE?: No

Internet Posting

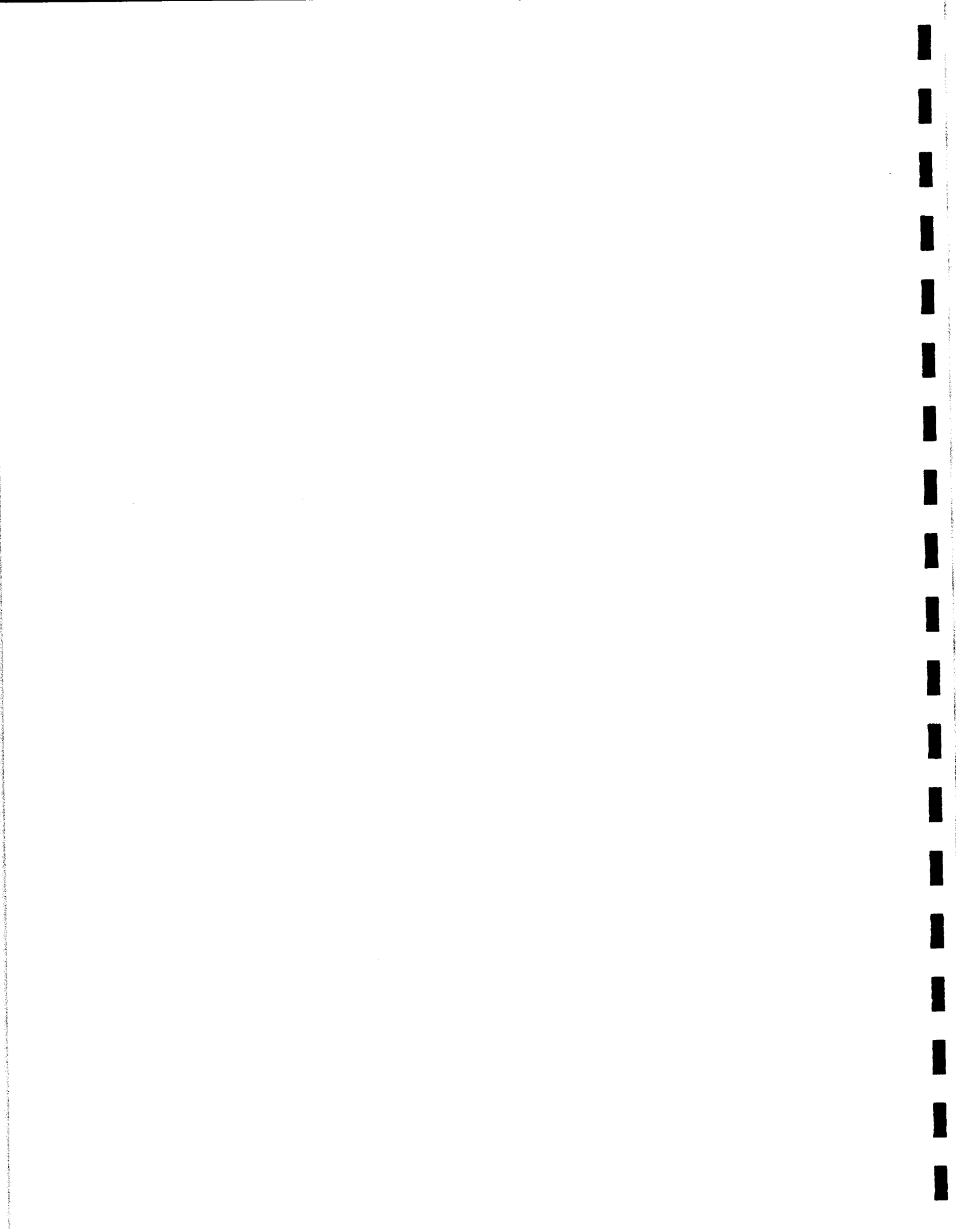
Information on the above listed construction project is now available for download on our internet-based system. To take part in this process, please visit our site at: <http://www.lfucg.com>

Click on "Supplier Registration" and follow the instructions.

Once registered, you will have access to the LFUCG Marketplace.

The Affirmative Action Plan of the Lexington-Fayette Urban County Government applies to this project. Additional Federal regulations may apply. See bid documents for details.

*****Mandatory Pre-bid meeting will be held October 13, 2017 at 9:00 am, 125 Lisle Industrial Avenue 1st Floor Conference Room, Lexington, Ky.*****





LEXINGTON

LEXINGTON
WATER
UTILITIES
DEPARTMENT

ADDENDUM #2

Bid Number: #140-2017

Date: October 11, 2017

Subject: West Hickman 7 Wet Weather Storage
Facilities Improvements (Contract No. 2)

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. QUESTIONS

	Questions	Answers
1.	I have been on the website and have been unable to determine if this project has a pre-qualification process. Please advise.	No prequalification requirements.

2. CLARIFICATIONS

- A. The Pre-Bid meeting will be held on Friday, October 13th, at **10:00 am** at 125 Lisle Industrial Ave., 1st floor conference room.
- B. Project funding for this project has been changed; only local funds will be used to finance this project. No Davis-Bacon Wage Rates, Kentucky Division of Water Good Faith Efforts, or AIS provisions are required. Only Items listed in Section 00100, Advertisement for Bids, Article 1.10 Notice Concerning MWDBE Goals are required by LFUCG.
- C. Contractor shall remove and dispose, in addition to other clearing and grubbing of the Quinton Court site, the entrance pavement, road bed and surface, curb and gutter, any sidewalk, fencing, and all trees and undergrowth along the southeast property line, formerly the Old Todds Road Right-of-Way (ROW) of the Quinton Court property (tank site). Contractor is advised to protect any marked property pins or monuments. Contractor is advised to protect the adjoining retaining wall and its footing from damage. Removal of the entrance pavement, road bed and surface, curb and gutter, any sidewalk, fencing, and all trees and undergrowth along the southeast property line, formerly the Old Todds Road ROW of the Quinton Court property (tank site) is incidental to the Contract and shall not be a Pay Item.



LEXINGTON

LEXINGTON
KENTUCKY
2017

- D. Trees and undergrowth in and along the New Circle Road ROW fence shall be cleared, removed and disposed. ROW fence damaged shall be replaced with a like fence. Removal of trees and undergrowth in and along the New Circle Road ROW and replacement of any damaged fence shall be incidental to the Contract and shall not be a Pay Item.
- E. The last day questions will be accepted by Brian Marcum is close of business on October 20, 2017.
- F. Bid Opening has been revised to November 2, 2017 at 2:00 pm; submitted to Division of Purchasing, Government Center, Third Floor, 200 East Main Street, Lexington, Kentucky 40507.
- G. Notice of Award is anticipated be November 17, 2017.
- H. Construction is scheduled to be completed by December 31, 2017.
- I. Construction time for Substantial Completion is 380 consecutive calendar days.

3. DRAWINGS

- A. Sheet 01C-02, Pump Station Grading and Drainage Plan has been revised to include different final restoration requirements between West Hickman Creek and the exit ramp off New Circle Road, and the Limits of Disturbance were revised. See Attached.
- B. Sheet 02D-14, Mixing Pump Station Plans and Sections has been revised to add a catwalk at the Mixing Pump Station. See attached.

4. SPECIFICATIONS

- A. Section 00100, Advertisement for Bids, Article 1.01 **Invitation** shall be deleted and replaced with the following:

“Sealed proposals for the following work will be received by the Lexington-Fayette Urban County Government (LFUCG) on **November 2, 2017** until 2:00 PM, local time, 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). Immediately following the scheduled closing time for reception of Bids, all proposals which have been submitted in accordance with the above will be publicly opened and read aloud.”

- B. Section 00100, Advertisement for Bids, Article 1.08 **Submission of Bids** shall be deleted and replaced with the following:

“Contractors shall submit their Bids to the Lexington-Fayette Urban County Government, Division of Purchasing, Third Floor, 200 East Main Street, Lexington,



LEXINGTON

OFFICE OF THE
DIRECTOR
DIVISION OF CENTRAL PURCHASING

Kentucky 40507. Bids shall be submitted in a sealed envelope no later than 2:00 p.m. (local time) on **November 2, 2017**. Sealed proposals shall be marked clearly on the outside of the container "**Sealed Proposal for: WH7 Wet Weather Storage Facilities Improvements: Contract No. 2 – Pump Station and Wet Weather Storage Tank** to be opened at **2:00 p.m. Local Time**. Bids received after the scheduled closing time for receipt of Bids will not be considered and will be returned unopened."

- A. Section 00100, Advertisement for Bids, Article 1.12 **State Revolving Loan Requirements** shall be deleted.
- B. Section 00810, **Supplemental General Conditions for Clean Water State Revolving Fund** shall be deleted in its entirety.
- C. Section 00815, **Guidance for the Implementation of American Iron and Steel Provisions** shall be deleted in its entirety.
- D. Section 00820, **Wage Determination Schedule** shall be deleted in its entirety.
- E. Section 00890 Permits. Add KYTC Encroachment Permit #07-2017-00288. See attached.
- F. Section 00890 Permits. Add Kentucky Division of Water approval letter dated October 11, 2017. See attached.

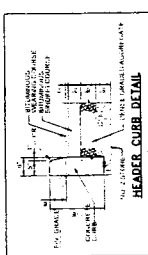
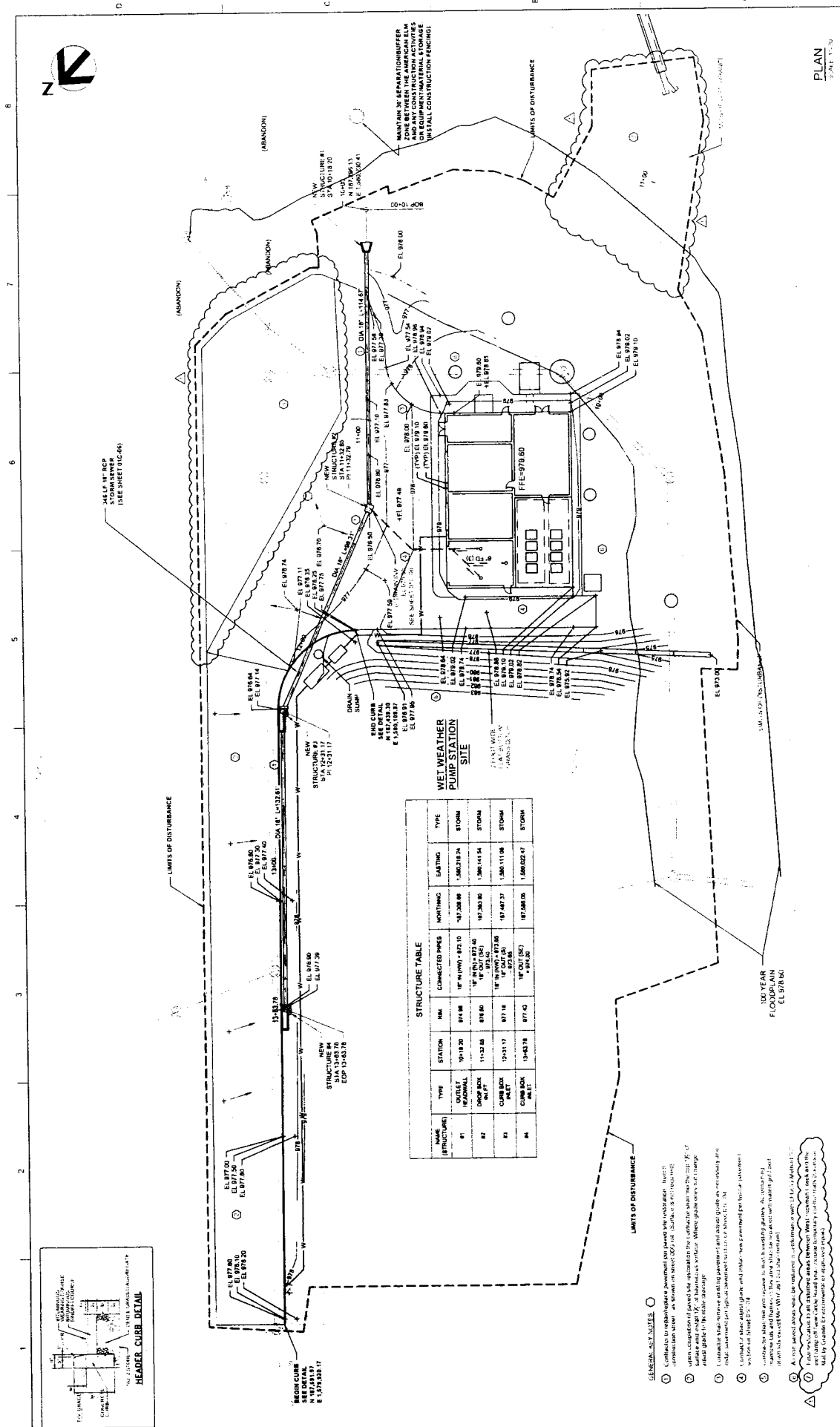
Todd Slatin, Director
Division of Central Purchasing

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: _____

ADDRESS: _____

SIGNATURE OF BIDDER: _____



STRUCTURE TABLE

NAME (STRUCTURE)	TYPE	STATION	NO.	CONNECTED PIPES	HEIGHT	BAYING	TYPE
#1	OUTLET	10+19.20	874.00	12" W/10'0" - 872.10	187.200.00	1.800.018.24	STORM
#2	DRAINAGE	11+32.58	876.00	12" W/10'0" - 872.40	187.200.00	1.800.014.54	STORM
#3	CHAMBER	12+31.17	877.18	12" W/10'0" - 873.58	187.487.37	1.800.011.08	STORM
#4	CHAMBER	13+43.78	877.43	12" W/10'0" - 873.83	187.588.38	1.800.022.47	STORM

- GENERAL NOTES
- Contractor to reobtain permission for any work within the limits of disturbance shown on this plan.
 - Contractor to provide for any work within the limits of disturbance shown on this plan.
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WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

PUMP STATION GRADING AND DRAINAGE PLAN

PLAN
SCALE: 1" = 20'

PROJECT NUMBER: 10000008

PROJECT MANAGER: J. HANSON
DESIGNED BY: J. HANSON
DRAWN BY: T. GAVIN
CHECKED BY: B. HANSON
DATE: 10/16/2017

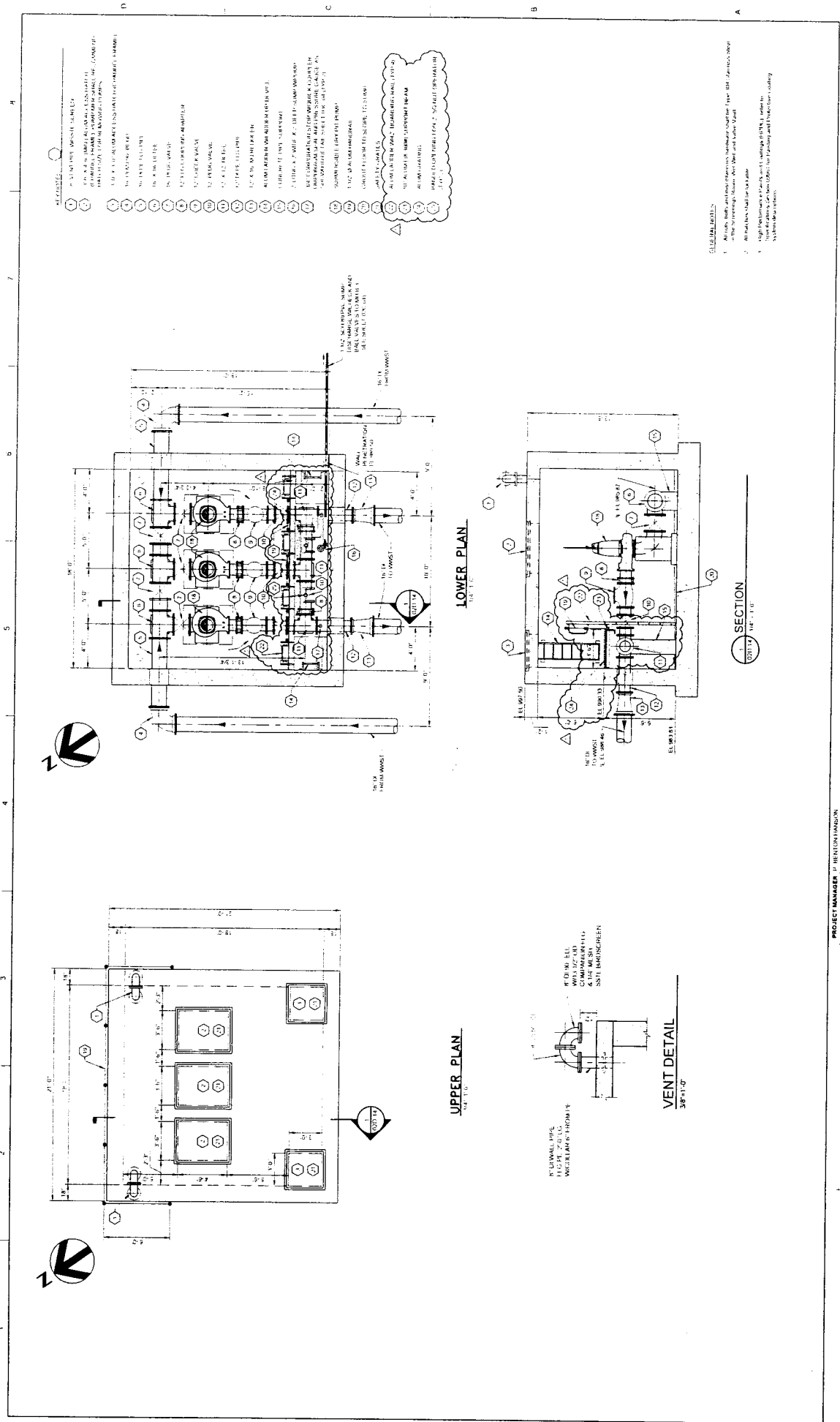
ISSUE DATE DESCRIPTION

1 10/16/2017
2 10/16/2017

SCALE: 1" = 20'

FILE NAME: 10000008.DWG
SCALE: 1" = 20'

SHEET 01C-02



WEST HICKMAN 7 WET WEATHER STORAGE FACILITIES IMPROVEMENTS CONTRACT NO. 2 PUMP STATION AND WET WEATHER STORAGE TANK

FDR

PROJECT NUMBER: 104-T10
 DESIGNED: []
 DRAWN: []
 CHECKED: []
 QUANTITY: []

PROJECT NUMBER: 104-T10
 DESCRIPTION: []

DATE: []
 ISSUE: []

SCALE: 1" = 1'-0"

FILE NAME: []
 SHEET: 02D-14

MIXING PUMP STATION PLANS AND SECTIONS

LEGEND:

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NOTES:

1. ALL DIMENSIONS ARE IN FEET AND INCHES.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
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MATTHEW G. BOWEN
Governor



CHARLES G. SENESE
Comptroller

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON H. KEATLEY
Commissioner

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 11, 2017

Mr. Kevin Leveque
125 Lisle Industrial Rd STE 180
Lexington, KY 40511

Re: West Hickman 7 Wet Weather Storage-Contract 1 & 2
Fayette County, Kentucky
Lexington West Hickman WWTP
Activity ID: 2295, API:20170016
Receiving Treatment Plant KPDES #: KY0021504

Dear Mr. Leveque:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, a wet weather pump station consisting of 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, a mixing pump station with 3 pumps with an output of 4,400 gpm and a 5 MG Wet Weather Storage Tank. The wet weather pump station will include a mechanical bar screen, a manual bar screen, an emergency generator, odor control facilities, conveyor and dumpster. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

Based on DOW records, this project is being funded by a State Revolving Fund (SRF) loan. Therefore, this approval is for the technical aspects of the project only. Currently, an Environmental Review related to your funding application is pending. **Therefore, you are NOT authorized to advertise for bids at this time. Should you choose to proceed with the bidding and award a contract prior to DOW approval, this will be at your own risk and payment from the SRF program is not guaranteed.**

If we can be of any further assistance or should you wish to discuss this correspondence, please do not hesitate to contact me at 502-782-6955.

Sincerely,

A handwritten signature in black ink that reads "Greg Goode".

Greg Goode, P.E.
Engineering Section
Water Infrastructure Branch
Division of Water

GG

Enclosures

c: Fayette County Health Department
HDR Engineering
Division of Plumbing



Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Submittal/Action Requirements:

Condition No.	Condition
S-1	When this project is completed, the applicant shall submit written certification: Due 30 calendar days after Completion of Construction to the Division of Water that the facilities have been constructed and tested in accordance with the approved plans and specifications and the approval conditions. Such certification shall be signed by a registered professional engineer. Failure to certify may result in penalty assessment and/or future approvals being withheld. [401 KAR 5:005 Section 24(2)]

Narrative Requirements:

Condition No.	Condition
T-1	The integrity of any proposed force main shall be verified by leakage tests. The specifications shall include testing methods and leakage limits. [401 KAR 5:005 Section 8(6)(b)]
T-2	Each high point in the sewer force main shall have an automatic air release valve. [401 KAR 5:005 Section 8(19)]
T-3	Adequate thrust blocks shall be provided at all significant bends in any proposed sewer force main, in order to prevent movement of the main. [Ten States (WW) 49.4]
T-4	The integrity of a new gravity sewer line shall be verified by either the infiltration-exfiltration or low pressure air testing method, and a deflection test shall be performed, if using flexible pipe. The deflection test shall be performed after the final backfill has been in place for at least thirty (30) days with no pipe exceeding a deflection of five (5) percent. Additionally, each new manhole shall be tested for water tightness. [401 KAR 5:005 Section 8(6)(a)]
T-5	The entrance of groundwater into or loss of waste from a new gravity sewer line shall be limited to two-hundred (200) gpd per inch of diameter per mile of the gravity sewer line. This limitation includes manholes, gravity sewer lines, and appurtenances. [401 KAR 5:005 Section 8(5)]
T-6	Pumps and force mains handling raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter. Pump suction and discharge openings, as well as sewer force main pipe, shall be a minimum of four (4) inches in diameter. The above requirements do not apply to grinder pump stations or force mains directly connected to grinder pump stations. [Ten States (WW) 42.33, 49.1]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-7	The plans and specifications submitted for the project are approved by the Department of Environmental Protection as to sanitary features, subject to the requirements contained within the permit. [401 KAR 5:005 Section 24(3)]
T-8	Authority to construct these sewers is hereby granted. This approval is issued under the provisions of KRS Chapter 224.10-100 (19) regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any permits or licenses required by this cabinet and other state, federal, and local agencies. [401 KAR 5:005 Section 24(3)(c)2]
T-9	A permit to construct a facility shall be effective and valid for twenty-four (24) months upon issuance unless otherwise conditioned. If construction has not commenced within twenty-four (24) months following a permit's issuance, a new permit shall be obtained before construction may begin. [401 KAR 5:005 Section 24(1)]
T-10	The permit is issued to the applicant, and the permittee shall remain the responsible party for compliance with all applicable statutes and administrative regulations until a notarized applicable change in ownership certification is submitted and the transfer of ownership is acknowledged by the cabinet. [401 KAR 5:005 Section 28(1)]
T-11	The issuance of a permit by the cabinet does not convey any property rights of any kind or any exclusive privilege. [401 KAR 5:005 Section 24(5)]
T-12	There shall be no deviations from the plans and specifications submitted with the application or the conditions specified, unless authorized in writing by the cabinet. [401 KAR 5:005 Section 24(3)(b)1]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.: APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-13	For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250, if the following requirements of 401 KAR 4:050 Section 2 are met: <ol style="list-style-type: none"> 1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet. 2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain, unless the applicant has received prior approval from the cabinet to fill within the flood plain. 3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches of clear cover above the top of the pipe or conduit at all points. 4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete. 5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. <p>Contact the Floodplain Management Section of the Surface Water Permits Branch at (502) 564-3410 with any question on these requirements. [KRS 151.250 & 401 KAR 4:060]</p>
T-14	If any portion of the sewer project will be constructed in or along a stream or wetland, contact the Water Quality Certification Section, located within the Water Quality Branch, at 502-564-3410, to determine if a 401 certification will be required. [KRS 224.16-050]
T-15	Facilities shall be designed and constructed in accordance with the "Recommended Standards for Wastewater Facilities" of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers, commonly referred to as "Ten States' Standards", 2004 edition. [401 KAR 5:005 Section 7(1)(a)]
T-16	Gravity sewer lines and force mains shall be designed and constructed to give mean velocities, when flowing full, of not less than two (2) feet per second. Velocity calculations shall incorporate roughness coefficients pursuant to 401 KAR 5:005 Section 8(8). [401 KAR 5:005 Section 8(8)]
T-17	Sewer line pipe material, joints, fittings, and installation shall conform to the latest ASTM specifications. [Ten States (WW) 33.7-33.9]
T-18	Gravity sewer lines and force mains shall have a minimum of thirty (30) inches of cover or provide comparable protection. [401 KAR 5:005 Section 8(9)]

Sewer Line Construction
Lexington West Hickman WWTP
Facility Requirements

Activity ID No.:APE20170016

GACT000000089 (West Hickman 7 Wet Weather Storage-Contract 1 & 2) 268 LF of 8", 264 LF of 10", 532 LF of 12", 930 LF of 16" gravity sewer, 1,243 LF of 20" force main, wet weather pump sta with 4 pumps at 8.5 MGD with 3 pumps in operation at 96' TDH, mixing pump station with 3 pumps with an output of 4,400 gpm, 5 MG Wet Weather Storage Tank:

Narrative Requirements:

Condition No.	Condition
T-19	Sewer lines crossing water mains shall be laid to provide a vertical distance of eighteen (18) inches between the outside of the water main and the outside of the sewer line. This shall be the case where the water main is either above or below the sewer line. The crossing shall be arranged so that the sewer line joints are equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main. [Ten States (WW) 38.32]
T-20	Sewer lines shall be laid at least ten (10) feet horizontally from any existing or proposed water main. The distance shall be measured from edge to edge. [Ten States (WW) 38.31]
T-21	If gravity sewer lines and force mains are to be constructed in fill areas, the fill areas shall be compacted to ninety-five (95) percent density as determined by the Standard Proctor Density test or to a minimum of ninety (90) percent density as determined by the Modified Proctor Density test prior to the installation of the sewer lines. [401 KAR 5:005 Section 8(10)]
T-22	An audible and visible alarm shall be provided at any proposed wastewater pump station. [Ten States (WW) 46]
T-23	All proposed pump station wetwells shall be sized such that, based on the average flow, the time to fill the wetwell from the pump-off elevation to the pump-on elevation shall not exceed thirty (30) minutes. [401 KAR 5:005 Section 8(16)]
T-24	All pump stations shall provide a minimum of two (2) hours of detention time, based on the average design flow, above the high level alarm elevation or provide an alternate source of power with wetwell storage providing sufficient time for the alternate power source to be activated. [401 KAR 5:005 Section 8(18)]



Matthew G. Bevin
Governor

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
Department of Highways, District 7 Office
763 West New Circle Road
Lexington, Kentucky 40511
(859) 246-2355
www.transportation.ky.gov/

Greg Thomas
Secretary

July 7, 2017

Lexington Fayette Urban Co. Govt.
125 Lisle Industrial Avenue Suite 180
Lexington, Kentucky 40511

Subject: Permit #: 07-2017-00288
Permit Type: Utilities - Sewer
Approval

Dear Applicant:

Attached is your permit approval and documentation for the subject permit.

Be advised that all work must be done in conformity with permit and application conditions. If you have any questions, please contact the Permits Section at this office.

Sincerely,

A handwritten signature in black ink, appearing to read "Jarrod Stanley".

Jarrod Stanley
D7 Engineering Support - TEBM

Attachments

Kentucky
UNBROKEN SPIRIT

An Equal Opportunity Employer M/F/D

Kentucky Transportation Cabinet
 Department of Highways
 Permits Branch

TC 99-1 (A)
 8/2012
 Page 1 of 4

APPLICATION FOR ENCROACHMENT PERMIT

Permittee Information				KYTC No. 07-2017-00289			
Name	Lexington Fayette Urban County Government	Permit Information					
Address	125 Lisle Industrial Avenue suite 180			Address			
City	Lexington	City		Lexington			
State	KY	Zip	40511	State	KY	Zip	40511
Phone#	859 258 - 3415			County	Fayette		
Contact	Vernon Azevedo P.E.			Route No.	Ky Route 4	Mile-Point	14.8
Phone	859 425 - 2438	Cell	859 771 - 1155	Longitude (X)	84 deg 27 min 29.30 sec		38.013
Email	wazevedo@lexingtonky.gov			Latitude (Y)	38 deg 00 min 48.00 sec		-84.458
Contact	Benton Hanson, P.E.			Information below to be filled out by KYTC			
Phone	859 629-4838	Cell	859 361- 5983	<input type="checkbox"/> Air Right	<input type="checkbox"/> Entrance		
Email	Benton.hanson@hdrinc.com			<input checked="" type="checkbox"/> Utilities	<input type="checkbox"/> Other: _____		
				<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input checked="" type="checkbox"/> X-ing	
Access:				<input type="checkbox"/> Full	<input checked="" type="checkbox"/> Partial	<input type="checkbox"/> by Permit	

General Description of Work:

Construction of a new 20" sewage force main and 16" gravity sewer both contained within a 54" or 60" steel casing pipe under KY HWY 4 (New Circle Road) near Richmond Road for a LFUCG sewer improvement project (West Hickman 7 Wet Weather Storage Facility).
 This request includes project site access off the Southbound Exit Ramp off New Circle Rd. to Richmond Rd. and a possible Recovery Pit (if needed) between the Ex-Ramp to the Northbound lanes of New Circle Road and Northbound New Circle Rd. (See attached plan sheets)

THE UNDERSIGNED PERMITTEE(S) (being duly authorized representative(s) or owner(s)) DO AGREE TO ALL TERMS AND CONDITIONS ON THE TC 99-1 (A).

Signature Kenn Lovessovs, PE Date 5/17/17

This is not a permit unless and until the permittee(s) receives an approved TC 99-1(B) from KYTC. This application will become void if not approved by the cancellation date. The cancellation date will be one year from the date the permittee submits their application.



APPLICATION FOR ENCROACHMENT PERMIT

TERMS AND CONDITIONS

1. The permit, including this application and all related and accompanying documents and drawings making up the permit, remains in effect and is binding upon the Applicant/Permittee, its successors and assigns, as long as the encroachment(s) exists and also until the permittee is finally relieved by the Department of Highways from all its obligations.
2. Applicant shall meet all requirements of the Clean Water Act if the project will disturb one acre or more, the applicant shall obtain a KPDES KYR10 Permit from the Kentucky Division of Water. All disturbed areas shall meet the requirements of the Department of Highway's Standard Specifications, Sections 212 and 213, as amended.
3. INDEMNITY:
 - A. PERFORMANCE BOND. The permittee shall provide to the Department a performance bond according to the Permits Manual, Section PE-203 as a guarantee of conformance with the Department's Encroachment Permit requirements.
 - B. PAYMENT BOND: At the discretion of the department, a payment bond will be required of the permittee to ensure payment of liquidated damages assessed to the permittee.
 - C. LIABILITY INSURANCE: Liability insurance will be required of the permittee (in an amount approved by the department) to cover all liabilities associated with the encroachment.
 - D. It shall be the responsibility of the permittee, its successors and assigns, to maintain all indemnities in full force and effect until the permittee is authorized to release the indemnity by the Department.
4. A copy of this application and all related documents making up the approved permit will be given to the applicant and shall be made readily available for review at the work site at all times.
5. Perpetual maintenance of the encroachment is the responsibility of the permittee, its successors and assigns, with the approval of the Department as required, unless otherwise stated.
6. Permittee, its successors and assigns, shall comply with and agrees to be bound by the requirements and terms of (a) this application and all related documents making up the approved permit, (b) by the Department's Permits Manual, and (c) by the Manual on Uniform Traffic Control Devices, both manuals as revised to and in effect on the date of issuance of the permit, all of which documents are made a part thereof by this reference. Compliance by the permittee, its successors and assigns, with subsequent revisions to applicable provisions of either manual or other policy of the Department may be made a condition of allowing the encroachment to persist under the permit.
7. Permittee agrees that this and any encroachment may be ordered removed by the Department at any time, and for any reason, upon thirty days written notice to the last known address of the applicant or to the address at the location of the encroachment. The permittee agrees that the cost of removing and of restoring the associated right-of-way is the responsibility of the permittee, its successors and assigns.
8. Permittee, its successors and assigns, agree that if the Department determines that motor vehicular safety deficiencies develop as a result of the installation or use of the encroachment, the permittee, its successors and assigns, shall provide and bear the expenses to adjust, relocate, or reconstruct the facilities, and/or add signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department within a reasonable time after receipt of a written notice of such deficiency. The period within which such adjustments, relocations, additions, modifications, and/or other corrective measures must be completed will be specified in the notice.



APPLICATION FOR ENCROACHMENT PERMIT

9. Where traffic signals are required as a condition of granting the requested permit or are thereafter required to correct motor vehicular safety deficiencies, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee, its successors and assigns, and/or the Department in its reasonable discretion and only in accordance with the Department's current policy set forth in the Traffic Operations Manual and Permits Manual. Any modifications to the permittee's entrance necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee, its successors and assigns, at no expense to the Department.

10. The requested encroachment shall not infringe on the frontage rights of an abutting owner without their written consent as hereinafter described. Each abutting owner shall express their consent, which shall be binding on their successors and assigns, by the submission of a notarized statement as follows, "I (we), _____, hereby consent to the granting of the permit requested by the applicant along Route _____, which permit does affect frontage rights along my (our) adjacent real property." By signature(s) _____ subscribed and sworn by _____ on this date _____.

11. The permit, if approved, is subject to the agreement that it shall not interfere with any similar rights or permit(s) previously granted to any other party, except as otherwise provided by law.

12. Permittee shall include documentation which describes the facilities to be constructed. Permittee, its successors and assigns, agrees as a condition of the granting of the permit to construct and maintain any and all permitted facilities or other encroachments in strict accordance with the submitted and approved permit documentation and the policies and procedures of the Department. Permittee, its successors and assigns, shall not use facilities authorized herein in any manner contrary to that prescribed by the approved permit. Only normal usage as contemplated by the parties and by this application and routine maintenance are authorized by the permit.

13. Permittee, its successors and assigns, at all times from the date permitted work is commenced until such time as all permitted facilities or other encroachments are removed from the right-of-way and the right-of-way restored, shall defend, protect, indemnify and save harmless the Department from any and all liability claims and demands arising out of the work, encroachment, maintenance, or other undertaking by the permittee, its successors and assigns, related or undertaken pursuant to the granted permit, due to any claimed act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party nor operate to enlarge any liability of the Department beyond that existing at common law or otherwise if this right to indemnity did not exist.

14. Upon a violation of any provision of the permit, or otherwise in its reasonable discretion, the Department may require additional action by the permittee, its successors and assigns, up to and including the removal of the encroachment and restoration of the right-of-way. In the event additional actions required by the Department under the permit are not undertaken as ordered and within a reasonable time, the Department may in its discretion cause those or other additional corrective actions to be undertaken and the Department may and shall recover the reasonable costs of those corrective actions from the permittee, its successors and assigns.

15. Permittee, its successors and assigns, shall use the encroachment premises in compliance with all requirements of federal law and regulation, including those imposed pursuant to Title VI of the Civil Right Act of 1964 (42 U.S.C. § 2000d et seq.) and the related regulations of the U.S. Department of Transportation in Title 49 C.F.R. Part 21, all as amended.



APPLICATION FOR ENCROACHMENT PERMIT

16. Permittee, its successors and assigns, agree that if the Department determines it is necessary for the facilities or other encroachment authorized by the permit to be removed, relocated or reconstructed in connection with the reconstruction, relocation or improvement of a highway, the Department may revoke permission for the encroachment to remain under the permit and may order its removal, relocation or reconstruction by the permittee, its successors and assigns, at the expense of the permittee, except where the Department is required by law to pay any or all of those costs.

17. Permittee agrees that the authorized permit is personal to the permittee and shall remain in effect until such time as (a) the permittee's rights to the adjoining real property to have benefitted from the requested encroachment have been relinquished, (b) until all permit obligations have been assumed by appropriate successors and assigns, and (c) unless and until a written release from permit obligations has been granted by the Department. The permit and its requirements shall also bind the real property to have benefitted from the requested encroachment to the extent permitted by law. The permit and the related encroachment become the responsibility of the successors and assigns of the permittee and the successors and assigns of each property owner benefitting from the encroachment, or the encroachment may not otherwise permissibly continue to be maintained on the right-of-way. (Does not apply to utility encroachments serving the general public.)

18. If work authorized by the permit is within a highway construction project in the construction phase, it shall be the responsibility of the permittee to make personal contact with the Department's Engineer on the project in order to coordinate all permitted work with the Department's prime contractor on the project.

19. This permit is not intended to, nor shall it, affect, alter or alleviate any requirement imposed upon the permittee, its successors and assigns, by any other agency.

20. Permittee, its successors and assigns, agree to contain and maintain all dirt, mud, and other debris emanating from the encroachment away from the surrounding right-of-way and the travel way of the highway hereafter and at all times that its obligations under the permit remain in effect.

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
ENCROACHMENT PERMIT MISCELLANEOUS REQUIREMENTS

THE FOLLOWING STIPULATIONS ARE REQUIREMENTS FOR YOUR APPROVED PERMIT NO. 07-2017-00288

- All roadside features (ditches, slopes, sidewalks, signs, etc.) shall be restored and seeded to match existing conditions.
- Any roadway damage as a result of the permitted work shall be the responsibility of the applicant to repair.
- Entrance shall not be used within the hours of 7:00am-9:00am, and 3:00pm-6:00pm, weekdays.
- The permittee shall be responsible for complying with appropriate temporary traffic control as described in the latest edition of the MUTCD (Manual on Uniform Traffic Control Devices).
- It shall be the responsibility of the permittee to advise the KYTC District 7 Public Information Officer and local media of the location (including mile points) and duration of any proposed lane closures, a minimum of three (3) days prior to the closure.
 - KYTC District 7 Public Information Officer Contact Info:
 - Email: NatashaF.Lacy@ky.gov
 - Phone: (859) 246-2355
 - Address: 763 West New Circle Road, Lexington, KY 40512





ADDENDUM #3

Bid Number: #140-2017

Date: October 19, 2017

Subject: West Hickman 7 Wet Weather Storage
Facilities Improvements (Contract No. 2)

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. QUESTIONS

	Questions	Answers
1.	Who confirms MWDBE Certifications? (Pre-bid meeting question)	See WMDBE information in Specification Section 00300-1.22 & 1.24. These forms as well as the EPA forms listed in the Bid Form Section 00410 shall be included in all submitted bids.
2.	What Contractor has responsibility of restoration of Contract No. 1? (Pre-bid meeting question)	See Clarifications Item D. below for an explanation.
3.	Does Contract No. 1 have access thru the Pump Station site? (Pre-bid meeting question)	No, Contract No. 1 access on the Wet Weather Pump Station site is off of the exit ramp from New Circle Road.
4.	Are local permits required? (Pre-bid meeting question)	Yes. See Sheet 00G-03 Permits for a list of local permits.
5.	Can an estimate of construction cost be provided? (Pre-bid meeting question)	No
6.	Is the KYTC permit available for Contract No. 2? (Pre-bid meeting question)	KYTC permit was provided in Addendum No. 2.
7.	Does Contract No. 1 Contractor have use of Contract No. 2 site?	Contract No. 1 will not have the use of Contract No. 2 site except for material storage and/or construction staging. Both Contracts require Engineer approved submittals for these locations.
8.	In hardware sets specified it indicates that locking of doors will be by padlock.	Door hardware sets in Section 08710 are revised as indicated below.



9.	Doors leading from Electrical Room PSB-4 and STB-4 do not show panic hardware.	Revisions to the hardware set in Section 08710 are revised to add panic hardware as shown in Section 08710 below.
10.	Will the owner be purchasing the chemicals for the demonstration period?	See response in Specification Section 13209 Chemical Feed System revision below.
11.	Is the Generator Pad in Storage Tank Building's to be at a 1'-0" higher elevation than the rest of the slab like as specified on the Pump Station?	No
12.	The SOG @ Elev 997.5 in the Storage Tank Building is not specific on the reinforcing. Please clarify that you would like #4 each way?	Information is provided concerning reinforcing. See revised Sheets.
13.	Please provide details for the Reinforcing and Thickness of the 4'-0" Containment Wall around the Chemical Storage Tank and the Chemical Fill Containment Box?	Details are added for the Containment Wall and Chemical Fill Containment Box. See revised Sheets.
14.	What stone profile are we expected to install under the slab on grade of the Storage Tank? Per structural general note G4.4 calls for 4" of sand and 8" of #57 stone. Note 4 on drawing 02D-01 calls for 12" of No. 2 stone and 4" of #57 stone. Please clarify.	The Wet Weather Storage Tank foundation shall follow the Notes listed on Sheet 02D-01.
15.	The top of bedrock elevation of 972.2' shown in section on Sheet 02S-03 appears in error. In reviewing the Geotech Report, the elevation of bedrock is this location should be +/- 989.0. Please review and confirm our findings to be correct.	Note in question is revised. See revised Sheet.
16.	Drawing 02S-01 and 02S-03 details a top of footer at 993.33 for the storage tank building foundation. Drawing 02D-12 details the 20" odor control piping and 8" air piping penetrating the concrete foundation walls at centerlines of 992.67 and 993.00. Drawing 02S-01 does not indicate any stepped footings or changes in footing elevations and wall heights. Is the intent to step the south footers down to an elevation to allow for these piping penetrations?	Detail/note added for requirements of pipe passing through footer. See revised Sheet.



17.	Drawing 02D-12 details the 6" drain in the odor control and chemical fee rooms as being ductile. Drawing 02P-01 details the drain piping as 4" with specification 15410 detailing the pipe as cast iron. Please clarify which drawing is correct.	The drain lines shall be 6" and ductile iron. Sheet 02P-01 will be revised. See attached.
18.	Will the owner be purchasing the chemicals for the demonstration period?	Contractor shall purchase chemicals. See revised Section 13209 language below.
19.	Jet Aeration System – I would ask that you consider including Fluidyne Corporation.	This equipment will be reviewed for consideration on a future project. The approved Jet Mixing System manufacturers for this project are Evoqua Jet Tech, KLA & Mass Transfer as listed on Specification Section 0041-0, page 32.
20.	Interior tank coatings – Specification 13200 paragraph 2.11 B indicates to coat the interior of the tank with two coats of Tnemec Potapox. What surfaces require coating? Floor, wall, and underside of dome?	The requirement of coating the interior of the tank will be removed form the specifications. See below.

2. CLARIFICATIONS

- A. Construction is scheduled to be completed by December 31, 2018. This is revised from Addendum #2.
- B. No signature is required for Addendum No. 1. A clarification was made to the bid notification form issued on Ionwave, the software identifies any changes as addenda, therefore this clarification was identified as Addendum No.1 although it was not a change to the issued plans and specifications therefore no signature is required.
- C. Final restoration shall follow Non-pavement Site Restoration as shown on Sheet 00G-04. This includes the use of a Rock Rake. Final payment shall not be made until completed.
- D. The Land Disturbance Permit (LDP) and the Erosion and Sediment Control (ESC) plan and approvals for Contract No. 1 shall be assigned to the Contract No. 2 Contractor upon mobilization of Contract No. 2 Contractor. Contract No. 2 Contractor shall maintain all ESC controls from mobilization to completion of Contract No. 2. Restoration requirements for Contract No. 2 Contractor shall include the entire Wet Weather Pump Station site including those areas disturbed by Contract No. 1 and the gravel areas on the right-of-way of New Circle Road exit ramp. This will allow Contract No. 2 Contractor to reuse the construction entrance off of the exit ramp. Pavement restoration will be the responsibility of the Contractor that created the damage.



2. DRAWINGS

- A. Sheet 01D-01, Pump Station Upper Floor Plan, the **Floor Plan** shall be revised to add a pre-filter for the odor control system, revise odor control piping size, and add a floor drain at the odor control pre-filter. See Attached.
- B. Sheet 01D-02, Pump Station Lower Plan, the **Lower Plan** shall be revised to identify the change in odor control piping size. See Attached.
- C. Sheet 01D-03, Pump Station Section, **Section 1** shall be revised to identify the change in odor control piping size. See Attached.
- D. Sheet 01D-04, Pump Station Sections, **Section 1 and 2** shall be revised to add a pre-filter for the odor control system, revise odor control piping size, and add a floor drain. See Attached.
- E. Sheet 02D-11, Storage Tank Building Floor Plan, the **Floor Plan** shall be revised to add a floor drain at the pre-filter and a containment wall around the chemical storage tanks. See Attached.
- F. Sheet 02D-12, Storage Tank Building, **Section 1** shall be revised to add a floor drain at the odor control pre-filter. See Attached.
- G. Sheet 00S-04, Pump Station/Storage Tank Structural Standard Details, **Detail 4 Lintel Schedule** was revised. See Attached.
- H. Sheet 01S-02, Pump Station, Upper Foundation Plan, Plan and Key Notes were revised. See Attached.
- I. Sheet 02S-01, Storage Tank Building Foundation Plan, Plan and Key Notes were revised. See Attached.
- J. Sheet 02S-03, Storage Tank Building Sections, **Section 1** note and **Section C Typical Detail Bean/Footing Step Detail** was revised or added. See Attached.
- K. Sheet 02S-04, Mixing Pump Station Plans and Sections, the **Upper Plan** shall be revised to identify the correct reference. See Attached.
- L. Sheet 03A-02, Building Details and Schedules, **Door and Frame Schedule** and **Room Finish Schedule** note is revised concerning hardware material. See attached.
- M. Sheet 01P-01, Pump Station Building Plumbing Plan, shall be revised to add an equipment drain and revise the main sanitary line to 6". See Attached.
- N. Sheet 02P-01, Storage Tank Building Plumbing Plan, shall be revised to add an equipment drain and revise the main sanitary line to 6". See Attached.
- O. Sheet 03P-01, Plumbing Details, Legend and Schedules, Note 18. is revised to provide for ductile iron versus cast iron piping. See Attached.



3. SPECIFICATIONS

- A. Section 00410, Bid Form, **West Hickman 7 WWS (Contract No. 2) Equipment Manufacturer (Circle one) – Bid Basis** page 00410-32 item Odor Control Absorber shall be revised to remove Pure Air Filtration and Other (list), and add Evoqua. Attached is revised page 00410-32.
- B. Section 00890, Permits. Add Kentucky Division of Water stream crossing permit dated October 16, 2016. See attached.
- C. Section 02531, Sewage Force Mains, Part 2 - Products, Subpart 2.01 **Polyvinyl Chloride (PVC) Plastic Pressure Pipe** and 2.02 **Restraint Devices for Polyvinyl Chloride Plastic (PVC) Pipe** shall be deleted.
- D. Section 05530, Grating and Floor Hatches, Part 2 – Products, Paragraph 2.03 **Materials** shall be revised by adding Paragraph C. Safety Grates as follows:

“C. Safety Grates:

- 1. Safety grates shall be designed to meet OSHA standards for rigid fall through protection.
- 2. Grates shall be aluminum rated to withstand a live load of 300 pounds per square foot locked separately from the main hatch.
- 3. All hardware shall be stainless steel and flush mounted.
- 4. Contractor to coordinate all required opening hatch sizes to accommodate the Safety Grates and allow pump and valve removals.”

- E. Section 08710, Finish Hardware, Part 3 – Execution, Subpart 3.03 **Hardware Schedule**, Paragraph D. shall be deleted and replaced as follows:

“D. Acceptable Manufacturers: The numbers given in the schedule are of the following first listed manufacturers.

HARDWARE SET #1

DOORS# PS-7, ST-4

6 HINGES	BB1191 NRP 4.5 X 4.5	626	HAGER
1 FLUSH BOLT	FB458 12" (TOP)	26D	IVES
1 LOCKSET	ML2065 CSA M26 SA114 CL6	626	CORBIN



1 LOCK CORE	8000
2 CLOSERS	D4551 HCS
1 THRESHOLD	425HD 72"
2 SWEEPS	92TWHA 36"
1 DRIP	16A 76"
1 SET SEALS	5050CL 21'

ASTRAGAL BY DOOR MANUFACTURER

626	CORBIN
689	STANLEY
AL	NGP
AL	NGP
AL	NGP
CL	NGP

HARDWARE SET #2

DOORS# PS-9, ST-5

3 HINGES	BB1191 NRP 4.5 X 4.5
1 LOCKSET	ML2065 CSA M26 SA114 CL6
1 LOCK CORE	8000
1 CLOSER	D4551 HCS
1 THRESHOLD	425HD 36"
1 SET SEALS	5050CL 20'

626	HAGER
626	CORBIN
626	CORBIN
689	STANLEY
AL	NGP
CL	NGP

HARDWARE SET #3

DOORS# PS-1, PS-10, ST-1, ST-8

3 HINGES	BB1191 NRP 4.5 X 4.5
1 LOCKSET	ML2065 CSA M26 SA114 CL6
1 LOCK CORE	8000
1 CLOSER	D4551 HCS
1 THRESHOLD	425HD 36"
1 SWEEP	92TWHA 36"
1 DRIP	16A 40"
1 SET SEALS	5050CL 20'

626	HAGER
626	CORBIN
626	CORBIN
689	STANLEY
AL	NGP
AL	NGP
AL	NGP
CL	NGP

HARDWARE SET #4

DOORS# PS-6, ST-10

3 HINGES	BB1191 NRP 4.5 X 4.5
1 EXIT DEVICE	2108 4908B S458
1 CYLINDER	3080 178

626	HAGER
626	PHI
626	CORBIN



1 LOCK CORE	8000	626	CORBIN
1 CLOSER	D4551 HCS	689	STANLEY
1 THRESHOLD	425HD 36"	AL	NGP
1 SWEEP	92 TWHA 36"	AL	NGP
1 DRIP	16A 40"	AL	NGP
1 SET SEALS	5050CL 20'	CL	NGP

HARDWARE SET #5

DOORS# PS-5, ST-3

6 HINGES	BB1191 NRP 4.5 X 4.5	626	HAGER
1 FLUSH BOLT	FB458 12" (TOP)	26D	IVES
1 EXIT DEVICE	2308 M4908B S982	626	PHI
1 CYLINDER	1080 112 A02	626	CORBIN
1 LOCK CORE	8000	626	CORBIN
2 CLOSERS	D4551 HCS	689	STANLEY
1 THRESHOLD	425HD 72"	AL	NGP
2 SWEEPS	92 TWHA 36"	AL	NGP
1 DRIP	16A 76"	AL	NGP
1 SET SEALS	5050CL 21'	CL	NGP

ASTRAGAL BY DOOR MANUFACTURER"

F. Section 10210, Metal Wall Louvers, Part 2 – Products, Subpart 2.01 **Manufacturers**, Paragraph B. shall be revised to include Greenheck as an acceptable alternate manufacturer.

G. Section 13200, Prestressed Concrete Storage Tank, Part 2 – Products, Paragraph 2.11 **Coatings**, subparagraph A. and B. shall be deleted and replaced with A. only as follows:
(Coating of the tank interior is not required)

"A. Exterior coating system shall consist of the following:

1. One coat of cementation waterproofing (Thoroseal) and Two coats (4 – 6 mils per coat) Tnemec Series 156 Enviro-Crete Modified Waterborne Acrylate, The Sherwin-Williams Company Loxon or Loxon XP, or approved equal.
2. Color shall be determined by the Engineer and Owner.



- H. Section 09961, **High Performance Paints and Coatings – Wastewater** shall be deleted in its entirety and replaced. See Attached.
- I. Section 13209, Chemical Feed System, Part 1 – General, Subpart 1.1 **Work Included**, Paragraph C. shall be added as follows:
 - “C. The Contractor shall provide 200 gallons of chemical (100 gallons in each 3,000 gallon tank) to be used for testing of all chemical odor control equipment which shall be included in the bid price. The cost of topping off the two (2) 3,000 gallon chemical tanks will be covered through LFUCG’s chemical vendor contract once the equipment has passed testing and Beneficial Occupancy of the project has been issued.”
- J. Section 13252, **Activated Carbon Adsorber Odor Control System** shall be deleted in its entirety and replaced. See Attached.

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: _____

ADDRESS: _____

SIGNATURE OF BIDDER: _____

West Hickman 7 WWS (Contract No. 2) Equipment Manufacturer (circle one) – Bid Basis	
Solids Handling Submersible & Dry Pit Pumps	ABS Flygt KSB
Mechanical Bar Screen	Headworks Huber Duperon
Screenings Compactor	Headworks Huber Duperon
Screening Conveyor	Headworks Huber Duperon
Sump Pumps	Myers Flygt Hydromatic Zoeller
Odor Control Absorber	ECS Environmental Solutions/Calgon Daniel Company Evoqua
Odor Control Chemical Feed System	Evoqua Continental Carbon Group
Check Valves	Apco Golden Anderson Val-matic
Modulating Plug Valve	Dezurik Golden Anderson Henry Pratt
Slide/Sluice Gates	Aquanox Waterman Golden Harvest
Electric Actuators	Limitorque Auma EIM
Generator	Generac Caterpillar Cummins/ONAN MTU/Detroit Diesel Kohler
Level Transmitters	Endress+Hauser Foxboro Siemens Yokogawa
VFDs	Square D Eaton Allen Bradley
SCADA PLC's	Allen Bradley Compactlogix
Motor Control Centers	Square D Cutler Hammer Allen Bradley
Blowers	Aerzen Kaeser
Jet Mixing System	Evoqua Jet Tech K _L a Mass Transfer
Ground Storage Tank	Crom Precon Preload



STATE OF KENTUCKY
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAYETTE COUNTY PLAZA
FRANKFORT, KENTUCKY 40601
502.564.3410

LEONARD K. PETEY
SECRETARY

October 16, 2016

LFUCG - Division of Water Quality/West Hickman Sewer Trunk
125 Lisle Industrial Ave Ste 180
Lexington, KY 40511

RE: Installation of subfluvial utility crossing of a 20" force main and a 16" gravity sewer line adjacent and 6' apart by open cut method across the floodplain of West Hickman Creek at about stream mile 1.6, with coordinates of 38.014033, -84.459258, in Lexington, Fayette County. AI: 123077

Dear LFUCG - Division of Water Quality:

A construction permit pursuant to KRS 151.250 is not required for a subfluvial utility or pipe crossing provided that the construction of the crossing meets specific criteria (see enclosed sheet, Section 2) set forth by Administrative Regulations 401 KAR 4:050. We have reviewed the construction drawings and other submitted information for the referenced project and determined that all the exemption criteria will be met. *Therefore, a stream construction permit will not be required.* Any deviation from the project scope shall require a revised application which may result in the issuance of a permit should it be required.

If this activity will result in a discharge of dredged or fill material into waters of the United States, additional permits may be required from the U.S. Army Corps of Engineers and the Kentucky Division of Water. Examples of discharges include but are not limited to placement of dirt, culverts, rock or pipelines in a stream or wetland. Please contact the Water Quality Certification Section staff at 502/564-3410 for additional information.

This exemption is issued from the standpoint of stream obstruction only and does not constitute certification of any other aspect of proposed construction. The applicant is liable for any damage resulting from the construction, operation or maintenance of the project and is responsible for obtaining any other permits or licenses required by this cabinet and other state, federal and local agencies. This document is being furnished to you in lieu of a Stream Construction Permit for the referenced activity.

If you have any questions, please call Soheyl Bigdeli at (502) 564-3410.

Sincerely,

Ron Dutta, P.E., Supervisor
Floodplain Management Section
Surface Water Permit Branch
Division of Water

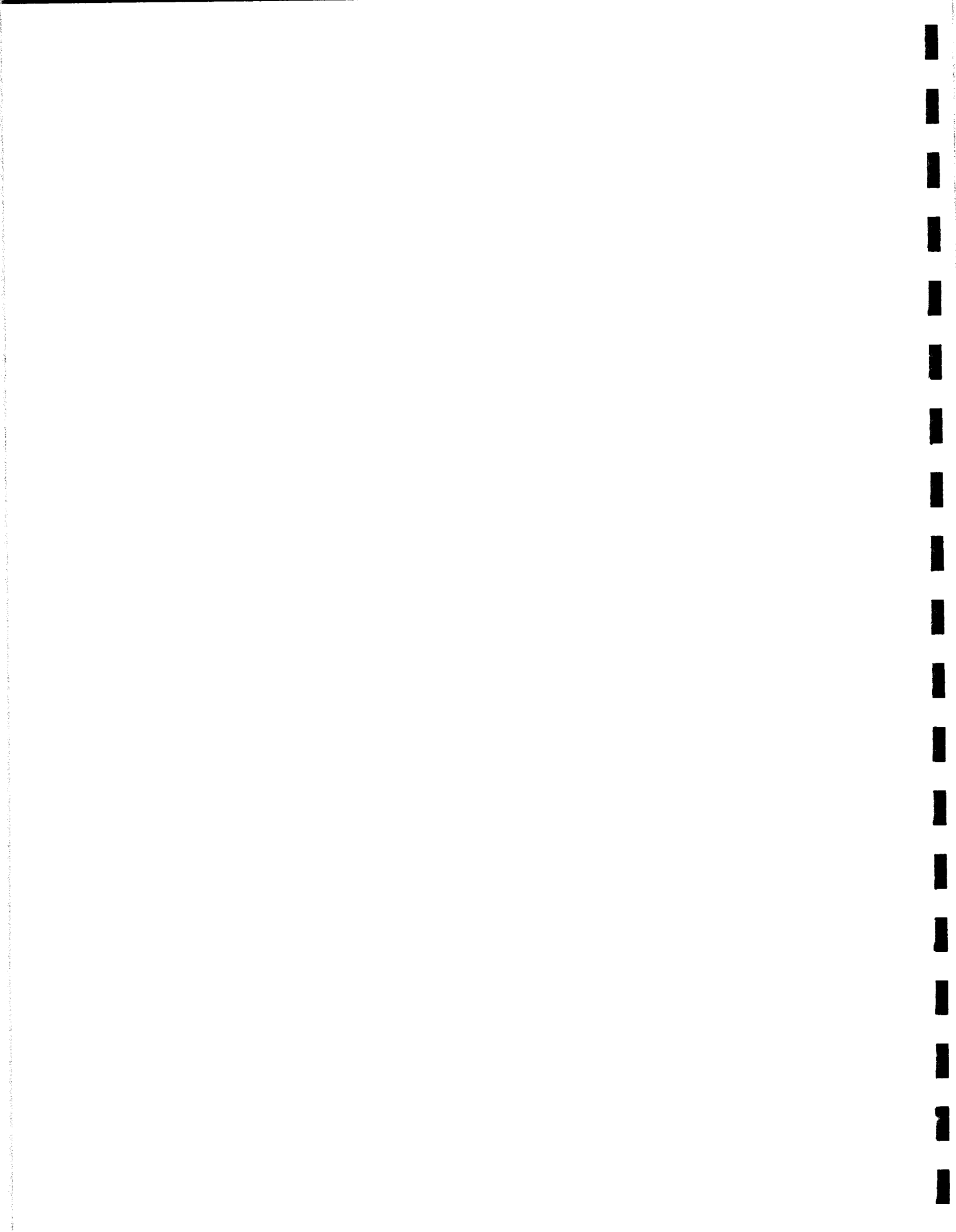
SB/RD

Copies: Copies: Frankfort Regional Office
Doug Burton – Fayette County Floodplain Coordinator
Kevin Levesque, agent by email: klevesque@lexingtonky.gov
Benton Hanson, engineer by email: Benton.Hanson@hdrinc.com
File

401 KAR 4:050, Section 2

A construction permit pursuant to KRS 151.250 shall not be required for a subfluvial utility or pipeline crossing provided that the construction of the crossing meets the following criteria:

- 1) During the construction of the crossing, no material may be placed in the stream or in the floodplain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the Cabinet.
- 2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the floodplain unless the applicant has received prior approval from the Cabinet to fill within the floodplain.
- 3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches clear to the top of the pipe or conduit at all points.
- 4) For subfluvial crossings of non-erodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.
- 5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the Division with sufficient information to show that the pipe and joints have sufficient strength.



SECTION 09961 - HIGH PERFORMANCE PAINTS AND COATINGS - WASTEWATER

PART 1- GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all labor, materials, equipment and services for furnishing and installing the finishes as indicated on drawings and schedules, and as herein specified.
- B. Work includes painting and finishing of interior and exterior exposed items and surfaces throughout project, except as otherwise indicated. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
- C. Work includes field painting of exposed bare and covered pipes and ducts (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work, except as otherwise indicated. In addition, the Contractor shall provide for the use of deep tone colors to be applied in selected areas as wall graphics, stripes and visual accents. The areas and colors shall be selected by the Architect-Engineer and shall not exceed 15% of the total wall surface area to be painted.
- D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- E. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect-Engineer will select these from standard colors or finishes available.
- F. Following categories of work are not included as part of field- applied finish work.
 - 1. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer-finishing is specified for such items as (but not limited to) toilet enclosures, prefinished partition systems, acoustic materials, architectural woodwork and casework, and finish mechanical and electrical equipment, including light fixtures, switchgear, and distribution cabinets.
 - 2. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, furred areas, pipe spaces, and duct shafts.
 - 3. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.
 - 4. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.
- G. Following categories of work are included under other sections of these specifications.
 - 1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrications, hollow metal work and similar items.

2. Unless otherwise specified, shop priming of fabricated components such as architectural woodwork, wood casework and shop-fabricated or factory-built mechanical and electrical equipment or accessories is included under other sections of these Specifications.
- H. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.
- I. PVC plastic process piping shall not be painted, but shall be stenciled and labeled or tagged for identification surfaces. Each type of process piping using PVC pipe shall be installed using the same color pipe.
- J. Repainting of existing structures, tanks, piping, and all other existing items shall not be part of this Contract unless otherwise noted or altered by this work. Areas that have been directly altered or damaged by construction shall be repainted to match existing conditions using the appropriate painting system. Repainting shall include the entire length of a system including piping, equipment, and accessories. Walls and structural items altered shall be painted for their entire length and height.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to Work of this Section.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use. Provide MSDS sheets for each item submitted.
- B. Samples: Prior to beginning work, submit color chips for surfaces to be painted. Use representative colors when preparing samples for review. Submit samples for Architect-Engineer's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1.04 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.
- B. Coordination of Work: Review other sections of these Specifications in which prime paints are to be provided to ensure compatibility of total coatings systems for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.05 DELIVERY AND STORAGE

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:
 1. Name or title of material.
 2. Fed. Spec. number, if applicable.

3. Manufacturer's stock number, batch number, and date of manufacturer.
 4. Manufacturer's name.
 5. Contents by volume, for major pigment and vehicle constituents.
 6. Thinning instructions.
 7. Application instructions.
 8. Color name and number.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

1.06 JOB CONDITIONS

- A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted or restricted by paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted or restricted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted or restricted by paint manufacturer's printed instructions. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.
- D. Paint only when the surface temperature is at least 5 degrees F above the dew point, unless otherwise permitted by paint manufacturer's printed instructions.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 1. Tnemec Company, Inc. (Tnemec)
 2. The Sherwin-Williams Company
 3. Carboline

2.02 MATERIALS

- A. Material Quality: Provide best quality grade of various types of coatings as regularly

manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

- B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.
- C. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
 - 1. Lead content in pigment, if any, is limited to contain not more than 0.06% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator and coating manufacturer.
- B. Starting of painting work will be construed as acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.02 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 1. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect-Architect-Engineer in writing of any anticipated problems in using the specified coating systems with substrates primed by others.
 - 2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.
 - 3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning per SSPC SP-1. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
 - 4. Abrasives for blasting shall be sharp, washed, salt free, angular, and free from feldspar or other constituents that tend to breakdown and remain on the surface.
 - 5. Concrete floors shall be dry as indicated by testing in accordance with ASTM D4263, Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
- B. Cementitious Materials: Per ASTM D4261, Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating, prepare cementitious surfaces of concrete block to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to

remove glaze. Per ASTM D4262, Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces, determine alkalinity of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Test the surface for moisture and do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions. Concrete surfaces shall be prepared in accordance with SSPC-13 – Concrete Surface Preparation. Prepare concrete to remove contaminants, open bugholes, surface voids, air pockets, and other subsurface irregularities. Do not expose underlying aggregate. Use dry, oil-free air for blasting operations. Surface texture after blasting shall be similar to that of medium grit sandpaper. Remove residual abrasives, dust, and loose particles by vacuuming or blowing with high pressure air.

- C. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
 - 1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling.
 - 2. When transparent finish is required, use spar varnish for backpriming.
- D. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, and other foreign substances by solvent cleaning per SSPC SP-1. Mechanical cleaning shall be in accordance with SSPC-SP6 Commercial Blast Cleaning specifications for non-immersion surfaces and SSPC-SP10 Near White Metal Blast Cleaning for immersion in potable or non-potable water.
- E. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent cleaners such as Clean 'N' Etch or equivalent.
- F. Shop Primed Surfaces: Prepare shop-applied prime coats wherever damaged or bare as required by other sections of these Specifications. Clean and touch-up with same type shop primer.

3.03 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.04 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Painting requirements, surface treatments, and finishes, are indicated in "schedules" of the contract documents and as noted in Paragraph 3.11 hereinafter.

2. Provide finish coats which are compatible with prime paints used.
 3. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently- fixed equipment or furniture with prime coat only before final installation of equipment.
 5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
 6. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.
 7. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
 8. Sand lightly between each succeeding enamel or varnish coat.
 9. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.
- B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness (DFT) as indicated or, if not indicated, as recommended by coating manufacturer. Coatings to be in immersion or a severe environment shall be tested for dry film thickness. Testing shall be accomplished by methods recommended by coating manufacturer. Record DFT for each 100 square feet of surface area using the average of three readings within each 100 square feet. Additional coats of paint shall be applied where minimum DFT is not achieved.
- D. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to those items exposed in mechanical equipment rooms and in occupied spaces.
1. Mechanical items to be painted include, but are not limited to, the following:
 - a. Piping, pipe hangers, supplementary steel and supports except galvanized surfaces.
 - b. Heat exchangers.
 - c. Tanks.
 - d. Ductwork, insulation.
 - e. Motor, mechanical equipment, and supports.
 - f. Accessory items.

2. Electrical items to be painted include, but are not limited to, the following:
 - a. Conduits and fittings except galvanized surfaces.
 - b. Switchgear.
 - c. Hanger and support except galvanized surfaces.
- E. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable. Holiday test coated steel in immersion areas in accordance with NACE International RP SP 0188-90.
- G. Transparent (Clear) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats, unless otherwise indicated.
- H. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.05 FIELD QUALITY CONTROL

- A. The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:
 1. The Owner's Resident Project Representative shall check paint film thickness with an approved paint mil thickness tester.
 2. Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.
 3. Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.
- B. If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, and remove non-complying paint; pay for testing; repaint surfaces coated with rejected paint; remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are non-compatible.

3.06 CLEAN-UP AND PROTECTION

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.
- B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to

scratch or otherwise damage finished surfaces.

- C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect-Architect-Engineer. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.07 PAINTING SYSTEMS

Product names and numbers are based on Tnemec products.

A. Ferrous Metals - Structural, Tanks, Pipes and Equipment

		<u>Dry Mills</u>
1. Exterior, Non-Immersion		
Sur. Prep.:	SSPC-SP6 Commercial Blast Cleaning	
1st Coat:	1 Series 1 Omnithane	2.5 - 3.5
2nd Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
3rd Coat:	1074- Endura-Shield	2.0 - 3.0
1st Coat:	Corothane I Galvapak	2.5 - 3.5
2nd Coat:	Macropoxy 646 FC	2.0 - 3.0
3rd Coat:	HS Polyurethane	2.0 - 3.0
2. Interior, Non-Immersion		
Sur. Prep.:	SSPC-SP6 Commercial Blast Cleaning	
1st Coat:	1 Series 1 Omnithane	2.5 - 3.5
2nd Coat:	N 69 High-Build Epoxoline II	4.0 - 6.0
Finish Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
1st Coat:	Corothane I Galvapak	2.5 - 3.5
2nd Coat:	Macropoxy 646 FC	4.0 - 6.0
3rd Coat:	Macropoxy 646 FC	2.0 - 3.0
3. Immersion, Potable or Non-Potable Water		
Sur. Prep.:	SSPC-SP10 Near-White Blast Cleaning	
1st Coat:	1 Series 1 Omnithane	2.5 - 3.5
2nd Coat:	N 69 High-Build Epoxoline II	4.0 - 6.0
3rd Coat:	N 69 High-Build Epoxoline II	4.0 - 6.0
1st Coat:	Corothane I Galvapak	2.5 - 3.5
2nd Coat:	Macropoxy 646 FC / SherGlass FF	4.0 - 6.0
3rd Coat:	Macropoxy 646 FC / SherGlass FF	4.0 - 6.0
4. Factory Primed Interior (Refer to Piping Specifications)		
Sur. Prep.:	Surface shall be clean and dry	
Int. Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
Finish Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
2nd Coat:	Macropoxy 646 FC	2.0 - 3.0
3rd Coat:	Macropoxy 646 FC	2.0 - 3.0

5. Factory Primed, Exterior (Refer to Piping Specifications)

Sur. Prep.:	Surface shall be clean and dry	
1st Coat:	N69 Epoxoline II	4.0 - 6.0
2nd Coat:	1074- Endura-Shield	2.0 - 3.0
1st Coat:	Macropoxy 646 FC	4.0 - 6.0
2nd Coat:	HS Polyurethane	2.0 - 3.0

6. Primed Steel (Doors, Frames, etc.)

Touch up:	1 Series 1 Omnithane	
1st Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
2nd Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
Touch up:	Corothane I Galvapac	
1st Coat:	Macropoxy 646 FC	2.0 - 3.0
2nd Coat:	Macropoxy 646 FC	2.0 - 3.0

7. Hydrogen Sulfide Exposed

Sur. Prep:	SSPC-SP5	
1st Coat:	435 Perma-Glaze	15.0 - 20.0
2nd Coat:	435 Perma-Glaze	15.0 - 20.0
1st Coat:	Dura-Plate 5900	15.0 - 20.0
2nd Coat:	Dura-Plate 5900	15.0 - 20.0

B. Galvanized Steel - Pipe and Miscellaneous Fabrications

1. Exterior, Non-Immersion

Sur. Prep.:	SSPC-SP1 Solvent Cleaning and Etch	
1st Coat:	N69 Epoxoline II	2.0 - 3.0
2nd Coat:	1074-Color Endura-Shield	2.0 - 3.0
1st Coat:	Macropoxy 646 FC	2.0 - 3.0
2nd Coat:	HS Polyurethane	2.0 - 3.0

2. Interior, Non-Immersion (Doors, Frames, etc.)

Dry Mils

Sur. Prep.:	SSPC-SP1 Solvent Cleaning and Etch	
One Coat:	N69 Epoxoline II	2.0 - 3.0
2nd Coat:	N 69 High-Build Epoxoline II	2.0 - 3.0
1st Coat:	Macropoxy 646 FC	2.0 - 3.0
2nd Coat:	Macropoxy 646 FC	2.0 - 3.0

3. Immersion, Potable or Non-Potable Water

Sur. Prep.:	SSPC-SP1 Solvent Cleaning followed by abrasive blast (SSPC-SP 16)	
1st Coat:	N69 Epoxoline II	3.0 - 5.0
2nd Coat:	N69 Epoxoline II	4.0 - 6.0
1st Coat:	Macropoxy 646 FC / SherGlass FF	3.0 - 5.0
2nd Coat:	Macropoxy 646 FC / SherGlass FF	4.0 - 6.0

C. Porous Masonry - Concrete Masonry Units

1. Interior

Sur. Prep.:	Surface shall be clean and dry	
1st Coat:	130 Envirofill (Spray & Back Roll to Fill Porosity)	80 - 100 sf/gal.
2nd Coat:	84 Ceramlon ENV	4.0 - 6.0
3rd Coat:	84 Ceramlon ENV	4.0 - 6.0
1st Coat:	Cement Plex 875 (Spray & Back Roll to Fill Porosity)	80 - 100 sf/gal.
2nd Coat:	ProIndustrial HD Epoxy	4.0 - 6.0
3rd Coat:	ProIndustrial HD Epoxy	4.0 - 6.0

D. Cast-In-Place and Precast Concrete

1. Concrete Walls & Precast Concrete Ceilings (Interior)

Sur. Prep.:	Abrasive Blast (SSPC-SP13) Fill bugholes and voids with coating manufacturer's epoxy filler.	
1st Coat:	N69 Epoxoline II	4.0 - 6.0
2nd Coat:	N69 Epoxoline II	4.0 - 6.0
1st Coat:	Macropoxy 646 FC	4.0 - 6.0
2nd Coat:	Macropoxy 646 FC	4.0 - 6.0

2. Concrete Walls, Tanks and Basins (Exterior, Exposed) – Do Not Paint

3. Concrete Floors (Interior, Heavy Traffic and Chemical Exposure)

Sur. Prep.:	SSPC-SP 13/NACE 6	
Primer:	237 Power-Tread, double broadcast	1/8 inch
1st Coat:	280 Tneme-Glaze	6.0 – 8.0
2nd Coat:	290 CRU	2.0 – 3.0
Primer:	SW GP 3561	1/8 inch
1st Coat:	SW GP 3746	6.0 – 8.0
2nd Coat:	SW GP 4638	2.0 – 3.0

4. Concrete Tanks & Basins (Immersion and Exposed, Interior) – Do Not Paint

5. Chemical Containment Areas

Sur. Prep.:	Abrasive Blast (SSPC-SP13, Severe Service) Fill bugholes and voids with recommended coating manufacturer's epoxy filler.	
1st Coat:	201 Epoxoprime	6.0 - 8.0
2nd Coat:	275 Stranlock	25.0 – 40.0
Finish Coat:	282 Tneme-Glaze	8.0 – 12.0
1st Coat:	Corobond 100 Primer	6.0 - 8.0
2nd Coat:	CorCote HCR FF	15.0 – 20.0
Finish Coat:	CorCote HCR	8.0 – 12.0

6. Concrete Tanks and Basins (Below Grade) – Do Not Paint

E. Wood

Interior or Exterior

Sur. Prep.:	Surface shall be clean and dry	
1st Coat:	151-1051 Elasto-Grip FC	1.0 - 1.5
2nd Coat:	29 Tufcryn	2.0 - 3.0 - 3.5
3rd Coat:	29 Tufcryn	2.0 - 3.0
1st Coat:	Premium Wall & Wood Primer	1.0 - 1.5
2nd Coat:	ProClassic WB	2.0 - 3.0 - 3.5
3rd Coat:	ProClassic WB	2.0 - 3.0

F. Insulated Pipe

Sur. Prep.:	Surface shall be clean and dry	
1st Coat:	6-Color Tneme-Cryl	2.0 - 3.0
2nd Coat:	6-Color Tneme-Cryl	2.0 - 3.0
1st Coat:	DTM Primer / Finish	2.0 - 3.0
2nd Coat:	DTM Primer / Finish	2.0 - 3.0

G. Gypsum Board

1. Interior Drywall - Architectural

Sur. Prep.:	Surface shall be clean and dry	
1st Coat:	151-1051 Elasto-Grip FC	1.0 - 1.5
2nd Coat:	6-Color Tneme-Cryl	2.0 - 3.0
1st Coat:	ProMar 200 0 VOC Primer	1.0 - 1.5
2nd Coat:	DTM Primer / Finish	2.0 - 3.0

2. Interior Drywall - Severe Exposure

Sur. Prep.:	Surface shall be clean and dry	
Prime Coat:	151-1051 Elasto-Grip FC	1.0 - 1.5
1st Coat:	113 H.B. Tneme-Tufcoat	2.0 - 3.0
2nd Coat:	113 H.B. Tneme-Tufcoat	2.0 - 3.0
Prime Coat:	ProMar 200 0 VOC Primer	1.0 - 1.5
1st Coat:	ProIndustrial WB Epoxy, B73 Series	2.0 - 3.0
2nd Coat:	ProIndustrial WB Epoxy, B73 Series	2.0 - 3.0

H. PVC Piping – Do Not Paint

I. Aluminum Windows, Doors, Handrails & Grating – Do Not Paint

J. Fiberglass Reinforced Plastic Doors & Windows – Do Not Paint

K. Building Floor – Do Not Paint

L. Stainless Steel Items– Do Not Paint

M. Chemical Storage Tanks – Do Not Paint

N. Items to be Painted:

- a. Interior walls
- b. Interior ceiling

- c. Ferrous metal doors and frames
- d. Ferrous metal door and window trim
- e. Ferrous metal pipe and valves
- f. All ferrous metal materials, immersed and non-immersed
- g. Ferrous metal equipment

3.08 PIPING COLOR CODE

To facilitate identification of piping in plants and pumping stations it is recommended that the following color scheme be utilized:

WATER LINES

Filtered or Finished Water	Dark Blue
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CHEMICAL LINES

Acid	Red
Ammonia	White
Caustic	Yellow w/ green band
Chlorine	Yellow
Coagulant	Orange
Fluoride	Light Blue w/ red band
Polymer	Orange w/ green band

WASTE LINES

Overflow (Backwash waste)	Light Brown
Sewer (Sanitary or Other)	Dark Gray

OTHER

Compressed Air	Dark Green
Other Lines	Light Gray

3.09 STENCILING

- A. The Contractor shall supply all materials and labor necessary for stenciling of legends on pipes. The legend shall show the name of the contents. Review by the Architect-Engineer of legends will be required. Names shall be "plainly visible". Arrows showing direction of flow shall also be stenciled on pipes. The legends shall be located not more than 10 feet apart and, in general, at each valve and piece of equipment. The size and location of the legend shall be in general accordance with ANSI A13.1-1981 "Scheme for the Identification of Piping Systems". All visible piping 6" in diameter and larger shall be color-coded and stenciled. "Stick-on" labels are not acceptable.

3.10 PLASTIC IDENTIFICATION MARKERS

- A. All visible piping 3/4" and greater and less than 6" which is accessible for maintenance operations shall be color-coded and identified with semi-rigid plastic identification markers equal to SETMARK Pipe Markers as manufactured by Seton Name Plate Corporation, New Haven, Conn.; T & B/Westline, Los Angeles, California; or equal. Direction of flow arrows are to be included on each marker, unless otherwise specified.
- B. Each marker background is to be appropriately color coded with a clearly printed legend to identify the contents of the pipe in conformance with the "Scheme for the Identification of Piping Systems" (ANSI A 13.1 - 1981).
- C. For pipes under 3/4" O.D. (too small for color bands and legends), brass identification tags

1-1/2" in diameter with depressed 1/4" high black-filled letters above 1/3" blackfilled numbers shall be fastened securely at specified locations.

- D. All electrical conduits, which are accessible for maintenance operations, shall be identified with semi-rigid identification markers similar to those specified above.
- E. Each marker background is to be color-coded with a clearly printed legend to identify the conductor. Size of markers and sizes of lettering to generally conform with the "Scheme for Identification of Piping Systems" (ANSI A 13.1 - 1981)
- F. Locations for pipe and electrical markers to be as follows:
 - 1. Adjacent to each valve and fitting (except on plumbing fixtures and equipment).
 - 2. Each branch and riser take-off.
 - 3. Each pipe passage through wall, floor and ceiling construction.
 - 4. Each pipe passage to underground.
 - 5. All horizontal pipe runs-marked every 25 feet.

END OF SECTION



SECTION 13252 - ACTIVATED CARBON ADSORBER ODOR CONTROL SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish and install two (2) deep bed activated carbon adsorber odor control systems as shown on the Drawings and as specified herein.
- B. All equipment located within this room shall be suitable for a Class I, Division 2, Group D location.
- C. All carbon required, to fill each unit, for the two (2) carbon adsorbers shall be included in the bid price.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals: Section 01300
- B. Operations and Maintenance Manuals: Section 01780
- C. Electrical: Division 16
- D. Instrumentation: Division 17

1.03 OPERATING CONDITIONS

- A. Wet Weather Pump Station Building

Parameter	Value
Number of units	1
Type	Single bed
Vessel diameter, maximum (feet)	9.0
Vessel height, maximum (feet), without stack	8.0
Air flow rate, minimum (scfm)	2,750
Carbon bed depth, minimum (feet)	3.0
Carbon capacity, minimum (ft ³)	151
Minimum Empty Bed Contact Time - EBCT (seconds)	3.29
Air velocity through scrubber, maximum (fpm)	55
Inlet H ₂ S concentration, average (ppm)	15.0
Inlet H ₂ S concentration, peak (ppm)	100.0
H ₂ S Removal efficiency, minimum (%)	99
Pressure drop through vessel, maximum (inches W.C.)	4.8
Drain connection size, minimum (inches)	2
Number of exhaust fans	1 Duty
Exhaust fan design capacity, Each (scfm)	2,750 @ 10"W.C.
Static Pressure (inches W.C.)	12.5
Max. Fan Speed (rpm)	2,400
Min. Fan Inlet Diameter (inches)	20
Max. Motor Horsepower (hp)	10

Max. Motor Speed (rpm)	1,800
Drive	Belt

B. Wet Weather Storage Tank Building

Parameter	Value
Number of units	1
Type	radial flow
Vessel diameter, maximum (feet)	9.0
Vessel height, maximum (feet), without stack	10.0
Air flow rate, minimum (scfm)	5,000
Carbon bed depth, minimum (feet)	2.5
Carbon capacity, minimum (ft ³)	300
Minimum Empty Bed Contact Time - EBCT (seconds)	3.60
Air velocity through scrubber, maximum (fpm)	60
Inlet H ₂ S concentration, assumed average (ppm)	50
Inlet H ₂ S concentration, peak (ppm)	100.0
H ₂ S Removal efficiency, minimum (%) ¹	99
Pressure drop through vessel, maximum (inches W.C.)	4.8
Drain connection size, minimum (inches)	2
Number of exhaust fans	1 Duty
Exhaust fan design capacity, Each (scfm)	5,000 @ 10" W.C.
Static Pressure (inches W.C.)	10.0
Max. Fan Speed (rpm)	2,600
Min. Fan Inlet Diameter (inches)	20
Max. Motor Horsepower (hp)	15
Max. Motor Speed (rpm)	2,080
Drive	Belt

Notes: ¹ or maximum outlet concentration of 0.05 ppm.

1.04 MANUFACTURER

- A. The Manufacturer shall be responsible for the coordination of all equipment specified herein. The activated carbon adsorber odor control systems shall consist of one deep bed up flow unit and one radial flow carbon system as manufactured ECS Environmental Solutions/Calgon, Daniel Company, or Evoqua. The basis of design is the ECS V1-96-2750 package adsorber unit at the Wet Weather Pump Station and ECS VX-5000 system at the Wet Weather Storage Tank Building.
- B. The materials covered by these Specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in the production of such equipment. The equipment furnished shall be designed, constructed, and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the Contract Drawings and operated per manufacturer's recommendations.
- C. The Manufacturer shall be responsible for coordination of the design and fabrication of the odor control system shown on the Drawings and specified herein. All named vendors must provide a product that is in strict accordance with the specification, customization may be necessary.

- D. The Manufacturer shall coordinate and review installation procedures under other Sections and coordinate the installation of items that must be installed to comply with the requirements of the Work specified under this Section.
- E. All components of the activated carbon adsorber odor control system shall be supplied by a single manufacturer fully experienced, reputable, and qualified in the manufacture of the equipment to be furnished.
- F. Manufacturer shall have at least five (5) years' experience in the design and fabrication of the specified odor control system and shall, at the Engineer's request, provide a list of at least five (5) successful installations operating for a minimum of three (3) years of comparable size (greater than or equal to 2,750 cfm) for the single deep bed and at least five greater or equal to 5000 cfm for the radial - and application, with references including valid current contact names and phone numbers.

1.05 SUBMITTALS

- A. In addition to the submittal requirements specified in Section 01300, Submittals, submit the following for each odor control system:
 - 1. Performance Affidavit
 - 2. Operation and Maintenance Information (per Section 01780).
 - 3. Complete electrical schematic wiring diagram drawings.
 - 4. Horsepower, voltage, and rotative speed of the motor.
 - 5. Manufacturer's literature, illustrations, specifications and engineering data including dimensions, materials, size and weight of all components and complete assembly.
 - 6. Complete erection, installation, and adjustment instructions and recommendations.
 - 7. Drawings showing plans and sections of the equipment to demonstrate proper coordination between components, fabrication methods, assembly and accessories.
 - 8. Detailed calculations confirming the structural integrity of the vessel under full water loading conditions and structural design of the vessel.
 - 9. Carbon media MSDS and specification sheet.
 - 10. Performance test procedure(s) for system.

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 one (1) year. This one (1) year minimum shall not replace a standard manufacturer's guarantee if it exceeds one (1) year.

1.07 WARRANTY

- A. Manufacturer shall guarantee that the odor control system shall perform as specified and shall warrant the system, complete, to be free from defects in materials and workmanship for a period of twelve (12) months from the date of Substantial Completion or eighteen (18) months

from shipment, whichever occurs first. The system manufacturer shall repair or provide replacement for any defective components under this warranty.

PART 2 - PRODUCTS

2.01 OVERALL SYSTEM REQUIREMENTS

- A. Each activated carbon adsorber odor control system shall consist of the principal components listed below:
1. Carbon reactor vessel
 2. Activated carbon
 3. Odor control fan
 4. Grease filter/mist eliminator
 5. Odor control system ducting as shown on the drawings
 6. Exhaust stack(s)
 7. Isolation dampers
 8. Hydrogen sulfide carbon saturation indicators
 9. Local Control Panel with variable frequency drive
 10. Instrumentation and controls as follows:
 - a. Pressure gauges
 - b. Pressure differential indicators/switches
 - c. Pressure transmitters
 - d. Airflow meter
- B. All materials shall be new and suitable for the service to which they are subjected.
- C. Sizes and capacities of equipment components specified shall be understood to establish minimum requirements only and do not relieve the equipment supplier of responsibility for providing a properly functioning system.
- D. The activated carbon adsorber shall be capable of removing hydrogen sulfide and associated sewage odors from the foul air stream by adsorption to the carbon media.

2.02 VESSEL CONSTRUCTION

- A. The vessel shall be designed using a minimum structural safety factor of 10 to 1 for pressure and 5 to 1 for vacuum. The vessel shall have bottom knuckle reinforcement and be designed for hydrostatic head load 10 feet above the top of the inlet.
- B. Vessel housing shall be designed for full bottom support and shall be provided with a minimum of four (4) Type 316 stainless steel hold down lugs. All hold down lugs shall be

designed to account for all anticipated loads and shall comply with local code requirements. Furnish all anchor bolts, nuts, and washers which shall be Type 316 stainless steel.

- C. The odor control system shall be manufactured of FRP in accordance with these specifications. All integrally molded connections shall be manufactured of the same material.
- D. Fiberglass Reinforced Plastic (FRP) Vessel Construction:
1. Vessels shall be either contact-molded in accordance with ASTM D4097, Grade I, or Type I, Filament-Wound in accordance with ASTM D3299-88, Grade 1. Portions of the vessel, including joints and duct connections shall be fabricated by contact molding. Contact molded laminates shall be in accordance with ASTM C582, Table 1.
 2. Vessel wall thickness shall be as required by structural design but not less than ¼ inch.
 3. Resins
 - a. Resins used in laminate shall be premium corrosion resistant and fire retardant brominated bisphenol A vinylester resins to achieve a 25 or less flame spread rating in accordance with NFPA 91.
 - 1) Resin shall be Hetron FR992 or FR992SB, or Derakane 510A or 510C as manufactured by Ashland Chemical Company, Dion FR 9300 as manufactured by Reichold, Vipel K022-CC or K022-CN, as manufactured by AOC, or approved equal.
 - 2) Antimony trioxide may be added to the structural layer, if required to obtain the required Class 1 flame spread rating of 25 or less. Antimony trioxide addition shall not exceed 3% and shall not be added to the interior liner of the vessel.
 - 3) Selected resin shall be used for fabrication throughout the entire vessel. Use of more than one resin during fabrication is not acceptable.
 - 4) No dyes, pigments or colorants shall be used except in the exterior coat.
 - 5) The resin shall not contain fillers or thixotropic agents unless otherwise specified.
 - b. Ultraviolet absorbers shall be added to the surfacing resin to improve weather/UV resistance of the vessel. No fillers or thixotropic agents shall be added. Exterior coating shall not be applied until after inspection of the laminate has been completed.
 - c. All cut edges shall be sealed with a resin coating of the same resin as used in the fabrication. The resin shall contain paraffin.
 4. Reinforcement:
 - a. Synthetic surfacing veil shall be Veil-Nexus 1012 (apertured) as manufactured by Burlington Industries or equivalent.
 - b. Chopped strand mat shall be Type E glass, minimum 1-1/2 ounces per square foot, with silane finish and styrene soluble binder.
 - c. Continuous roving used in chopped gun shall be Type E glass.
 - d. Woven roving shall be Type E glass, nominal 24 ounces per square yard, with a 4 by 5 weave and a silane type finish.
 - e. Continuous roving used for filament winding shall be Type E glass, nominal 110 strand yards per pound, with a silane type finish.

5. Laminates:

- a. Laminates shall consist of a corrosion resistant resin-rich inner surface, an interior corrosion barrier, an interior structural layer and an exterior layer. Composition specified for inner surface and interior corrosion barrier is intended to achieve optimum chemical resistance.
- b. Corrosion resistant resin-rich inner surface shall be reinforced using a single apertured Nexus synthetic veil. Minimum resin-rich inner surface thickness shall be 10-20 mils. Thixotropic agents shall not be used for this service. Glass content of resin-rich inner surface shall be 10 percent plus or minus 5 percent by weight.
- c. Interior corrosion barrier shall be a minimum of 100 mils of Type E chopped strand mat to a total of 3 oz/sq. ft. The interior corrosion barrier shall be applied by either the hand laid up technique, filament winding or chopper gun. Chopper gun is only permitted if an automated process is used. Manual operation of chopper gun shall not be permitted. Glass content of interior corrosion barrier shall be 25 percent plus or minus 5 percent by weight.
- d. Interior structural layer shall be of sufficient thickness to meet minimum thickness requirements as specified. Vessel thickness design should be supported by signed, stamped calculations by a Professional Engineer, which shall be submitted in accordance with Section 01300, Submittals. Glass reinforcements shall be in accordance with the appropriate standards of construction. Interior structural layer shall be fabricated using either the hand lay up, filament wound technique or approved chopper gun technique. Glass content of interior structural layer shall be 60 percent plus or minus 5 percent by weight.
- e. Exterior layer shall be reinforced using a single "A" glass veil with a layer of surfacing "Nexus" veil followed by a clear resin rich 10 mil thick coating similar to the inner surface. Topcoat shall be pigmented parafinized gel-coat with ultraviolet inhibitors. The pigmentation shall be colored as selected by the Owner. There shall be no glass fibers exposed.
- f. Vessel shall be cured using a MEKP procedure and in accordance with the recommendations of the resin manufacturer.
- g. Vessel wall shall be reinforced around all openings and connections.
- h. Laminates shall meet the requirements of the mechanical properties and visual acceptance criteria in ASTM D2563, Level I.

2.03 ACTIVATED CARBON ADSORBER SYSTEM

- A. The reactor vessel design shall be capable of processing odorous air at such a velocity that the empty bed contact time (EBCT) across the activated carbon bed shall not be less than the value specified.
- B. Carbon Vessel
 1. Each carbon vessel shall have the following standard features, at a minimum:
 - a. NBS PS 15-69 flanged nozzle air inlet: size as shown on Drawings
 - b. Plain end nozzle outlet with no-loss discharge stack: size as shown on Drawings,

- c. Carbon sample port: 1.5-inch maximum
 - d. Three (3) air sample ports: 1-inch maximum, spaced evenly through each carbon bed
 - e. One (1) drain connection with blind flange and ball valve: 2-inch minimum
- C. The adsorber system shall provide continuous treatment when the fan is in service. The fan shall be supplied as specified herein.
- D. Carbon Support System - The support system for the carbon bed shall be as recommended by the odor control vessel supplier and approved by the Engineer. The carbon bed shall be supported by a polypropylene screen basket resting on a support system. The carbon bed screen and support system shall be removable through access manways. The support system shall be capable of withstanding a load of not less than 300 pounds/square foot with a deflection not greater than 1/4-inch under any operating condition. All components of the support system shall be constructed of materials resistant to the chemical service conditions specified for corrosion. Pall rings or dump packing shall not be used to support the carbon beds.
- E. The carbon adsorber vessel shall have a removable top for ease of carbon replacement and a minimum of one (1) top mounted manway. Four crescent-shaped access ports should be installed on the radial flow unit to reduce labor during carbon removal. Ports should be flanged and expose 80% of the carbon column when the blinds are removed.

2.04 ODOR CONTROL SYSTEM ACCESSORIES

- A. All necessary connections for piping, instrumentation, sampling, and ductwork shall be provided as shown on the Drawings or required. Suitable EPDM gaskets shall be provided. The manufacturer shall provide the following appurtenances with the vessel:
1. Drain assembly, sized as specified in Paragraph 2.02 E above, with Schedule 80 CPVC ball valve.
 2. One (1) 1-1/2-inch diameter sample probe with ball valve adjacent to the carbon bed which shall extend a minimum of 6 inches into the carbon bed. Probe shall be adequate to provide suitable extraction of carbon samples from the carbon bed and be non-binding. Probes shall extend outside the vessel wall and be blocked off with ball valves. One (1) additional 1-inch diameter sample probe with ball valve shall be installed on the discharge stack and tubing shall extend down and adjacent to the other probes and one (1) 1-inch diameter sample probe with ball valve shall be installed on the fan discharge. Probes and ball valves shall be constructed of Schedule 80 CPVC.
 3. Manufacturer shall provide factory mounted pipe supports for outlet air sample ports, bottom drain connection, and overflow piping.
 4. Flanges for air inlet and outlet shall be manufactured by hand lay-up method and shall conform to NBS-PS 15-69, standard dimensions for bolting, but in no case shall the thickness be less than 3/4-inch thick. Flange nozzles for piping connections shall conform to ASTM D 3299, all nozzles up to and including 8 inch diameter shall be reinforced with blade type gussets. Flanges for piping connections shall be ANSI 150-lb dimensions. All flanges shall be pre-drilled. Flanges shall be checked for alignment, thickness and mating prior to shipment to field. Area on the back of all flanges around each bolt hole shall be the diameter of a standard washer and shall be flat and parallel to flange face. This area shall be spot faced, if necessary, to meet this requirement.
- B. Grounding System: Contractor shall properly bond the carbon bed to the grounding electrode system per manufacturer's recommendations.

- C. Lifting Lugs: Lifting lugs shall be capable of withstanding weight of the empty vessel with a minimum safety factor of 5 to 1. A minimum of three lugs shall be furnished per vessel. Lifting lugs shall be Type 316 stainless steel or FRP and attached to the vessel wall with hand lay-up laminate equal to or greater than the vessel wall thickness.
- D. Mounting Lugs: Mounting lugs shall be suitable for mounting electrical junction boxes. Mounting lugs shall be Type 316 stainless steel or FRP and attached to the vessel wall with hand lay-up laminate equal to or greater than the vessel wall thickness.
- E. Transition Pieces: Manufacturer shall provide a transition piece for connecting the flanged air inlet on the carbon vessel to the inlet FRP ductwork as shown on the Contract Drawings.
- F. Isolation Dampers: Isolation dampers shall be provided and installed on the carbon vessel inlet, as shown on the Drawings and in accordance with 15892, FRP Piping Systems.
- G. Hydrogen Sulfide Monitor: Each system shall be furnished with four (4) hydrogen sulfide monitors, per carbon bed, capable of visual detection of H₂S breakthrough. The monitors shall be mounted on the exhaust duct of the vessel and at 3 locations equally spaced throughout each carbon bed. The monitor shall have replaceable tubes. The monitors shall have a fitting to attach to any carbon bed sampling port.
- H. Interconnecting Ductwork: Ductwork from exhaust fan to the carbon treatment vessel shall be in accordance with Division 15. Ducts shall be of sufficient diameter and design to move the air without undue pressure loss or as shown on the Drawings. The pressure loss of the combined odor control system and the duct work shall not exceed the maximum pressure available from the blower at the specified air flow rate operating at nonoverloaded conditions.
- I. Duct Supports: The odor control system manufacturer shall be responsible for the design of all duct supports furnished for the ductwork specified under "H" above. Duct and exhaust stack support details and layout shall be submitted in the shop drawings. Proposed duct supports shall be in accordance with the Drawings and shall comply with Division 15.
- J. Carbon Sampling Device: One grain thief sampling device shall be provided for each odor control unit. The device shall be a Fisher Scientific Model 14-208Q, or equal.
- K. Rain Cap: One (1) FRP or polyethylene "no loss" high dispersion discharge stack, factory installed for each unit. Provide 316 SST Bird Screen on each discharge stack.
- L. Expansion Joint: As shown on the Drawings, provide in accordance with 15892, FRP Piping Systems.

2.05 ACTIVATED CARBON

- A. Sufficient activated carbon shall be provided to fill the reactor vessel to the volume previously specified. The activated carbon shall be unimpregnated new granular activated carbon, derived from bituminous coal or coconut shell. Wood or lignite based carbon are not acceptable. The activated carbon shall be suitable for the vapor phase adsorption of sewage treatment odors and have been used for a minimum of five years under the same conditions.. No chemical impregnation of the carbon is permitted, the engineer may require a sample from the delivered batch be sent to a lab for PIXE analysis at the odor control vendors expense if chemical impregnation is suspected.
- B. Activated carbon shall be Midas OCM as manufactured by Evoqua Water Technologies, Calgon Minotaur, or equivalent, and shall have the following specifications:
 - 1. Minimum Butane Activity (weight %) 26

2. Minimum Iodine Number, mgI ₂ /g	1,050
3. Maximum Moisture (weight % as packed)	4
4. Minimum Hardness Number	95
5. Minimum Apparent Density (g/mL)	0.48
6. Maximum Mean Particle Diameter (mm)	4.0
7. Minimum H ₂ S Breakthrough Capacity (g H ₂ S removed/cc carbon) ¹	0.30

¹ The determination of H₂S breakthrough capacity will be made by passing a moist (85% R.H.) air stream containing 1% H₂S at a rate of 1,450 cc/min through a 1 inch diameter by 9 inch deep bed of uniformly packed activated carbon and monitored to 50 ppm breakthrough per ASTM D6646. Engineer may require that a random sample of the delivered carbon be sent to WECK or Modern labs to confirm H₂S capacity. If so this shall be done at the odor control vendors expense.

2.06 GREASE FILTER/MIST ELIMINATOR

- A. The odor control system manufacturer shall provide one (1) grease filter/mist eliminator, manufactured by the odor control system manufacturer.
- B. At the design gas flow rate, the external demisters shall remove a minimum of 99.9% of droplets 10 microns and larger and a minimum of 90% of droplets between 5 microns and 10 microns.
- C. Pressure drop through the demisters shall not exceed 1.0 inches W.C. at the design airflow rate when the pad is dirty, or 0.5 inches W.C. at the design airflow when the pad is clean.
- D. Construction
 - 1. External demisters shall contain a horizontal grease filter and mist eliminator constructed of PVC with 316 stainless steel or FRP frames. Provide two nested modules suitable for operation at the design gas flow rate for each scrubber system.
 - 2. The grease filter/mist eliminator shall be enclosed in a FRP housing. The housing shall be of hand lay-up construction with the same resins and reinforcements as specified for the odor control vessel. Minimum thickness of the housing shall be 0.5 inches. The FRP shall be pigmented beige. The housing section coming in contact with the pad assemblies shall have a high-density polyethylene liner to prevent damage to the FRP corrosion liner during pad removal and installation.
 - 3. The grease filter pad shall be minimum 2 inches thick and constructed of woven 316L stainless steel.
 - 4. The mist eliminator pad shall be minimum 4 inches thick and constructed of woven polypropylene.
 - 5. Provide a side mounted module access cover. Cover should be hinged to the body and sealed with 316 stainless toggle clamps for easy access. Bolt-on access ports or other securing mechanisms that require tools for pad removal are not acceptable.
 - 6. Gas inlet and outlet connections shall be circular, flanged connections the same size as the connecting ductwork. Flanges shall be of hand lay-up construction in accordance with NBS PS 15-69 and shall be sized to match the adjoining equipment.

7. Provide a flanged, $\frac{3}{4}$ inch diameter drain connection with p-trap and isolation ball valve at the bottom of the FRP housing. P-trap shall be of sufficient depth to overcome the negative or positive pressure rating of the fan. Connection shall be installed in a 2" wide by 2" deep horizontal sump running the prefilter body with. Prefilter pad should sit on a perforated plate so no part of the mesh pad is in contact with the prefilter drain.

2.07 CONTROLS

A. Field Control Equipment:

1. Odor control system manufacturer shall review the electrical drawings to determine the hazardous area ratings of the area and shall provide appropriately-rated instruments of intrinsically-safe barriers as appropriate for the devices located in hazardous areas.
2. Manually-operated dampers shall be provided to allow isolation of the exhaust fan, grease filter/mist eliminator, odor control system and bypass ducts as shown on the Drawings.
3. Pressure gauges shall be provided for each system in accordance with Division 17:
 - a. Differential pressure gauges shall be provided to measure pressure drop across the fan, carbon media and grease filter/mist eliminator, respectively. Range to be 0 to 20 in. W.C.
 - b. Pressure gauges (minimum range: -15 to 0 in. W.C.) and (minimum range: 0 to + 20 in. W.C.) shall be provided to measure pressure at the inlet and outlet to each fan.
4. Differential pressure switches shall be provided for each system in accordance with Division 17:
 - a. Differential pressure switch shall be provided to alarm on low pressure drop across the fan. Alarm setpoint shall be 3 in. W.C. when the motor is running.
 - b. Pressure switches shall be provided to alarm on low suction pressure and high discharge pressure for the odor control fan. Initial alarm setpoints shall be set based on Engineer's notes in the shop drawings. Range shall be to -10 in W.C. for suction and to +10.5 in. W.C. in discharge.
5. Pressure transmitters shall be provided for each system in accordance with Division 17:
 - a. Pressure transmitter shall be provided to monitor pressure at the inlet to the carbon system.
6. Process Tubing for Differential Pressure Instruments: Process tubing shall be 1/4 x 0.065-inch seamless, annealed, ASTM A-269 Type 316L stainless steel with Type 316 - 37 degrees stainless steel flared fittings or Swagelock or Parker-CPI flareless fittings. Provide stainless adaptors as necessary to accommodate process connections to gauges and switches.
7. Valves for Pressure Instruments shall be stainless steel ball valves.

2.08 LOCAL CONTROL PANEL

- A. Provide one (1) independent control panel to control the odor control system. Panel shall be designated FCP-500. The control panel shall include a motor circuit protector, NEMA rated contactor, pilot devices, control relays, and other components as specified herein.

- B. Control Panel Enclosure:
1. Rating: NEMA 7, 316 stainless steel, metal thickness of 14 gauge
 2. Live front with padlock provisions.
 3. Rubber-gasketed, hinged outer door with continuous stainless steel hinge and stainless steel butterfly twist type latches.
 4. Stainless steel or copper-free aluminum back panel with provisions to mount control devices and terminal strip for field connections.
 5. Control Panel Features:
 - a. Main power disconnect switch or circuit breaker device, mechanically interlocked with door so that the main power must be "OFF" before door can be opened.
 - b. Power Requirements: Local Control Panel (LCP) to operate from a single 480-volt, 3-phase power source.
 - c. Control power transformer to be sized for anticipated loads from devices/controls.
 - d. Heater and thermostat for condensation protection.
 - e. NEMA-rated motor starter.
 - f. Panel components are to conform to Division 16 requirements.
- C. The control panel enclosure shall be wall or stanchion mount type, located as shown on the Drawings.
- D. All control wiring shall be No. 14 AWG (minimum). Power wiring shall be No. 12 AWG (minimum). Wiring shall be type MTW rated for 105°C. All wiring shall have not less than 600 volts insulation. Control wiring shall be color coded as specified in Division 16. All connections required to field control components shall be made at approved type terminal blocks with marker strips or similarly approved means. All wires shall be marked at both ends using self-adhering plastic wire markers with heat shrink or clear self-laminating strips. Wire numbers shall be in accordance with the accepted Shop Drawings.
- E. All conduit, couplings, fittings and fasteners furnished by the equipment manufacturer for skid mounted equipment shall be PVC coated rigid galvanized steel and liquid tight, PVC coated flexible metal conduit. Feeders from the control panel to equipment shall be by the Contractor and per the electrical drawings.
- F. A phenolic-type nameplate shall be securely fastened on the door of each control panel and shall identify the specific floating aerator unit associated with the control panel. Each component located within the panel shall be provided with an identification label.
- G. The starter shall be NEMA rated, full voltage, combination-type, individual magnetic starter complete with motor circuit protectors (MCPs). Starter shall be rated 480VAC, 3-pole, sized for the mixer motor. The starter shall be furnished with a minimum of two spare auxiliary contacts.
1. The starter shall be supplied with a three-pole manual reset overload relay. The relay shall be solid state type, with at least one isolated normally open and one isolated normally closed auxiliary contact. Overload relay shall have phase loss protection built in against motor single phasing. The relay shall have adjustable current range dial. Eutectic alloy and bi-metallic type overload relays shall not be used.

2. Starters shall be provided with all coils and controls for 120 VAC operation. A control power transformer shall be furnished and installed for each motor controller. Refer to specification Division 16, for detailed description.
 3. Motor starter coil shall be equipped with a surge-suppression device for protection of the solid state equipment (e.g. programmable logic controller), wired as part of the control circuit.
- H. A molded case motor circuit protector with adjustable instantaneous trip shall be provided for each motor controller. The motor circuit protector shall be externally operable and shall provide clear identification of its position. The motor circuit protector shall have a minimum interrupting capacity as the MCC that feeds it.
- I. A three-phase Surge Protection Device (SPD) shall be supplied and connected to the load side of the main circuit breaker. The SPD shall protect against damage due to transient voltages and lightning strikes. The SPD shall have a surge current rating of 80 kA per mode for each phase, and shall meet UL 1449.
- J. Control Relays (CR) shall be Type D3 as manufactured by Cutler-Hammer, Potter Brumfield equivalent, Allen-Bradley equivalent, Siemens Energy and Automation Inc. equivalent, or equal. Relays shall be general purpose plug-in type with coil voltage as shown on the Drawings and sealed 10 ampere contacts. All relays shall have three SPDT contacts rated 120/240 VAC and 28 VDC minimum. Machine tool relays shall be provided when the contact burden exceeds 10 amperes. Miniature type or "ice cube" relays are not acceptable. Control relay mechanical life expectancy shall be in excess of 10 million operations. Provide time delay relay to allow a staggered start of aerators on restoration of power. The setting of these time delay relays shall be coordinated with the settings of the time clock specified below.
- K. Pilot device ratings shall meet or exceed the NEMA rating of the control panel enclosure. Pilot lights shall be LED type. Pilot devices shall be heavy duty, oil tight, 30mm components as manufactured by Allen Bradley (#800H) or Square D (#9001SKT), or equal. Pilot lights shall be provided with legend plates, shall be LED-type, and shall be push-to-test. Push buttons and pilot devices shall meet all requirements of Division 17. Lens colors shall be as indicated in Division 17.
- L. The panel shall have the following front-mounted control devices:
1. Local-Off-Remote Selector Switch
 2. Start-Stop Selector Switch
 3. Power On Indicating light
 4. Run indicating light
 5. Fan Overload indicating light
 6. Fan Broken Belt indicating light
 7. Carbon Unit Alarm indicating light
 8. Alarm Reset pushbutton
 9. Emergency stop pushbutton
 10. Airflow rate

- M. Provide dry contacts for remote indication of the following conditions for each system. Conditions identified as alarms shall be normally-closed and open when the alarm condition occurs:
1. Common Alarm
 2. Fan e-stop Alarm
 3. H-O-A switch in Auto position
 4. Fan run status
- N. Control panel shall accept the following dry contacts for operation of the system:
1. Fan low differential pressure
- O. The panel shall accept the following analog signals:
1. Airflow transmitter
- P. The panel shall have the following analog outputs for remote indication:
1. Airflow transmitter
- Q. Provide circuit breakers and 120 VAC power for the following devices powered from panel:
1. Airflow transmitter
- R. A control power transformer shall be mounted in the control panel to reduce the line voltage to 120 V for the control circuit. The transformer shall be rated the necessary KVA. The transformer primary and secondary shall be protected from short circuits and overloads by circuit breakers or fuses of the proper rating. Provide a separate transformer for the control circuit and the enclosure heater. Provide a spare set of fuses (two minimum) of each type and rating.
- S. Provide elapsed run time meters (ETM) for each motor. ETM ratings shall meet or exceed the NEMA rating of the control panel enclosure. ETM shall be six digit, non-reset type.
- T. The control panel shall provide the following control function for each fan:
1. When the HOA switch is in the HAND position, the fan shall run as follows:
 - a. When the Start-Stop switch is in the START position, the fan shall run.
 - b. When the Start-Stop switch is in the STOP position, the fan shall not run.
 2. When the HOA switch is in the OFF position, the fan shall not run.
 3. When the HOA switch is in the AUTO position, the fan shall be started by closure of a set of remote dry contacts in the LCP. When the remote dry contacts open, the fan shall stop.
 4. In either AUTO mode or HAND mode, the fan shall be shut down when the broken belt alarm condition occurs.
 5. Broken belt alarm shall be generated by a current trip located in the panel. When a fan is running and the current drawn by the fan motor is below a setpoint determined by the manufacturer as indicating that the fan wheel has been decoupled from its motor, the fan shall be stopped and the broken belt alarm shall be activated.

6. Fan motor space heater shall be energized by the control panel when the motor is off.
 7. Alarms shall be latched such that the alarm indicator light shall remain energized and alarm contacts shall remain in the alarm state until the Alarm Reset pushbutton has been pressed.
- U. A space heater or a trickle-charge heating system with transformers, relays, and switches shall be provided in the control panel.

2.09 TIE DOWN SYSTEMS

- A. Scrubber and duct shall withstand horizontal loadings of 40 pounds per square foot at the location in accordance with the latest edition of the Building Code in the jurisdiction where the system will be installed, for the area under the worst condition, whichever is greater. Type 316L stainless steel clips, anchor bolts, and accessories shall be provided to securely anchor the scrubber and duct to the concrete pad.

2.10 FIBERGLASS REINFORCED PLASTIC FANS

- A. Provide fiberglass reinforced plastic (FRP) fire retardant fans with an epoxy or UV gel coating to protect against ultraviolet degradation. Fans shall be installed complete with motors, drives, guards, and coatings of sufficient capacity for the duty required. Fans shall operate to draw odorous air from the odor sources and shall exhaust air through the odor control system.
1. Provide fans that are factory-fabricated and assembled, factory-tested, and factory-finished, with indicated capacities and characteristics.
 2. Base fan performance at standard conditions (density 0.075 Lb/ft³).
 3. Selected fans selected are to be capable of accommodating static pressure and flow variations of +/-15% of scheduled values.
 4. Fans are to be belt driven, AMCA arrangement 10 (motor sizes less than 25 hp) or AMCA arrangement 9 (motor sizes 25 hp and larger), unless otherwise shown on the Drawings.
 5. Fans are to be equipped with lifting lugs.
 6. Nameplate: Each fan to be furnished with a permanently affixed SS nameplate with manufacturer's name, model number, serial number and electrical data.
 7. Mounting: Where mounted on a roof or elevated platform, the entire fan and motor assembly is to be mounted on vibration isolators to reduce noise transmission.
 8. Rotating Assembly: Statically and dynamically balanced to balance grade G6.3 per ANSI S2.19 and designed for continuous operation at the maximum rated fan speed and motor horsepower.
- B. Fan shall be constructed such that all surfaces in contact with the corrosive gas stream are made of solid, corrosion resistant FRP, model RFE manufactured by The New York Blower Company, or equal as manufactured by Hartzell or Ceilcote/Verantis. All nuts, bolts and fasteners in contact with the gas stream shall be type 316 SST and encapsulated in FRP.
- C. Performance: Fan ratings shall be based on tests made in accordance with AMCA Standard 210. Fans shall be licensed to bear the AMCA Certified Ratings Seal for Air Performance. Fans not licensed to bear the AMCA Seal for performance shall be tested, at supplier's

expense, in an AMCA Registered Laboratory. Fans shall have a sharply rising pressure characteristic extending throughout the operating range to assure quiet and stable operation. Fan speed and motor size shall be selected by the odor control system manufacturer to meet the required conditions of air flow rate and pressure drop across the odor control system and ducting, including the pressure drop in the ducting upstream of the odor control system inlet. Fan speed shall not exceed 85% of the maximum allowable driven speed of the fan.

- D. Motor: Motor shall meet the requirements specified in the table below.

Motors	
Item	Value
Rating	230/460V, 3 ph, 60 Hz
Horsepower	10 or 15 as specified
Speed, rpm	1800
Enclosure	TEFC ¹ or TEXP
Insulation	Class F
Inverter Duty	Yes
Service Factor	1.10
Space Heater	Yes
Motor Winding Temperature Switches	No

¹ Suitable for Class I, Division 2 environment.

- E. Sound: Fan manufacturers shall provide sound power level ratings for fans tested and rated in accordance with AMCA Standards 300 and 301. Sound power ratings shall be in decibels (reference IOE-12 watts) in eight octave bands.
- F. Bearings: Bearings shall be grease lubricated, precision anti-friction ball, self-aligning, pillow block design. Bearings shall be designed for a minimum L-10 life of 30,000 hours (150,000 hours L-50 life) when rated at the fan's maximum cataloged operating speed. Fan bearings shall be visible and accessible for inspection and maintenance. Bearings enclosed within the fan housing where they can be exposed to the corrosive gas stream are not acceptable.
- G. Construction: Fan shall be constructed in accordance with the ASTM D-4167 standard specification for fiber-reinforced plastic fans and blowers to ensure structural integrity. All surfaces exposed to the atmosphere shall be resin rich of a paraffinated resin stabilized against ultraviolet degradation and include a reinforcement not to exceed 20% "C" grade fiberglass. All parts exposed to the gas stream shall be constructed of, or encapsulated in, an FRP laminate capable of resisting continuous airstream temperatures of 250 degrees Fahrenheit. All resins shall be clear to allow detection of subsurface imperfections. Use of pigments, gel coats, inhibitors and additives which may disguise flaws in the laminate is prohibited. Other minimum construction requirements shall consist of the following:
1. Housing - Fan housing shall be constructed of a fire retardant polyester resin or Type II PVC with an ASTM E84 Class I rating. Housing laminate construction shall conform to ASTM Standard C-582. Airstream surfaces shall be smooth to minimize resistance and prevent build up of airborne contaminants. Shaft hole openings shall be fitted with a Teflon closure having a maximum clearance of 1/32" to minimize leakage. A flanged inlet and flanged outlet shall be furnished on the fan and shall be of FRP construction. Inlet assembly shall be bolted to permit wheel removal. Fan shall be furnished with an access door, positioned to avoid collection of condensation, and a 1-inch minimum flanged type drain connection, positioned at the lowest portion of the fan scroll.
 2. Wheel - Wheel shall be of backwardly inclined non-overloading design for increased efficiency. Wheel shall be fabricated of a fire-retardant vinyl ester resin with an ASTM E84 Class II rating no greater than 30. Wheel hub shall be permanently bonded to the shaft and completely encapsulated in FRP to insure corrosion resistant integrity. Steel wheels coated with FRP or wheels with taper-lock hubs are not acceptable.

3. Shaft - Shaft shall be ASTM A- 108 steel, grade 1040/1045 with an FRP sleeve fixed securely and bonded to the wheel backplate. The sleeve shall extend out through the housing shaft hole for corrosion protection. The shaft first critical speed shall be at least 125 percent of the fan's maximum operating speed. Shaft shall be counter-sunk for tachometer readings.
- H. Fan wheel shall have true backwardly curved or radial, single thickness air foil type blades which limit load horsepower characteristics, and shall not exceed the brake horsepower shown on the schedule. Fan wheel shall be made of solid fiberglass reinforced polyester with a stainless steel hub, encapsulated within the impeller, to provide a reliable connection with the drive shaft.
- I. Belt Drives:
1. Belt drive components to be sized based on a service factor of 1.4.
 2. Pulleys to be of the fully machined cast iron type, keyed and securely attached to the wheel and motor shafts. Motor pulleys to be adjustable for final balancing.
 3. Belts: Oil-resistant, non-sparking, and non-static.
 4. Belt and Bearing Tube: Furnish unit with heavy gauge belt tube to shield the belts and bearings from the air stream.
 5. Belt drives are to be factory-mounted, with final alignment and belt adjustment made after installation.
 6. Belt Guard: Provide FRP, OSHA compliant belt guard, on the outside of the fan cabinet. Belt guard or motor cover is to completely cover the motor pulley and belt(s).
 7. Furnish one additional complete set of belts for each belt-driven fan.
- J. Furnish an aerodynamically designed inlet box for fan. The inlet box shall be designed to attach to the inlet flange of the fan and shall have a support leg with mounting plate. Inlet box shall be constructed of the same resins and construction techniques as the fan specified above. Inlet box shall be designed to support the weight of the vertical ductwork above the inlet box. Coordinate final weight with ductwork manufacturer and Engineer.
- K. Balance and Run Test: The wheel and shaft shall be dynamically balanced on precision balancers. Prior to shipment, completed fans shall receive a final test balance at the specified operating speed.
- L. Final Inspection: All fans shall receive a final inspection by a qualified inspector prior to shipment. Inspection shall include: fan description and accessories, balance, welding, dimension, bearings, duct and base connection points, paint finish and overall workmanship.
- M. The fan and motors shall be factory mounted on a structural channel subbase with integral motor slide base. An OSHA approved FRP motor and drive canopy shall be furnished and installed.
- N. Expansion joints shall be provided on the suction and discharge of each fan. Provide expansion joints in accordance with 15892, FRP Piping Systems.
- O. Sound Enclosure – Provide an acoustical enclosure for each fan motor unit suitable for outdoor installation. The enclosure shall be complete with FRP housing, gaskets, fasteners, flashing or any additional components required for installation. The sound enclosure shall reduce fan noise to a maximum of 60 db at 3 ft.

1. All panels and components shall be prefabricated and shall not be susceptible to damage from extended exposure to airflow, pressure differentials, vibration, air temperature, or humidity.
2. The entire enclosure shall be designed by the manufacturer to be self-supporting when any or all of the side panels are removed. The enclosure shall be independent of the fan and ductwork.
3. Enclosure size is shown approximately on the drawings. Final size shall be determined by the manufacturer to suit the fan actually furnished. Enclosure shall be large enough to provide a minimum of 24 inches clear on three sides of the fan as shown on the drawings.
4. Construction
 - a. Enclosure shall have one access doors, located as shown on the Drawings, arranged to permit access to all parts of the fan assembly for service and major maintenance. Provide a double door, minimum of 42" high. Each sound enclosure shall be manufactured in two "halves" which can be slid together and joined with a flanged connection. A closed-cell neoprene sponge gasket shall be provided along with stainless fasteners to facilitate installation. "Kit" sound enclosures which rely on the Contractor to cut/fit parts are not acceptable.
 - b. All panels shall be made up of a 3/4" thick FRP laminate with acoustical core. Deflection of these FRP panels shall not be more than L/360 under an 80 mph wind load and 6-inch snow load. The top panel of each enclosure shall be suitable for a 250 pound man-load on a 12" x 12" section with a deflection of no more than 1/2".
 - c. Each panel shall be coated with a vinyl sound barrier to isolate any noise not absorbed by the acoustic sound deadening foam.
 - d. Each panel shall contain a 2 inch thick layer of acoustical foam. This foam shall be an open cell, flexible polyester based acoustical grade, polyurethane foam designed to give maximum sound absorption per given thickness. It must provide excellent resistance to heat, moisture and chemicals as required for this application. Mineral wool, or any material which will degrade under high humid conditions is not acceptable. Foam used must be specifically designed for use in sound deadening applications.
 - e. Acoustical Performance:
 - 1) The manufacturer shall provide certified testing data obtained from an acoustical laboratory, listing sound absorption and transmission loss characteristics of the panel assembly. Testing data must be for the construction utilized for the specific sound enclosures on this project. Testing done on other products, especially dissimilar materials is not acceptable.
 - 2) The Insertion Loss measured at a 1 meter distance from the enclosure and 2 meters above the ground shall be a minimum of 24 dBA. The test shall be performed in accordance with the OSHA measurement standards and the NMTBA (National Machine Tool Builders Association) standards.
 - f. Support Members and Trim: All perimeter and internal channel members and trim items shall be of either corrosion resistant fiberglass reinforced plastic or stainless steel. Any other form of mild steel is not acceptable.
 - g. Furnish all anchor bolts, nuts and washers, which shall be Type 316 stainless steel. The enclosure unit shall be bolted directly to the equipment slab. The enclosure shall

have a flanged base with a minimum width of 3 inches internal and external. A polyethylene or UMHW plastic base shall be bonded to the base flange to prevent damage to the enclosure base flange.

5. Sealant: Where required for acoustical performance, base channel/floor interfaces shall be sealed with a caulking sealant. Sufficient sealant shall be used to extrude surplus sealant and give a visual indication of complete coverage in all joints. The sealant shall have sufficient adhesive strength to prevent air leakage through the assembly when a pressure differential exists, but still allow system disassembly without damage to the panel components.
6. Windows: Provide one 18 inch by 24 inch observation window to visually observe the motor. Window shall be constructed of double pane ¼ inch thick safety glass held in place with neoprene acoustical seals and separated by an air space of the same thickness as the panel.
7. Ventilation System: Provide an acoustical air intake silencer and acoustical air discharge silencer with an integral fan curb in the enclosure walls to admit air for cooling the enclosure while minimizing sound exiting from the enclosure.
 - a. The air intake and discharge silencers shall meet the following service conditions:
 - 1) Number of Units: 1 per enclosure
 - 2) 300 CFM
 - 3) Total Static Pressure at Each Silencer: 0.25 inches w.g.
 - 4) Acoustical Performance: The insertion loss shall at a minimum equal to the performance of the enclosure wall.
 - b. The fan of the fan motor may provide air movement and cooling inside the enclosure. An auxiliary exhaust fan shall be mounted on the acoustical enclosure to provide air circulation during fan operation. The fan shall be located on the roof of the enclosure on the inlet side and shall be quiet running, so as to maintain integrity of the noise limitation specified below. The auxiliary exhaust fan shall provide a minimum of one air change per minute in the acoustical enclosure.
 - c. Auxiliary exhaust fan motors:
 - 1) Service Conditions:
 - a) Number of Units: 1 per enclosure
System 1: 300 CFM, 1/12 HP
 - b) Static Pressure, Each Unit: 0.25 inches w.g.
 - 2) Exhaust fan shall be a dome type roof exhauster suitable for operation on 120 volt, 1-phase, 60 Hz power, solid shaft, ball bearing type.
8. Openings for Pipe Penetrations: Openings for pipe and conduits shall be field cut to ensure proper positioning. Provide framing members, collars, and fittings as required to insure the openings are sealed against acoustical leakage.
9. One (1) fluorescent light shall be provided inside each acoustical enclosure as specified in Division 16. Lighting shall run on 120VAC, 1-phase, 60 Hz power. A switch shall be provided inside each acoustical enclosure for turning the light on and off in accordance with Division 16.

PART 3 - INSTALLATION

3.01 INSTALLATION

- A. All equipment shall be assembled and shipped so that field assembly will be minimized and installation can be completed with little or no field fabrication.
- B. The odor control system will be received, unloaded, stored and installed by the Contractor.

3.02 SHOP TESTING

- A. Carbon Vessel Shop Tests
 - 1. Provide the services of an independent Testing Inspector to be present at the point of manufacture, upon completion of fabrication and prior to shipment, to perform or witness the following:
 - a. Barcol Hardness measurements per ASTM D2583-87 for each unit
 - b. Acetone sensitivity test for all internal secondary bonds
 - c. Glass content by ignition loss on three cutouts per ASTM D2584
 - d. Hydrostatic Leak Test:
 - 1) Perform on each vessel.
 - 2) Fill to 3' above bottom of vessel; allow to stand for 2 hours with no visible leakage.

3.03 FIELD ACCEPTANCE TESTS

- A. Field acceptance tests shall be required for all odor scrubber equipment specified herein within 6 months of installation of the equipment. All equipment shall be field tested in accordance with the applicable requirements of Division 1. Field testing shall include mechanical tests and performance tests as specified below. The manufacturer shall submit information which fully describes the testing procedure. The manufacturer will be provided at least ten days' notice of such tests and the Engineer shall have a representative present when acceptance tests are run. In case of failure of any unit to meet the test requirements, the manufacturer shall make such alterations as are necessary, and the tests shall be repeated without additional cost to the Owner until the equipment is satisfactory. Certified reports shall be submitted to the Engineer for approval.
- B. All ductwork shall be tested and balanced in accordance with Division 15, prior to field testing.
- C. Mechanical Test: The entire odor control system with other associated equipment such as fans, piping and controls shall be mechanically tested for at least 4 hours after initial installation. The test shall be made with airflow being introduced at the design rate. All equipment shall show evidence of mechanical soundness, no evidence of liquid or gas leaks, no undue vibration and generally be structurally rigid when being tested.
- D. Acoustical Test: Record octave band sound power levels (LW) IN/dB RE 10-12 W from 63 to 8000 Hz while carbon adsorber is operating. Convert to sound pressure level, dB on "A" weighted scale at two distances: at the property line and to demonstrate the sound criteria

specified herein is met. Operating sound levels for carbon adsorber system as installed shall be less than the levels stated above.

- E. Performance Test: The manufacturer shall test the system to meet the design conditions of service as specified above. The ability of the equipment to meet the performance requirement shall be determined by the capability of reducing H₂S by 99.5% of the concentration of hydrogen sulfide in the air at maximum inlet H₂S concentration conditions.
1. The manufacturer will be furnished the following items by the odor control vendor for testing:
 - a. Portable manometer: 0 to 10-inches water, for differential pressure loss across reactor vessel.
 - b. Air velocity meter with pitot tube for airflow through reactor.
 - c. H₂S portable analyzer for inlet and outlet gas concentrations – Jerome 631-X, or equal.
 - d. All labor and equipment manufacturer's field engineer for conducting the tests.
 - e. H₂S gas canister with regulator.
 - f. MOSS Odalog system from Detection Instruments.
 2. H₂S Test Procedures: The test shall be conducted for a four (4) hour period at design airflows. Influent and effluent samples shall be taken at 15 minute intervals for a period of not less than four (4) hours using the Jerome meter with continuous inlet/outlet tracks recorded every 1 min using an MOSS odalog system H₂S sampling methods shall conform to the following standards:
 - a. Influent and outlet H₂S concentration shall be demonstrated by mechanical volumetric measurement and high-precision gas sampling system. Differential pressure and airflow rate shall be recorded at each interval.
 - b. H₂S analyzer shall be calibrated prior to shipment to the job site. Provide calibration certificate in testing report.
 - c. Augment air stream with H₂S gas to obtain required concentrations. Airstream shall be spiked to the peak concentration two times during the testing period for a 120-second duration.
- F. The manufacturer's representative witnessing the field tests shall furnish the Owner, through the Engineer, a written report certifying that the scrubber unit:
1. Has been properly installed and accurately aligned.
 2. Is free from any undue stress imposed by connecting piping and/or anchor bolts.
 3. Has been operating at design airflow rates and that the unit operates satisfactorily.
 4. The Contractor has accurately recorded the data obtained during the field test.

3.04 TRAINING

- A. The services of the manufacturer's representative shall be provided for a period of not less than three (3) days as follows:

1. At least two (2) trips of one (1) day(s) to check and supervise the installation of the equipment.
2. See Section 01450 for Startup and Training.

Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor. A written report covering the representative's findings and installation approval shall be submitted to the Engineer covering all inspection and outlining in detail any deficiencies noted.

The times specified are exclusive of travel time to and from the facility and shall not be construed as to relieve the manufacturer of any additional visits to provide sufficient service to place the equipment in satisfactory operation.

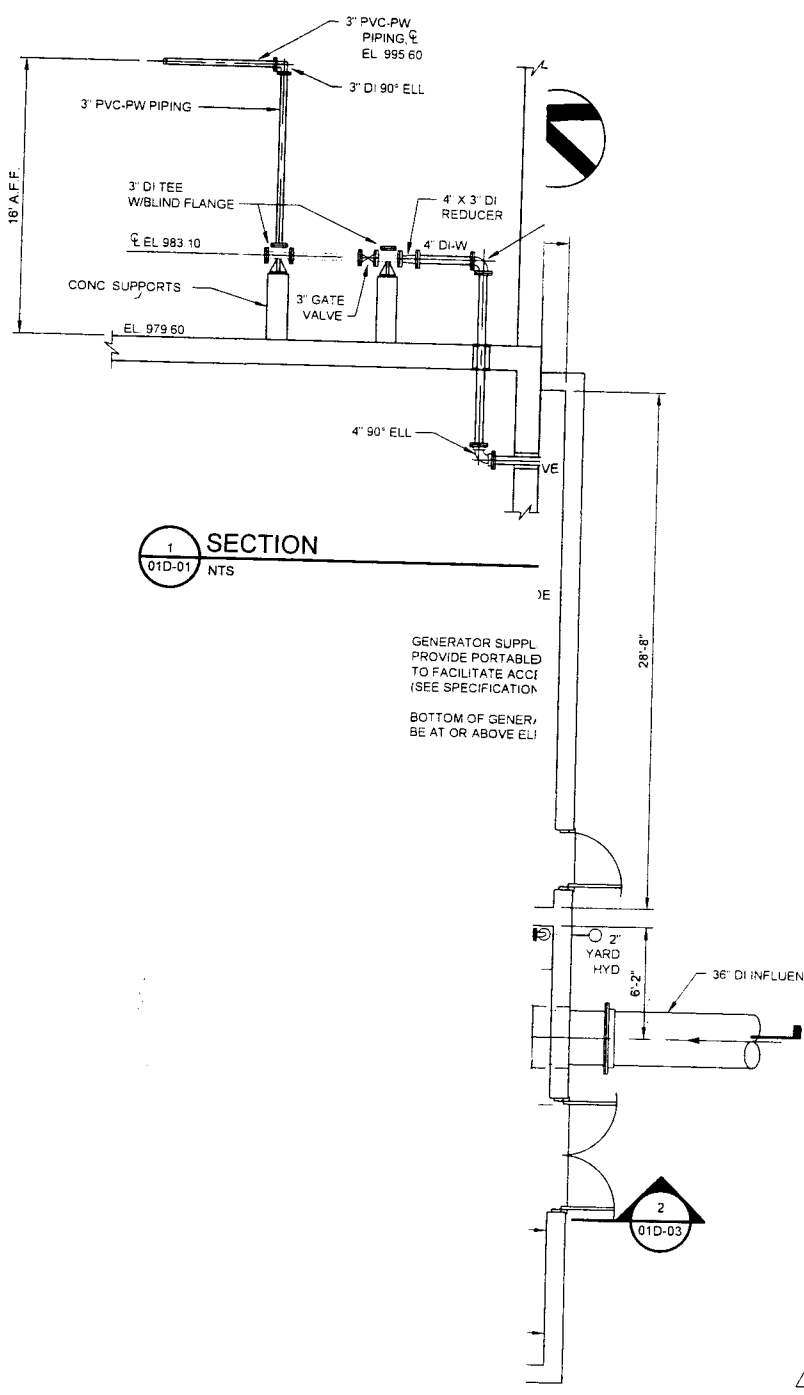
3.05 TOOLS, SUPPLIES AND SPARE PARTS

- A. The manufacturer shall furnish all recommended spare parts. At a minimum, the odor control system shall include the following spare parts:
 1. One (1) set of gaskets for all gasketed covers and connections for each system
 2. One (1) set of internal bolts and fasteners for wetted service for each system
 3. Four (4) H2S indicators for each system
 4. One (1) spare set of belts and bearings for each fan.

3.06 EQUIPMENT IDENTIFICATION

- A. Each piece of equipment shall be provided with an equipment nameplate in accordance with the specifications, which will be securely fastened in a conspicuous place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, and principal rating data.

END OF SECTION



- KEY NOTES**
- 1 ALUM PLANK GRATING
 - 2 3'-0" WIDE X 5'-6" HIGH SSSL SLIDE GATE (ELECTRIC OPERATED)
 - 3 1 1/2" Ø REMOVABLE ALUM HANDRAIL
 - 4 1 1/2" Ø ALUM HANDRAIL POST (3'-6" HIGH)
 - 5 4'-0" X 3'-0" ALUM DRAIN PLATE (SQ GRATING PATTERN WANGLE FRAME)
 - 6 SSSL SAFETY CHAIN (2 ROWS)
 - 7 MECHANICAL BAR SCREEN
 - 8 SSSL EXHAUST HOOD FOR ODOR CONTROL (3 X 7')
 - 9 MANUAL CLEANED BAR RACK
 - 10 3'-6" X 4'-6" ALUM ACCESS HATCH (CHANNEL FRAME)
 - 11 2'-0" X 4'-6" ALUM ACCESS HATCH (CHANNEL FRAME)
 - 12 10" DI VENT PIPING W/SSSL INSECT SCREEN
 - 13 HANDWHEEL OPERATOR FLOORSTAND FOR PLUG VALVE
 - 14 COMPLETE EXTERIOR RATED 2 TON STAND ALONE INDEPENDENT MONORAIL CRANE SYSTEM INCLUDING HOIST MONORAIL BEAM, ALL SUPPORTING FRAMING COLUMNS, CRANE STOPS, ETC
 - 15 18" WIDE (2'-9") X 10' TALL CHAIN LINK GATES
 - 16 PRE-FILTER
 - 17 FRP DAMPER
 - 18 NOT USED
 - 19 MOP SINK
 - 20 9'-0" Ø ODOR CONTROL ADSORBER
 - 21 16" VENT PIPE
 - 22 BLOWER WITH SOUND ABSORB ENCLOSURE
 - 23 AIR DAMPER
 - 24 14" PVC ODOR CONTROL PIPING
 - 25 SCREEN COMPACTOR/CONVEYOR
 - 26 3" PVC-PW
 - 27 2" PVC-PW
 - 28 3/4" HOSE BIBB
 - 29 3'-0" X 3'-0" ALUM ACCESS HATCH (CHANNEL FRAME)
 - 30 ROOF HATCH (SEE STRUCTURE & ARCHITECTURAL DWGS)
 - 31 SAFETY GRATES
 - 32 ALL MATERIALS IN SCREEN AND DUMPSTER ROOMS SHALL BE ALUMINUM, STAINLESS STEEL OR PLASTIC
 - 33 PROVIDE SSSL SUPPORTS FOR ODOR CONTROL PIPING BASED ON MANUFACTURER RECOMMENDATIONS
 - 34 6" DI DRAIN PIPE FROM FLOOR DRAINS TO INLET CHANNEL SLOPE @ 0.50%
 - 35 6" DI DRAIN PIPE FROM FLOOR DRAINS TO STORM SEWER (SEE SHEET 01C-02)
 - 36 SEE SHEETS 01C-02 AND 01P-01 FOR CONTINUATION
 - 37 3" DI DRAIN PIPE FROM BLOWER TO 6" FLOOR DRAIN

- GENERAL NOTES**
- 1 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions
 - 2 All wall and floor penetrations shall be provided with Link Seal unless otherwise shown. See Detail Sheet 03C-05
 - 3 All hatches shall be lockable

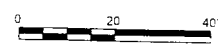


OTHER

**PUMP STATION
UPPER FLOOR PLAN**

ISSUE DATE
1 10-18-201
A 10-05-201

TANK

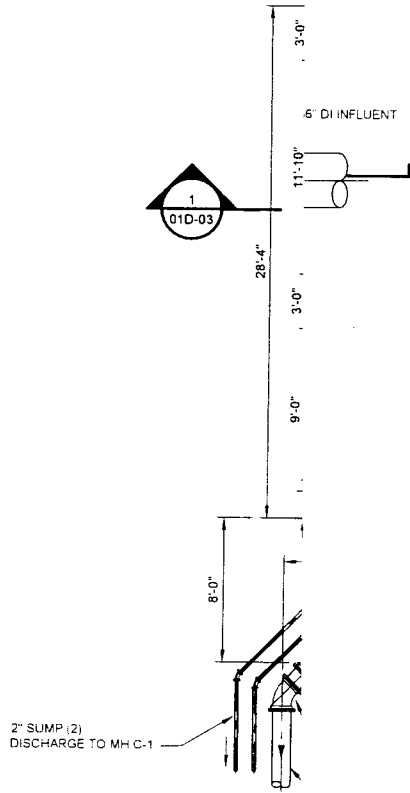


FILENAME 01D-01
SCALE 3/16" = 1'-0"

SHEET
01D-01

KEY NOTES

- 1 3'-0" WIDE X 5'-6" HIGH SSSL SLIDE GATE (ELECTRIC OPERATED)
- 2 MECHANICAL BAR SCREEN
- 3 MANUAL CLEANED BAR RACK
- 4 PVC ODOR CONTROL PIPING (PROVIDE SSSL SUPPORTS BASED ON MANUFACTURER RECOMMENDATION)
- 5 12" X 8" PVC TEE (OPEN END)
- 6 8" PVC 90° BEND (OPEN END)
- 7 12" DI 90° ELL
- 8 12" DI FLG-FLG WALL PIPE
- 9 12" FLG COUPLING ADAPTER
- 10 12" CHECK VALVE
- 11 12" PLUG VALVE W/SSSL WORM GEAR OPERATOR & SSSL EXT STEM
- 12 12" DI FLG-PE WALL PIPE
- 13 12" DI MJ-PE 45° ELL
- 14 20" X 12" DI MJ WYE
- 15 2' X 4' X 2' DEEP SUMP W/SUMP PUMPS (2)
- 16 20" X 12" DI MJ ECCENTRIC REDUCER
- 17 12" ELECTRIC OPERATED PLUG VALVE IN 6' X 6' VAULT
- 18 12" DI MJ 45° BEND
- 19 NOT USED
- 20 NOT USED
- 21 COMBINATION AIR VALVE AND VAULT (5' Ø) (SEE SHEET 03C-04)
- 22 3" VALVE VAULT DRAIN W/RUBBER FLAP GATE TURNED DOWN (6" BACK PRESSURE)
- 23 3/4" CORPORATION STOP W/QUICK-COUPLER DIAPHRAGM SEAL AND PRESSURE GAUGE AS SHOWN IN DETAIL SHEET 03C-05
- 24 ALUM ACCESS LADDER W/LADDER-UP DEVICE
- 25 GROUT VALVE VAULT FLOOR SLAB TO DRAIN PIPE
- 26 BYPASS VAULT (5' Ø) (SEE SHEET 03C-04)



GENERAL NOTES

- 1 All nuts, bolts and miscellaneous hardware shall be Type 304 Stainless Steel in the Screenings Room, Wet Well and Valve Vault
- 2 All hatches shall be lockable
- 3 Wall Sleeves shall be used for cast in place concrete wall penetrations, (except for vertical installation and for mounting Sluice Gates - Wall Pipe req'd in these locations) grout both sides of Wall Sleeve where exposed prior to putting tanks in service
- 4 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions

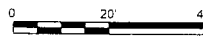


ATHER

PUMP STATION LOWER PLAN

1 10-18-2017
 A 10-06-2017
 ISSUE DATE

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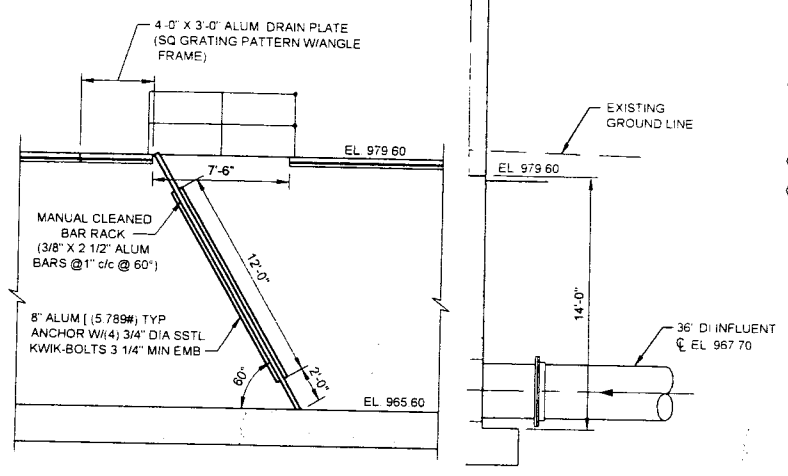


FILENAME 01D-02
 SCALE 3/16" = 1'-0"

SHEET
 01D-02

KEY NOTES

- ① ALUM PLANK GRATING
- ② 3'-0" WIDE X 5'-6" HIGH SSSL SLIDE GATE (EXPLOSION PROOF, ELECTRIC OPERATED)
- ③ 1 1/2" Ø REMOVABLE ALUM HANDRAIL
- ④ NOT USED
- ⑤ MECHANICAL BAR SCREEN
- ⑥ SSSL EXHAUST HOOD FOR ODOR CONTROL
- ⑦ 14" PVC ODOR CONTROL PIPING
- ⑧ SCREEN COMPACTOR/CONVEYOR
- ⑨ ODOR CONTROL PIPING SUPPORTS (SSSL)
- ⑩ 3'-6" X 4'-6" ALUM ACCESS HATCH (CHANNEL FRAME)
- ⑪ 2'-0" X 4'-6" ALUM ACCESS HATCH (CHANNEL FRAME)
- ⑫ 3" SSSL GUIDE RAILS
- ⑬ 12" D¹ 90° ELL
- ⑭ 12" DI DISCHARGE PIPE
- ⑮ 12" PUMP INLET PIPE
- ⑯ 2 X 4 X 2 DEEP SUMP W/ SUMP PUMPS (2)
- ⑰ 2" SUMP PUMP DISCHARGE LINES W/ CHECK VALVES (WALL PENETRATION W/ LINK SEAL)
- ⑱ COMPLETE EXTERIOR RATED 2 TON STAND ALONE INDEPENDENT MONORAIL CRANE SYSTEM INCLUDING HOIST MONORAIL BEAM, ALL SUPPORTING FRAMING COLUMNS, CRANE STOPS, ETC
- ⑲ SSSL GUIDE RAILS (TYP OF 2)
- ⑳ (2) 2" TRU-UNION BALL CHECK VALVE



2 SECTION
01D-03 3/16" = 1'-0"

GENERAL NOTES

- 1 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions

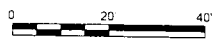


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PUMP STATION SECTION

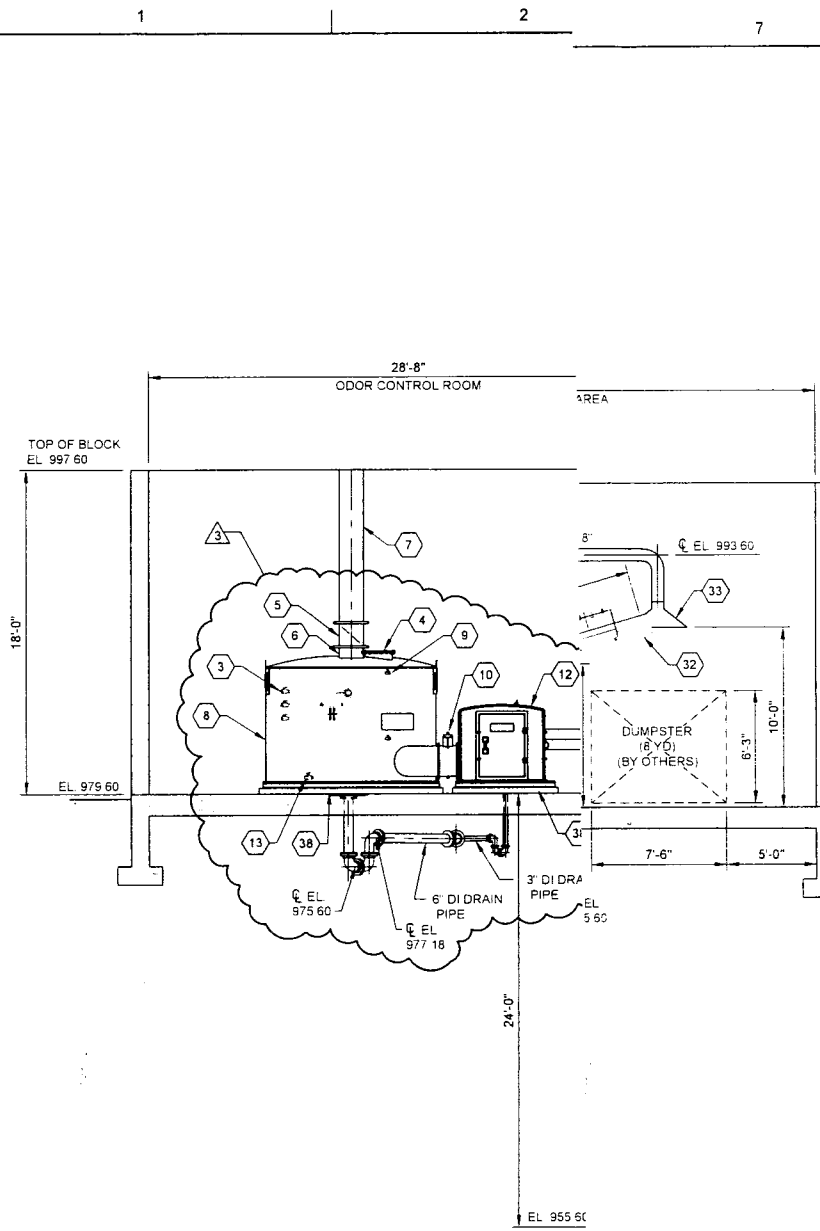
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FILENAME 01D-03
SCALE 3/16" = 1'-0"

SHEET
01D-03



- KEY NOTES**
- ① NOT USED
 - ② NOT USED
 - ③ 1 1/2" CARBON SAMPLE PROBE W/CPVC BALL VALVE (TYP)
 - ④ 24" DOME MANWAY W/COVER
 - ⑤ 16" OUTLET DAMPER
 - ⑥ 16" OUTLET NOZZLE
 - ⑦ 16" VENT PIPE WITH TURN DOWN 24" ABOVE ROOF W/SSSTL INSECT SCREEN
 - ⑧ 9' - 0" Ø ODOR CONTROL ADSORBER
 - ⑨ 2" OVERFLOW - 2" THREADED COUPLING WITH PLUG
 - ⑩ FRP DAMPER
 - ⑪ NOT USED
 - ⑫ BLOWER WITH SOUND ABSORB ENCLOSURE
 - ⑬ 2" FILL/RAIN - 2" THREADED COUPLING WITH PLUG
 - ⑭ 14" PVC ODOR CONTROL PIPING
 - ⑮ COMPLETE EXTERIOR RATED 2 TON STAND ALONE INDEPENDENT MONORAIL CRANE SYSTEM INCLUDING HOIST MONORAIL BEAM, ALL SUPPORTING FRAMING COLUMNS, CRANE STOPS, ETC
 - ⑯ 3'-6" X 4'-6" ALUM ACCESS HATCH (CHANNEL FRAME)
 - ⑰ 12" DI 90° ELL
 - ⑱ 3" SSSTL GUIDE RAILS
 - ⑲ SSSTL PIPE SUPPORT
 - ⑳ 12" DI DISCHARGE PIPE
 - ㉑ SUBMERSIBLE PUMP
 - ㉒ PUMP INLET PIPE (PROVIDED BY PUMP MFR)
 - ㉓ 12" DI FLG-FLG WALL PIPE
 - ㉔ 12" FLG COUPLING ADAPTER
 - ㉕ 12" CHECK VALVE
 - ㉖ 12" PLUG VALVE W/SSSTL WORM GEAR OPERATOR & SSSTL EXT STEM
 - ㉗ 12" DI FLG-PE WALL PIPE
 - ㉘ CONCRETE PIPE SUPPORTS (SEE DETAIL 03C-04)
 - ㉙ MANUAL CLEANED BAR RACK
 - ㉚ MECHANICAL BAR SCREEN
 - ㉛ SCREEN COMPACTOR/CONVEYOR
 - ㉜ BAGGING UNIT DISCHARGE
 - ㉝ SSSTL EXHAUST HOOD FOR ODOR CONTROL
 - ㉞ PVC ODOR CONTROL PIPING
 - ㉟ PUMP BASE ELBOW (12" X 12")
 - ㊱ 10" X 12" DI REDUCER (IF NEEDED)
 - ㊲ FLOW SPLITTER & SIDE FILLETS PER MFR RECOMMENDATIONS
 - ③ ㊳ 4" CONCRETE EQUIPMENT PAD
 - ㊴ 3" VALVE VAULT DRAIN LINE INV EL 970.10

1 SEC
01D-04 3/16" = 1'

GENERAL NOTES

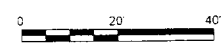
- 1 All nuts, bolts and miscellaneous hardware shall be Type 304 Stainless Steel in the Screenings Room, Wet Well and Valve Vault
- 2 All hatches shall be lockable
- 3 Wall Sleeves shall be used for cast in place concrete wall penetrations, except for vertical installation and for mounting Sluice Gates - Wall Pipe req'd in these locations; grout both sides of Wall Sleeve where exposed prior to putting tanks in service
- 4 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions



OTHER

PUMP STATION SECTIONS

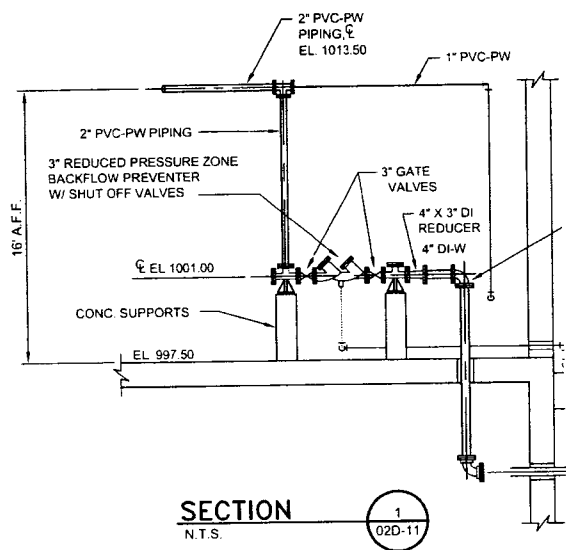
1 10-18-2017
A 10-06-2017
ISSUE DATE



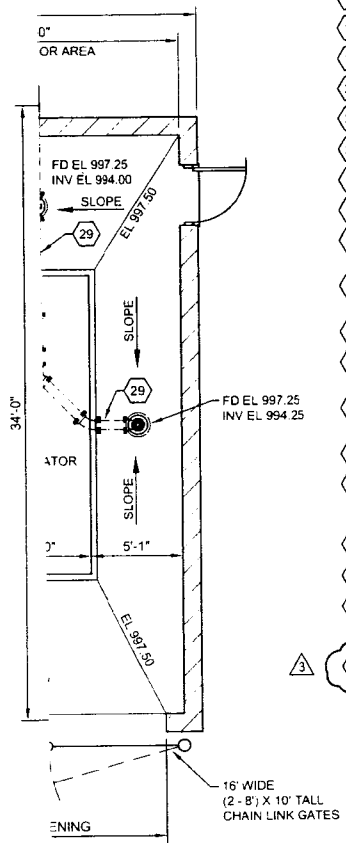
FILENAME 01D-04
SCALE 3/16" = 1'-0"

SHEET
01D-04

ANK

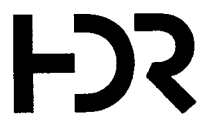


- KEY NOTES:**
- 1 8'-0" Ø ODOR CONTROL ADSORBER
 - 2 FRP DAMPER
 - 3 PRE-FILTER
 - 4 BLOWER WITH SOUND ABSORB ENCLOSURE
 - 5 MEDIA SAMPLE
 - 6 16" VENT PIPE
 - 7 DRAIN PIPED TO FLOOR DRAIN
 - 8 CONCRETE EQUIPMENT PAD
 - 9 20" DI ODOR CONTROL PIPING
 - 10 3" REDUCED PRESSURE ZONE BACKFLOW PREVENTER W/SHUT OFF VALVES
 - 11 EMERGENCY EYEWASH
 - 12 WATER HEATER
 - 13 MOP SINK
 - 14 2" PVC-PW
 - 15 3/4" HOSE BIBB
 - 16 3,000 GAL. (EACH) CHEMICAL STORAGE TANKS
 - 17 CHEMICAL FEED PUMPS
 - 18 4' HIGH CONCRETE CONTAINMENT WALL
 - 19 SOUND ENCLOSED BLOWER
 - 20 6" FLG COUPLING ADAPTER
 - 21 6" BUTTERFLY VALVE, LEVER OPERATED
 - 22 8" X 8" X 6" DI FLG SIDE OUTLET 90° BEND
 - 23 8" BUTTERFLY VALVE, LEVER OPERATED
 - 24 3" PVC VENT PIPE
 - 25 2" PVC CHEMICAL TANK FILL (SCHEDULE 80 PIPE, FITTINGS, AND VALVES) W/2" PVC BALL VALVES
 - 26 2" PVC CHEMICAL FEED (SCHEDULE 80 PIPE, FITTINGS, AND VALVES)
 - 27 2" TRU-UNION BALL VALVE
 - 28 6" DI DRAIN PIPE FROM FLOOR DRAINS TO SEWER (SEE SHEET 02C-01)
 - 29 6" DI DRAIN PIPE FROM FLOOR DRAINS TO HEADWALL (SEE SHEET 02C-01)
 - 30 SEE SHEET 02D-13 FOR PIPE SCHEMATIC
 - 31 2" PVC FILL PIPING WITH 2" MALE/FEMALE QUICK COUPLINGS, 2" PVC BALL VALVE AND 2" MALE/FEMALE QUICK COUPLINGS AT INTERIOR WALL
 - 32 SEE SHEET 02C-02 FOR CONTINUATION
 - 33 SEE SHEETS 02C-01 AND 02P-01 FOR CONTINUATION
 - 34 STAINLESS STEEL ACCESS LADDER SHALL BE PROVIDED ON EACH SIDE OF CONTAINMENT WALL (2" WIDE WITH 12" SPACING) STARTING 12" OFF FLOOR
 - 35 3" DI DRAIN PIPE FROM BLOWER TO 6" FLOOR DRAIN



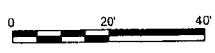
GENERAL NOTES:

- 1 All nuts, bolts and miscellaneous hardware shall be Type 304 Stainless Steel in the Screenings Room, Wet Well and Valve Vault.
- 2 All hatches shall be lockable
- 3 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions.
- 4 Coat inside Containment Wells and Chemical Fill/Spill Containment Area per Section 09961.



ISSUE	DATE	BY	CHK
1	10-18-2017		
A	10-06-2017		

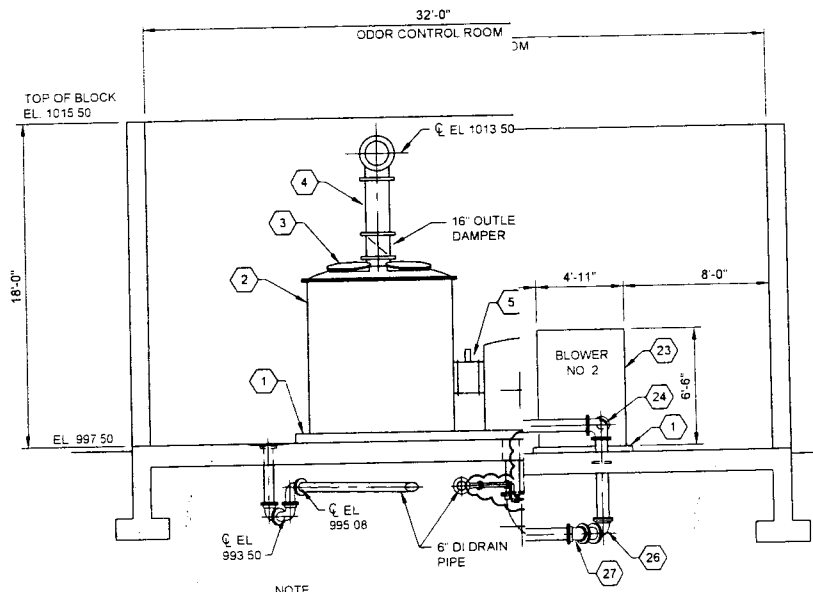
STORAGE TANK BUILDING FLOOR PLAN



FILENAME 02D-11
SCALE 3/16" = 1'-0"

SHEET
02D-11

- KEY NOTES**
- 1 6" CONCRETE EQUIPMENT PAD
 - 2 8" - 0" Ø ODOR CONTROL ADSORBER
 - 3 ACCESS COVER
 - 4 16" VENT PIPE
 - 5 FRP DAMPER
 - 6 BLOWER WITH SOUND ABSORB ENCLOSURE
 - 7 20" DI ODOR CONTROL PIPING
 - 8 20" DI MJ 90° BEND
 - 9 ELECTRICAL CONTROL BOX ASSEMBLY
 - 10 1/2" Ø OVERFILL SIGHT TUBE ASSEMBLY
 - 11 2" Ø FILL PIPING ASSEMBLY
 - 12 3/4" Ø SUCTION PIPING ASSEMBLY
 - 13 CALIBRATION STAND ASSEMBLY
 - 14 CHEMICAL FEED PUMPS
 - 15 16" X 12" SSSL PIPE STAND RISER
 - 16 SSSL PIPE/UTILITY TANK STAND
 - 17 3 000 GALLON TANK 7' - 1" Ø X 11' - 8" HIGH
 - 18 PRESSURE SENSOR LEVEL INDICATOR ASSEMBLY
 - 19 3" PVC VENT PIPE
 - 20 2' X 4' X 4' DEEP SPILL CONTAINMENT BOX
 - 21 2" PVC FILL PIPING WITH 2" MALE/FEMALE QUICK COUPLINGS 2" PVC BALL VALVE AND 2" MALE/FEMALE QUICK COUPLINGS AT INTERIOR WALL
 - 22 4" HIGH CONCRETE CONTAINMENT WALL
 - 23 SOUND ENCLOSED BLOWER
 - 24 8" X 8" X 6" DI FLG SIDE OUTLET 90° BEND
 - 25 8" BUTTERFLY VALVE, LEVER OPERATED
 - 26 8" DI MJ 90° BEND
 - 27 8" DI MJ 45° BEND
 - 28 2" PVC CHEMICAL FEED (SCH 80 PIPE, FITTINGS AND VALVES)



SECTION
02D-12 3/16" = 1'-0"

GENERAL NOTES

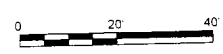
- 1 All Ductile Air Piping shall be unlined
- 2 All Ductile Iron Pipe and Fittings below structures shall be restrained
- 3 See Sheet 00S-03 for reinforcement requirements at pipe penetrations
- 4 No wall pipe penetrations shall be through the footer



THOR

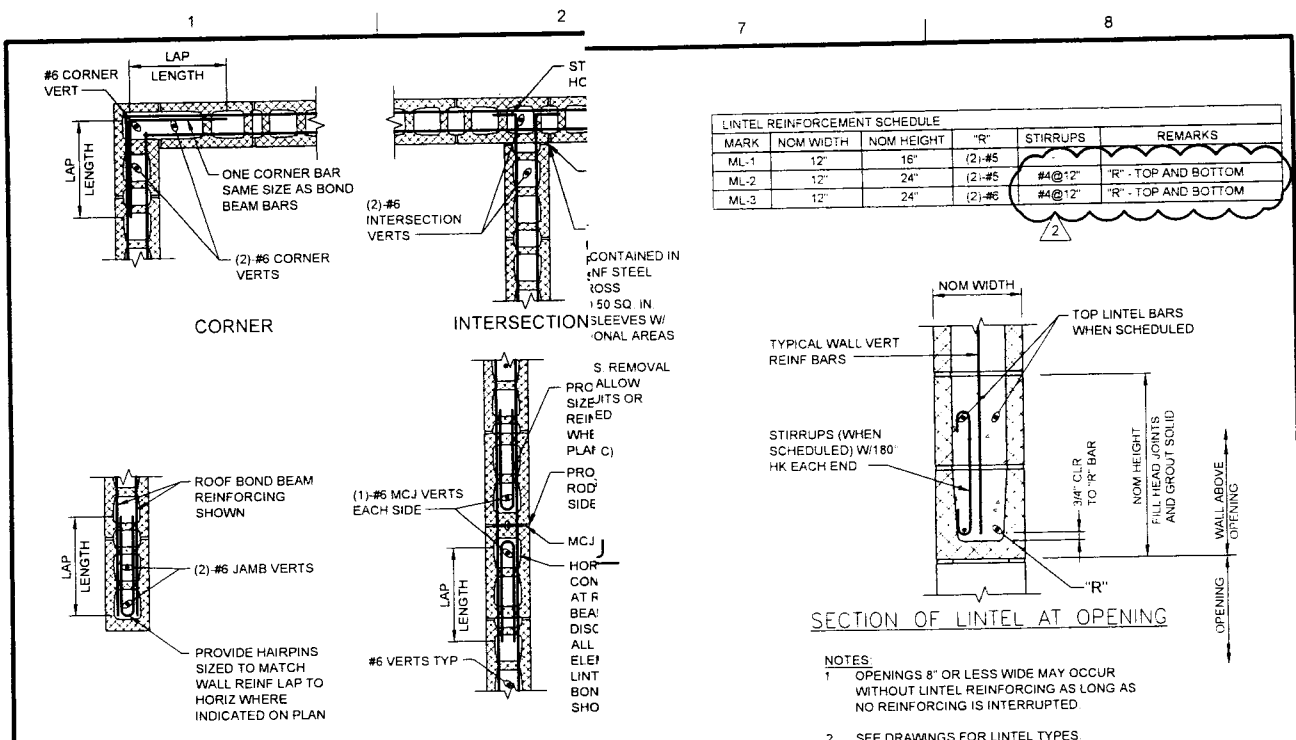
STORAGE TANK BUILDING SECTIONS

1 10-18-2017
A 10-06-2017
ISSUE DATE
ANK



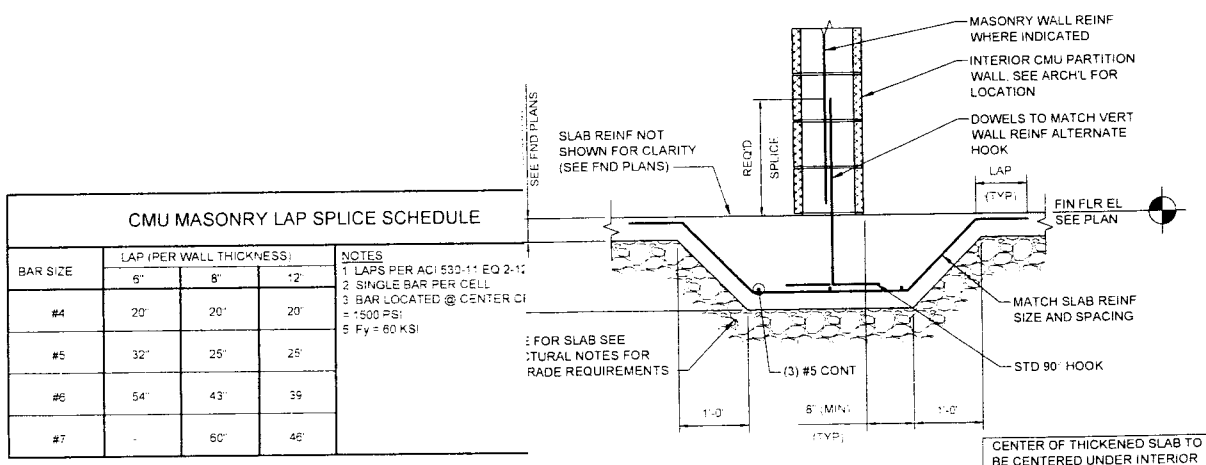
FILENAME 02D-12
SCALE 3/16" = 1'-0"

SHEET
02D-12



- NOTES**
- FOR ADDITIONAL REINFORCING SEE REINFORCING DETAILED ON PLANS AND SECTIONS
 - LOCATE VERT BARS AT CENTERLINE OF WALL. UNO
 - EXTEND MCJ FULL HEIGHT OF MASONRY BOND BEAM
 - LIMIT DISTANCE BETWEEN MCJ TO MAX 24'-0" SEE DRAWINGS FOR LOCATIONS
 - HORIZONTAL JOINT REINFORCING NOT SHOWN

1 CMU WALL REINFORCING
NTS



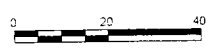
5 MASONRY REINFORCING LAP SCHEDULE
NTS

9 TYP THICKENED SLAB DETAIL
NTS



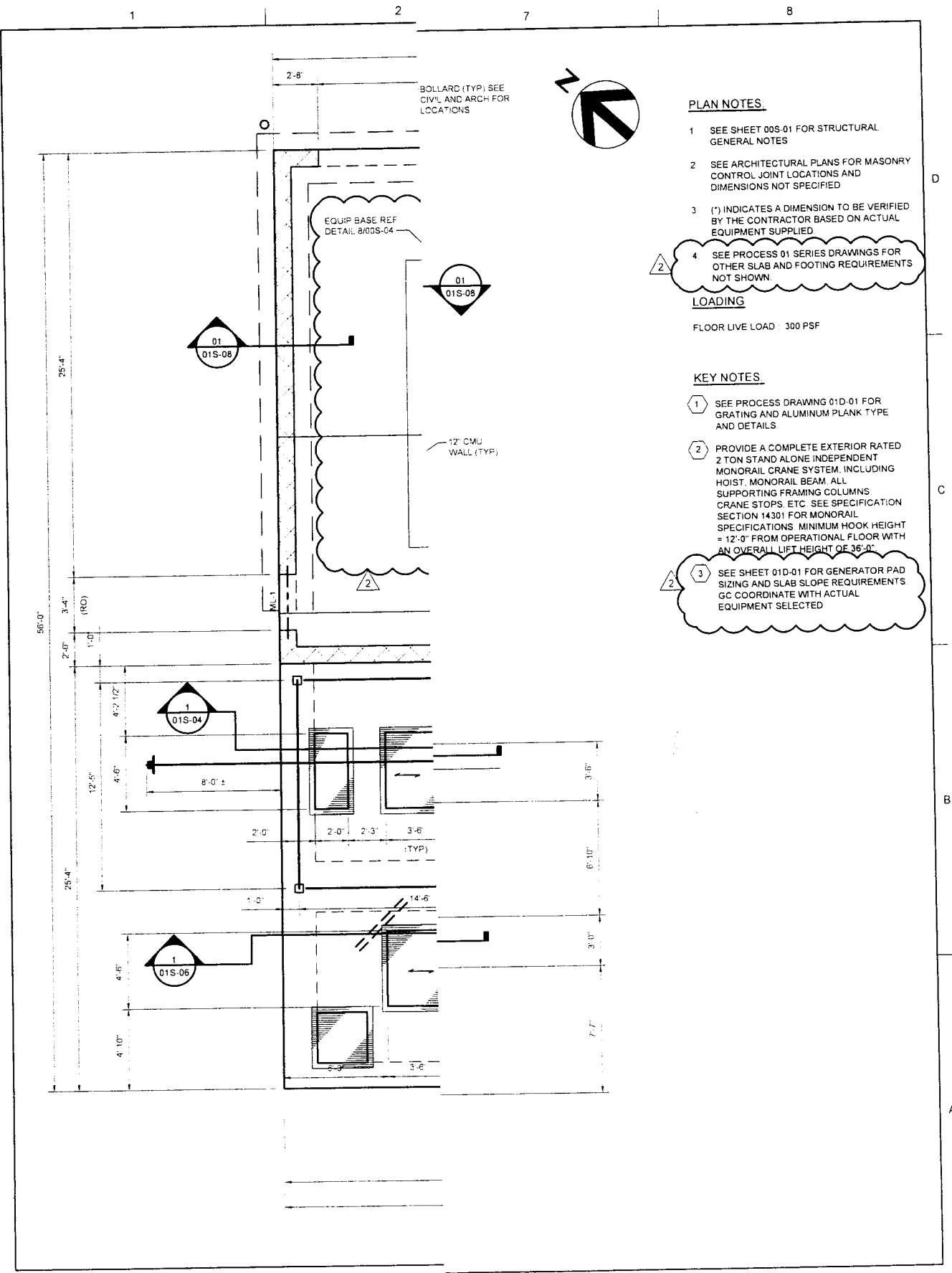
2	10/19
1	10/6/
ISSUE	DAT

**PUMP STATION / STORAGE TANK
STRUCTURAL STANDARD DETAILS**



FILENAME | 00S-01-00S-05
SCALE | AS NOTED

SHEET
00S-04



PLAN NOTES.

- 1 SEE SHEET 00S-01 FOR STRUCTURAL GENERAL NOTES
- 2 SEE ARCHITECTURAL PLANS FOR MASONRY CONTROL JOINT LOCATIONS AND DIMENSIONS NOT SPECIFIED
- 3 (*) INDICATES A DIMENSION TO BE VERIFIED BY THE CONTRACTOR BASED ON ACTUAL EQUIPMENT SUPPLIED
- 4 SEE PROCESS 01 SERIES DRAWINGS FOR OTHER SLAB AND FOOTING REQUIREMENTS NOT SHOWN.

LOADING

FLOOR LIVE LOAD : 300 PSF

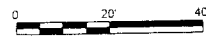
KEY NOTES

- 1 SEE PROCESS DRAWING 01D-01 FOR GRATING AND ALUMINUM PLANK TYPE AND DETAILS
- 2 PROVIDE A COMPLETE EXTERIOR RATED 2 TON STAND ALONE INDEPENDENT MONORAIL CRANE SYSTEM, INCLUDING HOIST, MONORAIL BEAM, ALL SUPPORTING FRAMING COLUMNS, CRANE STOPS, ETC. SEE SPECIFICATION SECTION 14301 FOR MONORAIL SPECIFICATIONS. MINIMUM HOOK HEIGHT = 12'-0" FROM OPERATIONAL FLOOR WITH AN OVERALL LIFT HEIGHT OF 36'-0"
- 3 SEE SHEET 01D-01 FOR GENERATOR PAD SIZING AND SLAB SLOPE REQUIREMENTS. GC COORDINATE WITH ACTUAL EQUIPMENT SELECTED



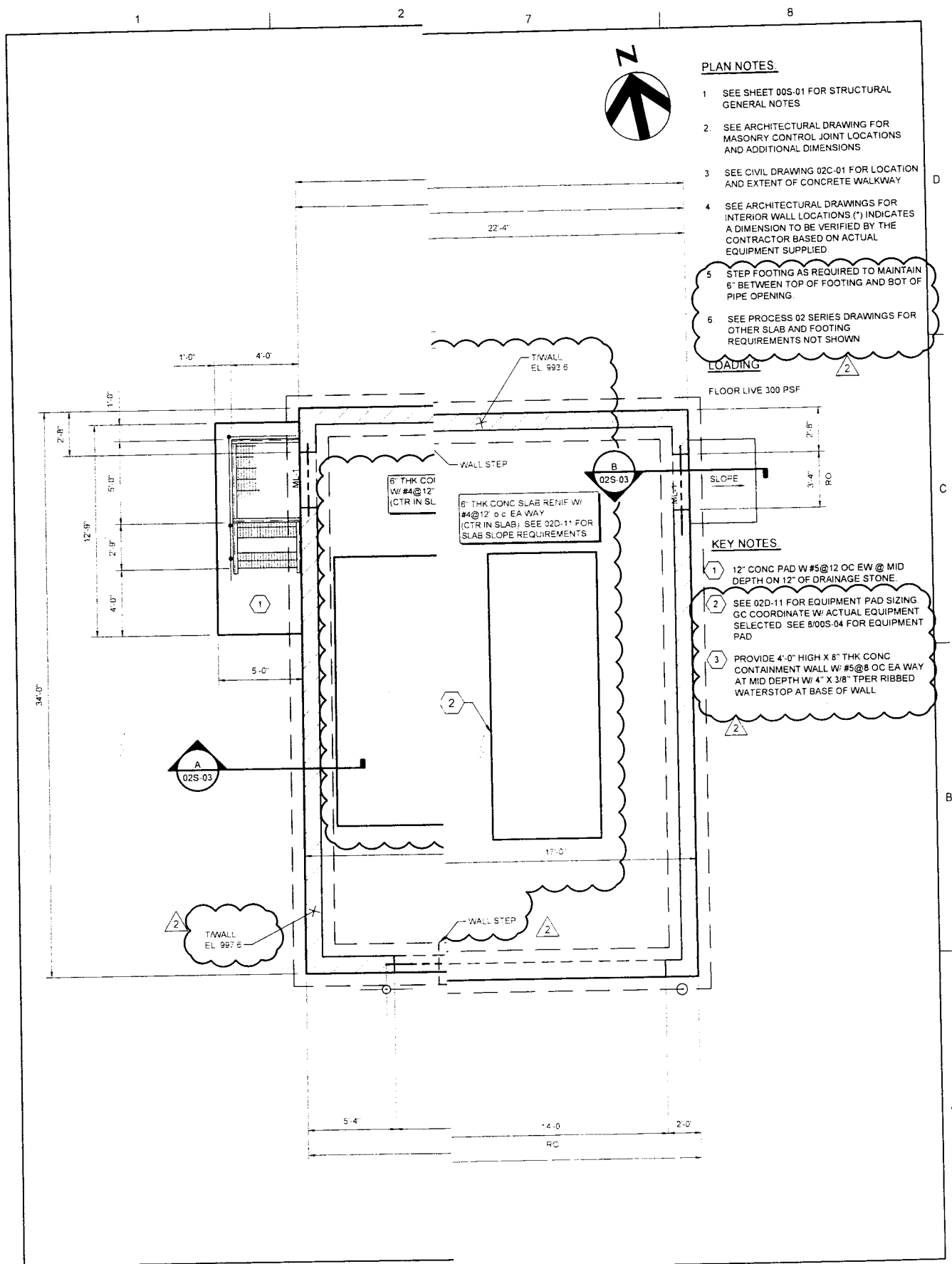
NO.	DATE	DESCRIPTION
2	10/17	
1	10/6	
ISSUE	DATE	

PUMP STATION UPPER FOUNDATION PLAN



FILENAME 01S-01
SCALE 1/4"=1'-0"

SHEET
01S-02



PLAN NOTES.

- 1 SEE SHEET 00S-01 FOR STRUCTURAL GENERAL NOTES
2. SEE ARCHITECTURAL DRAWING FOR MASONRY CONTROL JOINT LOCATIONS AND ADDITIONAL DIMENSIONS
- 3 SEE CIVIL DRAWING 02C-01 FOR LOCATION AND EXTENT OF CONCRETE WALKWAY
- 4 SEE ARCHITECTURAL DRAWINGS FOR INTERIOR WALL LOCATIONS (*) INDICATES A DIMENSION TO BE VERIFIED BY THE CONTRACTOR BASED ON ACTUAL EQUIPMENT SUPPLIED
- 5 STEP FOOTING AS REQUIRED TO MAINTAIN 6" BETWEEN TOP OF FOOTING AND BOT OF PIPE OPENING.
- 6 SEE PROCESS 02 SERIES DRAWINGS FOR OTHER SLAB AND FOOTING REQUIREMENTS NOT SHOWN

LOADING

FLOOR LIVE 300 PSF

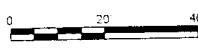
KEY NOTES.

- 1 12" CONC PAD W #5 @ 12 OC EW @ MID DEPTH ON 12" OF DRAINAGE STONE.
- 2 SEE 02D-11 FOR EQUIPMENT PAD SIZING GC COORDINATE W/ ACTUAL EQUIPMENT SELECTED SEE 8/00S-04 FOR EQUIPMENT PAD
- 3 PROVIDE 4'-0" HIGH X 8" THK CONC CONTAINMENT WALL W/ #5 @ 8 OC EA WAY AT MID DEPTH W/ 4" X 3/8" TPER RIBBED WATERSTOP AT BASE OF WALL



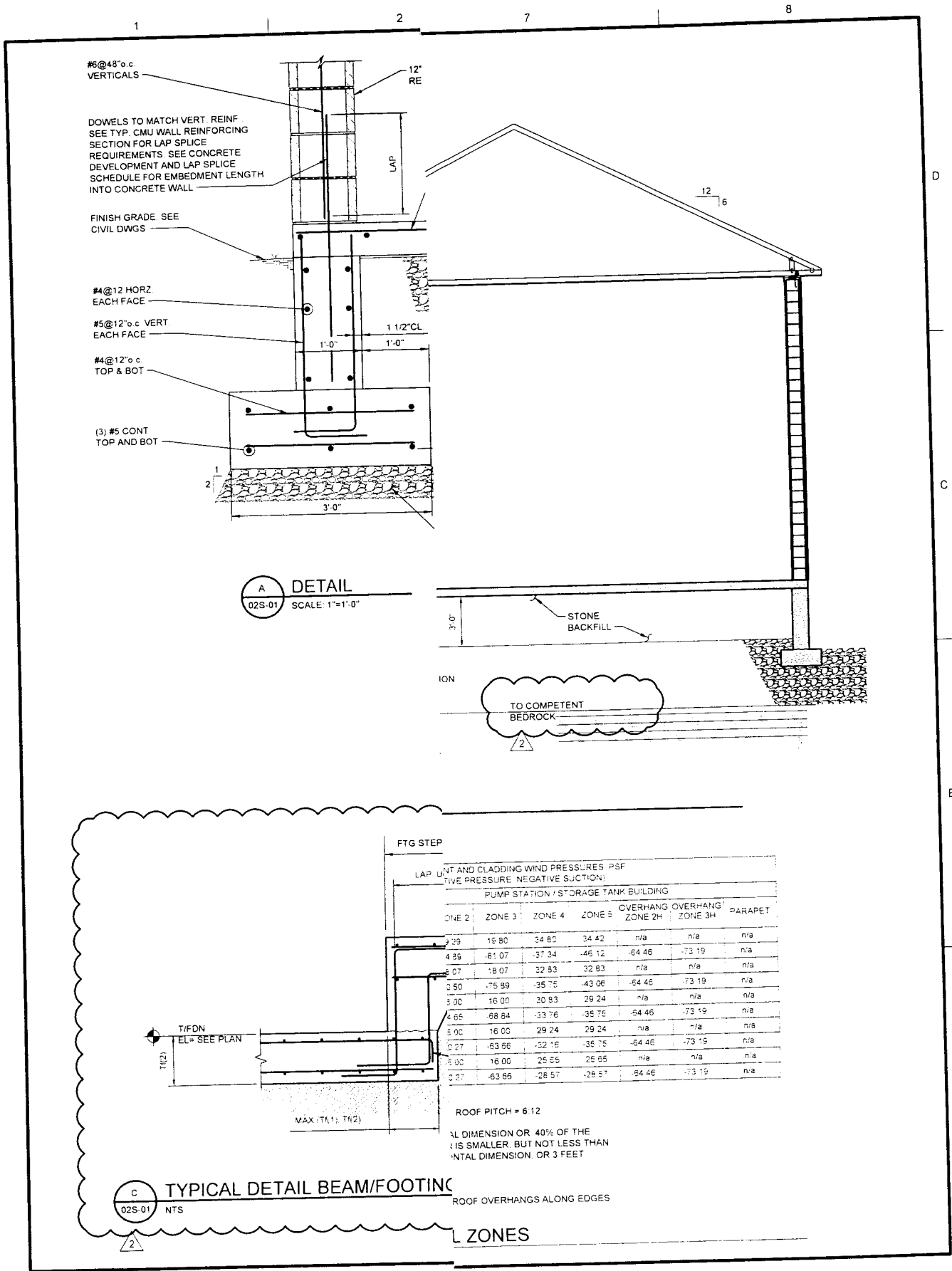
ISSUE	DATE	BY	CHK
2	10/19/1		
1	10/6/1		

STORAGE TANK BUILDING FOUNDATION PLAN

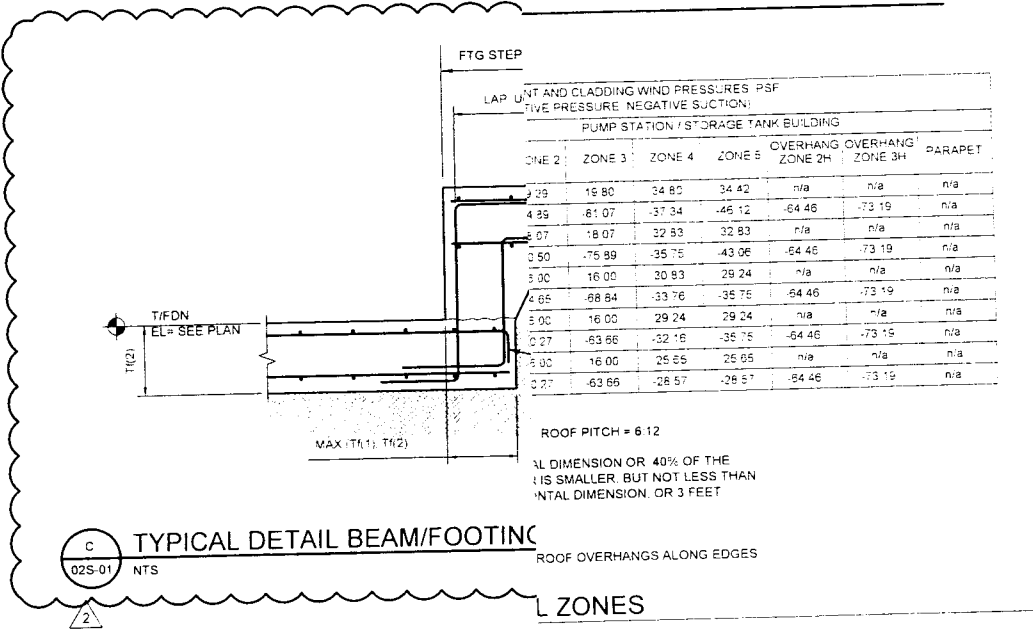


FILENAME 01S-01
SCALE 1/4"=1'-0"

SHEET
02S-01

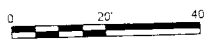


A **DETAIL**
02S-01 SCALE 1"=1'-0"



NO.	DATE	BY	CHK	APP
2	10/15			
1	10/6			
ISSUE	DA1	NK		

STORAGE TANK BUILDING SECTIONS



FILENAME 02S-03
SCALE AS NOTED

SHEET
02S-03



ADDENDUM #4

Bid Number: #140-2017

Date: October 26, 2017

Subject: West Hickman 7 Wet Weather Storage
Facilities Improvements (Contract No. 2)

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. QUESTIONS

	Questions	Answers
1.	Mechanical Bar Screens – Section 11420-1.04.A – State that Headworks should bid their MS2 screen. Their MS2 is a lighter duty screen than the MS1. The specifications seem to be written around the MS1 product. Specifically the requirement of the lower sprocket called for in section 11420.2.01.C.6-9. I would recommend Headworks be required to bid their MS1 product.	The Headworks MS2 screen listed is correct. Changes are made to Specification Section 11420 to match a Headworks MS2 Screen.
2.	Note 23 on Sheet 01D-02 list both a corp. stop assembly and pressure gauge assembly. Do you want both as detailed sheet 03C-05; a corp stop per the “Typical Chemical Injection Assembly”, and a pressure gauge per the “Pressure Gauge Mounting Detail”?	Note refers to the Pressure Gauge Mounting Detail on Sheet 03C-05 not the Chemical Injection Assembly. Drawing revisions to the Pressure Gauge Mounting Detail is provided.
3.	Is the 6” DI drain piping shown sheet 01D-01 the same piping as the 4” sanitary drain piping shown sheet 01P-01?	Yes. See Addendum No. 3.
4.	Per Keynote #1 on Sheet 01S-02, we find no details on sheet 01D-01 for the grating and aluminum plank type. Are the channels in the screening room to be covered by grating or aluminum planking?	As called out on Sheet 01D-01, the aluminum plank grating is required as detailed on Sheet 03C-05.
5.	We find a discrepancy between plan notes and specifications regarding the Activated	Drawings are revised to require FRP ductwork. See Drawing revisions.



	Carbon Odor Equipment ductwork. Your plan notes in sheet "01D" call out the duct as PVC, your specification section 13252 DIV 15. Specification 15892 calls for the ductwork to be fiberglass. Please clarify your plan notes.	
6.	While reviewing the specs for the actuators on this project I noticed two sluice gates on the actuator schedule that are not listed on the slide gate schedule. Could you clarify where these sluice gates are on the project? They are labeled SLG-203 and SLG-301.	These gates will be removed from Specification Section 16225. See below.
7.	3.03 Schedule does not state whether the hoist is to be chain or wire rope and the trolley says to refer to the drawings. I don't see any drawing that says whether the trolley is to be plain, hand geared or motorized.	3.03 Schedule will be revised in Specification Section 14301. See below.
8.	Drawing 01E-05 says everything in the pump station area is to be Class 1, Division 1, group D rated. Drawing 01D-01 says exterior rated. Is it one of the other or both? If the hoist and trolley are to be rated for Class 1, Division 1 hazardous environment, then the hoist will have to be electric wire rope.	Since this drawing is only indicating Lower Level information, notes only apply to the pump station lower level not above the wet well top slab except within the hatch envelope. The hoist and trolley will be above the hatch envelope and therefore are unclassified. Exterior rated is making reference to outside use versus inside a building.
9.	Would you consider naming Crispin in the specs for the plug valves and the check valves for this project?	No
10.	On drawing 00S-03 it show three different options for Control Joints. However, the specs say that the sawing of Contraction Joints is not permitted unless noted otherwise on drawings. Does the typical section permit the use of saw-cutting for Control Joints if not labeled anywhere else on the Plan Views, etc.? Nowhere does it specify the maximum distance for the Control Joints. Please provide this info.	For the Wet Weather Pump Station (01 Series Drawings) all joints have been called out on the drawings. Where (SJ) is called out, the Contractor can choose to either form the joint or saw cut it adhering to the provided details. For the Wet Weather Storage Tank building (02 Series Drawings) where construction joints are not called out the Contractor can submit a plan with requested locations so that they can be considered. Use Specification Section 03290 Section 3.01 for guidance on construction joint location and spacing.



11.	I believe I've looked through all documents for WH7 and cannot find where Fairbanks Nijhuis has been added as a WWS/PS approved submersible pump supplier. Is there an opportunity for us to be added to the bid form via addendum?	Fairbanks Nijhuis will be added to the bid form for this project.
12.	Spec Section 11375, Paragraph 2.07. Will it be required for both of the two blowers to be operating to meet the design SOR or 610 lbs./hour as stated in paragraph 1.02.A, or will it be required that one of the two blowers be used to meet this requirement?	Specification Section 11375 will be revised to delete the requirement specified in Subpart 1.02 General. See below.
13.	Plan Sheet 02D-15 shows the flow control vault with (2) motor operated 16-inch plug valves. One valve is drawn to have the electric motor operator mounted on a floor stand on top of the vault. The other valve is drawn to have the operator installed directly on top of the valve which ultimately puts the electric motor operating inside the vault. Is the drawing correct as shown or should both operators be installed in consistent manner, either inside or outside of the vault? Please clarify.	Values and operators shall be installed as shown.
14.	Specification 16225 for Electric Valve and Gate Actuators contains a schedule under Part 2.02.R This schedule lists PV-231. I believe this valve to be the 12-inch plug valve shown on plan document 03C-04 in the plug valve vault which is located on the 12-inch force main drain line. P&ID drawing 01Y-03 calls this valve to be 20-inch. Please clarify the size of the valve.	The force main drain line is 12", therefore the plug valve would be a 12-inch. See revised Drawings 01Y-03.
15.	Sheet 00S-01, Item G.4.4., indicates slabs-on-grade are to be underlain by 4" of angular sand and 8" of #57 Stone, (or shot rock). The structural drawing 01S-04 illustrate 6"-12" Compacted Stone Backfill directly beneath the concrete slabs. Please clarify what is intended.	Sheet 00S-01, Item G4.4. References a requirement that covers work that is Not Indicated Otherwise. See revised Drawing 00S-01.



16.	Sheet 01S-05 includes notes stating "#57 Stone down to existing rock elevation @ all slabs and strip footings". However, the section cuts where these notes are used do not depict this condition. (Stone backfill is shown at a depth of 3'-8" beneath the slabs.) Please clarify what is intended.	Slabs require a minimum of 3'-8" stone backfill when not in rock. When in rock slabs require a minimum of 6" to 12" stone backfill. Footers require stone fill down to existing rock elevation. See revised Drawing 01S-05.
17.	Sheet 03A-02, Door and Frame Schedule, Door No. PS-8, the width is indicated as 3'-0". Sheet 01A-01, shows Door No. PS-8 as a 6'-0" wide door. Which is correct?	Door PS-8 width shall be revised to 6'-0". See revised Drawing 03A-02.
18.	Sheet 03A-01, Typical Wall Section, please confirm CMU foam insulation in cores is only required in exterior walls with temperature controlled space on the inside of the wall. No foam fill is required at interior walls or at the generator areas.	Foam fill is required as indicated except the two outside walls at the Generator areas. See revised Drawing 03A-01.
19.	Spec 07175 calls for Water Repellents at exterior masonry, however the split-face block at both buildings have an integral water-repellent admixture (per spec 04200). Please confirm that the 07175 water repellent is not required?	Water repellents are required at all masonry walls per Specification Section 07175.
20.	Specification 13200, Section 1.04A5, states the design shall include all appurtenances to prevent uplift. Is the intent of this statement to call out the pressure relief valves only? Please confirm there are no other appurtenances that this statement may include.	The intent of this specification section is to allow the tank foundation designer to use any means necessary to design a tank foundation that will prevent uplift of the tank including at a minimum 16 PRV's. Other means may include additional PRV's, thicker concrete sections, etc. Uplift shall be based on water level at ground surface and the tank empty.
21.	Sheet 02D-10 shows the 20" odor control piping mounted on the tank dome and calls for light gauge fabricated stainless steel. What scheduled pipe should we assume for weight?	The light gauge fabricated stainless steel pipe shall be Type 304, Schedule 10. See revised Drawing 02D-10.
22.	Is an expansion joint specified to accommodate wall movement on the 16" mixing pump inlet and outlet lines? None are shown on Sheet 02D-09.	Flexible expansion joints are added to the 16" lines into and out of the Wet Weather Storage Tank. See revised Drawing 02D-09.



23.	Specification 13200, Section 1.06C1, calls for a minimum amount of reinforcing steel equal to 0.50% of the gross cross sectional area. However, the bar size and spacing called out in Section 1.06C5 greatly exceeds this amount. Please clarify which specification is required.	Specification Section 13200 is revised to clarify reinforcing steel requirements. See changes made to specifications.
24.	Specification 01750, Section 3.1B2, says the cost of providing water for the testing of concrete structures for water tightness will be paid by the contractor. Please confirm if this specification includes the leak testing of the 5.0 MG Wet Weather Storage Tank?	The cost of providing water for leak testing of the Wet Weather Storage Tank shall be paid by the Contractor per the specifications. See changes made to specification Section 01750.
25.	Section 13200-12, Part 2.11, Coatings" states we are to provide an interior coating system. The industry standard does not require prestressed concrete tanks to be coated on the interior. Will you consider removing this item?	Interior tank coatings were removed in Addendum No.3
26.	Project Drawing 00C-01 illustrates overhead power lines adjacent to the tank site on the west side. Will these power lines be moved or shielded to provide a safe working environment?	The Contractor is responsible for providing a safe working environment. The Contractor shall contact the utility company concerning shielding of power lines if the Contractor deems it necessary per the Safety Plan.
27.	Please clarify the design water depth: Is it 36'-0" as specified in Section 13200-1.06.B of the tank specs and shown in the "Profile" section in Sheets 00C-03 and -04, or 38"-0" as shown in the "Section-Elevation" in Sheet 02D-01 (SWD = 38'-0")?	Drawing 02D-01 is revised to indicate a wall height of 38"-0". See revised Drawing 02D-01.
28.	Can we assume that the reference to Section 1.07B in Section 13200-1.06.C.5 of the tank specs is in error, and that the correct reference is 1.06B?	Specification Section 13200-1.06.C.5 is revised. See changes made to specification.
29.	With respect to the perimeter drain at the base of the wall recommended in Section 8.3 of the August 4 geotechnical report, please advise (a) Is this drain mandatory; (b) What is the required drain diameter; and (c) are there provisions for the collected water to be effectively discharged – either by gravity	<ul style="list-style-type: none"> (a) Drain is mandatory as shown on Drawings 02C-01 and 03C-06. (b) See Drawings 02C-01 and 03C-06. (c) See Drawings 02C-01 and 03C-06



	or by pumping – to a remote low point.	
30.	Please confirm that the note "All Floor Slab in Rock" in the "Section-Elevation of Sheet 02D-01 does not preclude the use of the 12"-thick crushed stone layer between the bedrock and the underside of the tank specified in Note 4 in the same drawing.	The reference is made to indicate that there shall be no soil between rock and the floor slab only the minimum of 12" of No. 2 stone and 4" of No. 57 stone.
31.	Can we assume that 16 floor PRV's specified in Section 13200-1.06.C.5 of the tank specs and in Sheet 02D-01 are adequate to prevent net buoyancy, and that no other criteria (such as a design groundwater or flood elevation) are necessary?	The intent of this specification section and the drawings is to allow the tank foundation designer to use any means necessary to design a tank foundation that will prevent uplift of the tank including at a minimum 16 PRV's. Other means may include additional PRV's, thicker concrete sections, etc. Uplift shall be based on water level at ground surface and the tank empty.
32.	Background: (a) Given that the bottom of excavation around the tank perimeter is 12" below the 15" – thick footing (namely at elevation 986.75'), and (b) assuming temporary excavation slopes of 1.5H:1.V through the existing fill, the top of temporary excavation on the west side of the tank (elevation 1000'+-) will come within 26' to 28' of the toe of the existing 14.5% +- up embankment that leads to the On Ramp (at elevation 1008'+-). "(see Fig.1 attached)" Question: With respect to the existing 14.5%+- up embankment leading to the On Ramp (at elevation 1008'+-), please advise if the stability of this embankment will be adversely affected by the temporary tank excavation the top of which will come with 26' to 28' of the toe of the embankment.	A stability study was not completed for excavations on this project. Contractor will be required to provide excavations that protect existing facilities.
33.	Specification: 11421 Sub Section: 1.03.C. Rake travel speed (feet per minute) Low Speed : 23 ft/min. High Speed: 46 ft/min.	Specification revised accordingly, see addenda.



	<p>Duperon Corporation Comment: Rake travel speed: minimum @ 2.33 ft/min Maximum @ 9.33 ft/min</p>	
<p>34.</p>	<p>Specification: 11421 Sub Section:1.03.D Screenings compactor Number of units: 1 Number of hopper inlets per unit: 1 Screw length, minimum (ft): 30 ft Minimum capacity (cf/hr), total: Maximum 133 ft 3/hr Feed concentration, % dry solids content: 0 - 5% Compactor discharge concentration, % dry solids content: 25 - 30% Minimum screenings volume reduction, %: 35 - 40% Minimum screw diameter, inches: 11 - 1/4" Maximum screw rotational speed, rpm: 15 rpm Duperon Corporation Comment: Washer Compactor w/debris extension: Total 30 ft with 3/4 Hp motor Max capacity @ 30 ft3/ hr Max Screw rotation @ 2.2 rpm dual screw dia. @ 8" discharge concentration: *Dry solid content @ 30-60% *Volume reduction @80%</p>	<p>Specification revised based on comments, not all values have been changed, see addenda.</p>
<p>35.</p>	<p>Specification: 11421 Sub Section:1.06.C.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</p>	<p>No change to this paragraph.</p>



	<p>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.</p> <p>Duperon Corporation Comment: Warranty for material and workmanship is offered and included. Reimbursement for potentially rejected equipment by the Owner is not included.</p>	
<p>36.</p>	<p>Specification: 11421 Sub Section:1.08 The Contractor guarantees and warrants that during the first one year of operation , the mechanical screens and screenings compactors will operate satisfactorily and continuously according to the operating conditions and performance requirements specified herein, and that after due notice has been given by the Owner, he or the equipment 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.</p> <p>Duperon Corporation Comment: One year warranty for standard material and workmanship along with five year warranty on all rotating parts is included.</p>	<p>No change, exact wording of manufacturer warranty and contractor warranty shall be reconciled between them.</p>
<p>37.</p>	<p>Specification: 11421 Sub Section: 2.01.A.4 The unit shall be supported and anchored on the operating floor and rest on the bottom of the channel.</p> <p>Duperon Corporation Comment: The unit shall be supported and anchored on the operating floor and at the bottom of</p>	<p>Specification revised accordingly, see addenda.</p>



	the channel.	
38.	<p>Specification: 11421 Sub Section: 2.01.A.7 The bottom seal shall consist of a neoprene seal to prevent the flow from passing under the screening.</p> <p>Duperon Corporation Comment: The unit is anchored to the channel floor at the toe of the unit to prevent the flow from passing under the screen. The channel bottom plate directs flow into the screen.</p>	Specification revised accordingly, see addenda.
39.	<p>Specification: 11421 Sub Section: 2.01.A.9 Screen enclosure covers which are easily removable shall be provided with handles and turn locks for no tool required access. A 14 gauge. (minimum thickness) #4 brushed satin finish 304 stainless steel enclosure shall be installed to cover the screen above the operating deck level. Front Enclosure shall have continuously hinged stainless steel doors with polycarbonate viewing pane for access to equipment. Removable panels shall be constructed of 304 stainless steel with a minimum thickness of 16 gauge. Alignment notches shall be included to support repositioning of removable panels. Rear Enclosure shall have hinged removable doors and shall be secured with a lift-slide-latch handle. Rear removable door shall include an integral viewing door that shall be secured with a lift-slide-latch handle to provide access for a quick look inside.</p>	Specification revised accordingly, see addenda.
40.	<p>Specification: 11421 Sub Section: 2.01.B.1 Screen bars shall be constructed of 304 stainless steel and be "tear-shaped" with a hydraulic coefficient shape factor of 0.76 and the minimum dimensions of 0.25 inch x 0.75 inch x 0.13 inch.</p> <p>Duperon Corporation Comment:</p>	Specification revised for 316SS, see addenda.



	Screen bars shall be constructed of 316 stainless steel.	
41.	<p>Specification: 11421 Sub Section: 2.01.C.6 Staging Scrapers shall be 1 inch thick x 5 inches x screen width UV Stable U H MW-PE with a serrated edge.</p> <p>Duperon Corporation Comment: Staging Scrapers shall be 1 inch thick x 4 inches x screen width UV Stable U H MW-PE with a serrated edge.</p>	Specification revised accordingly, see addenda.
42.	<p>Specification: 11421 Sub Section: 2.01.D.5 All ball or roller bearings shall be L10 rated and manufactured by a member of the Antifriction Bearing Manufacturer's Association for 100,000 hour life (minimum). At least one bearing on each shaft shall be of the combined radial and thrust type.</p> <p>Duperon Corporation Comment: Bearing shall be greased ball bearing type, non self-aligning, sealed and lubricated and shall have a 24/7/365 L10 life of 20 years when in compliance with stated O&M recommendations. Non-sealed bearings are not acceptable.</p>	Specification revised accordingly, see addenda.
43.	<p>Specification: 11421 Sub Section: 2.01.D.6 The rake mechanism shall be capable of 2 cleaning speeds. Normal (slow) speed shall have between a 10 to 15 second cleaning interval (between rakes) and high (fast) speed shall have between a 5 to 10 second cleaning interval.</p> <p>Duperon Corporation Comment: Screen operates continuously, speed is controlled by set points established by water level differential. Discharge intervals vary from once every minute to once every 15 seconds (or 4 times a minute).</p>	Specification revised accordingly, see addenda.
44.	<p>Specification: 11421 Sub Section: 2.01.E.1-5 1. Speed reducers shall shaft mounted and</p>	Specification revised accordingly, see addenda.



<p>shall be of the cycloidal and spiral bevel gearing type fully enclosed in a weatherproof casing of cast iron or welded steel. Reducers shall have ball or roller bearings throughout with all moving parts immersed in oil. Shafts shall be of high strength alloy steel ground to required tolerances. Bevel gearing shall be in compliance with ANS I/AG MA Standards 2003-A86 and shall be carbonized to a hardness of 58-62 H RC for durability. All ball or roller bearings shall be L10 rated and manufactured by a member of the Antifriction Bearing Manufacturer's Association for 1 00,000 hour life (minimum). At least one bearing on each shaft shall be of the combined radial and thrust type.</p> <p>2. Reducer units shall meet the standards of the American Gear Manufacturers Association for such equipment under moderate shock, 24 hour, Class II service with a service factor of 1.25 (minimum) and an AGMA rating plate showing compliance shall be affixed to each unit. The output capacity of the speed reducer shall be equal to the motor horsepower less reducer losses.</p> <p>3. Speed reducers running on a positive circulation of lubricating oil shall have sight windows for inspection of oil flow. A drain shall be provided in each casing. A sight glass shall be provided such that oil level may be inspected from operator access level. The gearbox shall not be vented to the outside atmosphere.</p> <p>4. All seals shall be double lip, spring- loaded type and made of nitrile rubber.</p> <p>5. Speed reducers and motors requiring coupling shall be coupled by means of approved all metal flexible couplings,</p>	
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	<p>furnished and installed complete with coupling guards, if not otherwise guarded. Duperon Corporation Comment: Speed reducer shall be a double-reduction, cycloidal style and shall comply with all applicable AGMA standards. The speed reducer shall be capable of a 4/1 speed range with variable output speeds between 0.50 to 2.2 output RPMs (in high flow conditions). The speed reducer shall produce an output torque of 11,417 in.lb.and have a gear ratio of 809:1.</p>	
<p>45.</p>	<p>Specification: 11421 Sub Section: 2.02.E.3 Augers shall float mounted in a UHMW thrust and plane bearing arrangement that allows movement for accommodation of irregular debris. Stainless steel fasteners shall be provided to hold the auger support in place. Duperon Corporation Comment: Augers shall float mounted in a Delrin (or equivalent) thrust and plane bearing arrangement that allows movement for accommodation of irregular debris. Stainless steel fasteners shall be provided to hold the auger support in place.</p>	<p>Specification revised accordingly, see addenda.</p>
<p>46.</p>	<p>Specification: 11421 Sub Section: 2.02.I 1. Speed reducers shall be of the helical or bevel gear type fully enclosed in a weatherproof casing of cast iron or welded steel. Reducers shall have ball or roller bearings throughout with all moving parts immersed in oil. Shafts shall be of high strength alloy steel ground to required tolerances. Bevel gearing shall be in compliance with ANS I/AG MA Standards 2003-A86 and shall be carbonized to a hardness of 58-62 H RC for durability. All ball or roller bearings shall be L10 rated and manufactured by a member of the Antifriction Bearing Manufacturer's</p>	<p>Specification revised accordingly, see addenda.</p>



	<p>Association for 100,000 hour life (minimum). At least one bearing on each shaft shall be of the combined radial and thrust type.</p> <p>2. Reducer units shall meet the standards of the American Gear Manufacturers Association for such equipment under moderate shock, 24-hour, Class II service with a service factor of 1.4 (minimum) and an AGMA rating plate showing compliance shall be affixed to each unit. The output capacity of the speed reducer shall be equal to the motor horsepower less reducer losses.</p> <p>3. Speed reducers running on a positive circulation of lubricating oil shall have sight windows for inspection of oil flow. A drain shall be provided in each casing. A sight glass shall be provided such that oil level may be inspected from operator access level.</p> <p>4. Speed reducers and motors requiring coupling shall be coupled by means of approved all-metal flexible couplings, furnished and installed complete with coupling guards, if not otherwise guarded.</p> <p>Duperon Corporation Comment: Speed Reducer: Shall have a maximum output of 2.2 RPM, 809:1 reduction ratio with 18,900 in-lb. of output torque.</p> <p>i. Thrust Bearings: Shall be Delrin (or equivalent), self-lubricating and be capable of withstanding minimum 2000 Lb. of thrust load (each auger) at 2.2 RPM for life of machine.</p> <p>j. Screw supports: Shall be UHMW plane type, self-lubricating and fastened into place using stainless steel fasteners.</p> <p>k. Spur Gears: Shall be 17-4 PH stainless steel.</p>	
<p>47.</p>	<p>Specification: 11421 Sub Section: 2.02.J.2 2. Zero Speed Switch a. Provide non-contacting, proximity-type</p>	<p>Specification revised to replace zero speed switch, see addenda.</p>



	<p>speed switch on the screw press to detect zero speed condition. The zero speed switch shall consist of a sensor with internally mounted pre-amplifier Duperon Corporation Comment: Duperon doesn't use a zero speed switch and there is no place to mount one. Machine will fault out from settings in the VFD.</p>	
<p>48.</p>	<p>Specification: 11421 Sub Section: 2.03.C C. Electrical Requirements: Motors Screen Screenings Compactor VFD Rating Horsepower, Max Speed, rpm Enclosure Insulation Inverter Duty Service Factor Space Heater Motor Winding Temperature Switch 2.04 VARIABLE FREQUENCY DRIVES Yes 460V, 3ph, 60 Hz 5 1800 TEFC-XP Class H Yes 1.0 No No No 460V, 3ph, 60 Hz 5 1800 TEFC-XP Class H No 1.15 No</p>	<p>Specification revised accordingly, see addenda.</p>



	<p>No Duperon Corporation Comment: Compactor will be controlled with a VFD and the motor will be inverter duty. Both motors for the screen and compactor will have a temperature switch in the motor per NEMA 7 requirement.</p>	
<p>49.</p>	<p>Specification: 11421 Sub Section: 2.05.A 2.05 CONTROL PANELS A. Each screen and each compactor shall be provided with a separate Local Control Station (LCS) located at the equipment. Controls for each LCS shall include the following features: 1. NEMA 7 rating suitable for a Class I, Division 1 hazardous location. 2. Screen LCS shall have FORWARD and JOG-REVERSE pushbuttons and a maintained type mushroom-head emergency stop button. 3. Compactor LCS shall have RUN and JOG-REVERSE pushbuttons and a maintained type mushroom-head emergency stop button 4. In addition each compactor shall have a remote Emergency Stop Station (LLCS). Duperon Corporation Comment: On plan drawing 01Y-02 is calls for a local station with an HOR and FOR switch. Two stations will be provided one for the screen and one for the compactor and will contain an HOR, FOR and Estop.</p>	<p>Specification revised accordingly, see addenda.</p>
<p>50.</p>	<p>Specification: 11421 Sub Section: 2.05.G.5.c Upon detection of a jam, by high motor current, the screen shall attempt to dislodge the item by alternating and reversing the motor a preset period of time before stopping and alarming. Upon overload the screen shall alarm and shutdown Duperon Corporation Comment: Machine doesn't auto reverse but instead flexes around large debris.</p>	<p>Specification revised accordingly, see addenda.</p>



<p>51.</p>	<p>Specification: 11421 Sub Section: 2.05.H.3.b b. Wash cycle: 1) Wash water supply is activated: O N/OFF mode with adjustable timers for each operational condition 2) Drive runs forward also controlled by timers with adjustable O N/OFF sequence 3) Wash cycle is followed by discharge cycle: screw is running forward for an adjustable time 4) Pan wash is activated 5) Wash cycle finished Duperon Corporation Comment: There is only one spray wash on the compactor and it will run when the machine is running.</p>	<p>Specification revised accordingly, see addenda.</p>
<p>52.</p>	<p>Specification: 16446 Sub Section: 2.03 2.03 DESIGN A. Hardware: The drive hardware shall employ the following power components: 1. Diode or fully gated bridge on the input. 2. DC bus inductor on all ratings 5.5kW (7.5 HP) or greater. 3. Switching logic power supply operating from the DC bus. 4. Phase to phase and phase to ground MOV protection. Duperon Corporation Comment: The small horse power drives provided with the screen equipment might not contain all of these design parameters.</p>	<p>This paragraph notes items that apply for all VFDs and those that only apply for larger units. Without specific details on the design parameters that might not be met by smaller VFDs, a more specific response is not possible.</p>
<p>53.</p>	<p>Specification: 17311 Sub Section: 2.07 PLC SOFTWARE A. Provide a PLC configuration and application development software package complete with documentation and disks. The PLC software package and associated licensing and/or activation shall be installed on the computers shown on the drawings. B. The software package shall allow on-line/off-line program development,</p>	<p>Contractor is responsible for distribution of scope of supply between subcontractors and suppliers.</p>



	<p>annotation monitoring, debugging, uploading, and downloading of programs to the PLCs.</p> <p>C. All required hardware (including cables, cable adapters, etc.) for connection to PLCs shall be furnished.</p> <p>D. All software licenses required to achieve the functionality described in the Specifications shall be provided.</p> <p>E. The software package shall include a software license agreement allowing the Owner the right to use the software as required for any current</p> <p>Duperon Corporation Comment: Software will not be provided with this package as the integrator has the latest version and it required to talk to this PLC.</p>	
54.	Are EPA MWDBE forms with bid forms?	No, but the attached Lexington-Fayette Urban County MWDBE forms shall be submitted.

2. CLARIFICATIONS

- A. Construction is scheduled to be completed by December 31, 2018. This is revised from Addendum #2.

3. DRAWINGS

- A. Sheet 00G-05, Project Specific Notes, shall add revisions and updates to the **SWPPP/Erosion and Sediment Control Revisions**, to Specification Sections 02371 and 02372. See Attached.
- B. Sheet 03C-05, Standard Details, Pressure Gauge Mounting Detail is revised. See Attached.
- C. Sheet 01D-01, Pump Station Upper Floor Plan, **Key Note 24**. shall be revised to require FRP versus PVC ductwork. See Attached.
- D. Sheet 01D-02, Pump Station Upper Floor Plan, **Key Notes 4, 5, and 6** shall be revised to require FRP versus PVC ductwork. See Attached.
- E. Sheet 01D-03, Pump Station Upper Floor Plan, **Key Note 7**. shall be revised to require FRP versus PVC ductwork. See Attached.



- F. Sheet 01D-04, Pump Station Upper Floor Plan, **Key Note 14**. shall be revised to require FRP versus PVC ductwork. See Attached.
- G. Sheet 02D-01, Storage Tank Sections and Detail, **Section-Elevation** shall be revised to indicate a 38'-0" wall height. Notes 6. and 7. are added to the Typical Wall Section notes. See Attached.
- H. Sheet 02D-09, Storage Tank Details, **Section 1 Mixing Pump Inlet Piping and Section 2 Mixing Pump Outlet Piping** has been revised to include flexible expansion joints. See Attached.
- I. Sheet 02D-10, Storage Tank Details, **Section 2 Odor Control Piping** shall be revised to include the 20" Odor Control Piping light gauge fabricated stainless steel type and wall thickness. See Attached.
- J. Sheet 02D-15, Flow Control and Chemical Feed Vaults Plan and Sections, **Key Notes 6**. shall be revised to indicate that the valve is a plug valve. See Attached.
- K. Sheet 00S-01, Pump Station / Storage Tank Structural General Notes, Article G4.4. shall be revised to include "Unless Shown Otherwise". See Attached.
- L. Sheet 01S-05, Pump Station Overall Sections, **Section 1 and 2** shall be revised as shown. See Attached.
- M. Sheet 03A-01, **Building Sections and Details** shall be revised. See Attached.
- N. Sheet 03A-02, **Building Details and Schedules** shall revised Door PS-8 to 6'-0" wide. See Attached.
- O. Sheet 02E-07, Storage Tank Power Plan, **Wet Weather Storage Tank Power Plan** shall be revised to provide for a redundant pressure transducer system at the Wet Weather Storage Tank with controls displayed in the electrical control room. See Attached.
- P. Sheet 02E-08, Pump Station Upper Floor Plan – Power, **Upper Level Power Plan** shall be revised to provide for a redundant pressure transducer system at the Diversion Structure with controls displayed in the electrical control room. See Attached.
- Q. Sheet 01Y-01, Pump Station Diversion Box P&ID, **Diversion Box** shall be revised to provide for a redundant pressure transducer system at the Diversion Structure with controls displayed in the electrical control room. See Attached.
- R. Sheet 01Y-03, Pump Station P&ID, **Wet Weather Pump Station** shall be revised to indicate a 12" force main plug valve (PV-231). See Attached.
- S. Sheet 02Y-01, Storage Tank Modulating Structure P&ID, **Wet Weather Storage Tank** shall be revised to provide for a redundant pressure transducer system at the Wet Weather Storage Tank with controls displayed in the electrical control room. See Attached.



4. SPECIFICATIONS

A. Section 00410, Bid Form, **West Hickman 7 WWS (Contract No.2) Equipment Manufacturer (Circle One) – Bid Basis** page 00410-32 shall be revised by adding Fairbanks Nijhuis to Solids Handling Submersible & Dry Pit Pumps, deleting Continental Carbon Group and adding Other (List) to Odor Control Chemical Feed System. Attached is revised page 00410-32.

B. Section 01210, Allowances, Part 1 – General, **Subpart 1.06 Defined Allowances, Paragraph A.** shall be deleted and replaced as follows:

“A. Defined allowances shall include cost to Contractor of specific projects and materials ordered by LFUCG 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.”

C. Section 1210, Allowances, Part 1 – General, **Subpart 1.07 Undefined Allowances, Paragraph A.** shall be deleted and replaced as follows:

“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.”

D. Section 01750, Testing Concrete Structures for Watertightness, Part 3 – Execution, **Subpart 3.2 Testing for Leakage, Paragraph A.2.** shall be added as follows:

“2. Watertightness testing for concrete structures shall be completed on the Diversion Structure, Wet Weather Screen Channels and Wet Well to Elevation 978.0, and on the Wet Weather Storage Tank to Elevation 1024.5.”

E. Section 02515, **Valves** shall be deleted in its entirety and replaced. See Attached.

F. Section 11310, Solids Handling Submersible Sewage Pumps, Part 1 – General, **Subpart 1.03 Manufacturer, Paragraph A.** shall be deleted and replaced as follows:

“A. The pumping units shall be provided by a single manufacturer with a minimum of five (5) year’s experience in designing and manufacturing pumping equipment of similar type, size



and capacity. The pumps shall be manufactured by the Xylem Corporation Flygt Division, Sulzer-ABS, KSB, Fairbanks Nijhuis, or approved equal."

- G. Section 11310, Solids Handling Submersible Sewage Pumps, Part 2 – Products, Subpart 2.02 Pumping Requirements shall be deleted and replaced as follows:

"A. Pumps shall be N-series as manufactured by Xylem Corporation, Flygt Division, Model NP3301.090-MT3-636 (Wet Weather Pumps) based on the following system curve:

Location	No. of Pumps	Shut-off Head (Min) (Ft)	System Point #1		System Point #2		System Point #3		Max. Speed (RPM)	Motor HP/Max Each Pump
			Total Flow (GPM)	Head (Ft)	Total Flow (GPM)	Head (Ft)	Total Flow (GPM)	Head (Ft)		
Wet Weather Pumps	4	118	0	61	3,500	69	5,905 ¹	78	1185	70
Mixing Pumps	3	65	2,200 ²	8	---	---	4,440 ³	32	1185	60

Notes: ¹ Based on 3 pumps operating in parallel. ² Based on 1 pump operating at a reduced speed. ³ Based on 1 pump operating at full speed.

- A. Power supply shall be 460 volts, 3-Phase, 60 Hz, 4 wire service.
 - B. Motors shall be 460 volt, 3 phase, 60 Hz.
 - C. Each pump shall be operated by VFD – see Specifications Division 16
 - D. Maximum allowable NPSHr at Design Point Number 3 is 23.
 - 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.
 - F. Mixing Pumps are to be dry pit submersible."
- H. Section 11375, Jet Aeration Header System, Part 1 – General, **Subpart 1.02 General** shall be deleted in its entirety.
 - I. Section 11420, **Mechanical Screens and Screenings Compactors** shall be deleted in its entirety and replaced. See Attached.



- J. Section 11421, **Mechanical Screens and Screenings Compactors Duperon** shall be deleted in its entirety and replaced. See Attached.
- K. Section 13200, **Prestressed Concrete Storage Tank, Part 1 – General, Subpart 1.06 Design Criteria, Subpart C.5** first sentence shall be revised to reference Section 1.06B.
- L. Section 13200, **Prestressed Concrete Storage Tank, Part 1 – General, Subpart 1.06 Design Criteria, Subpart C.5.b. and c.** shall be revised as follows:

“b. Minimum top reinforcing steel: #5 at 7” c/c, each way
c. Minimum bottom reinforcing steel: Not required”

- M. Section 14301, **Monorails and Trolleys, Part 3 – Execution, Subpart 3.03 Schedule** shall be deleted and replaced as follows:

“A. Hoist, trolley, and monorail systems include but are not necessarily limited to the following:

TAG NUMBER	LOADING (TONS)	HOIST	TROLLEY	HOOK HEIGHT (FT)*	LIFTING HEIGHT (FT)*	HP	OPERATING SPEED FPM
	2	1 Motor (WR)	Motor Driven	See Drawings	36.0	4/0.59	20

* Distances listed are approximate as they will vary depending on hoist and trolley selection.

C = Chain
HG = Hand Geared
WR = Wire Rope
NA = Not Applicable”

- N. Section 16225, **Electric Valve and Gate Actuators, Part 2 – Products, Subpart 2.02 Actuator Construction, Paragraph R. Schedule Tag No.’s SLG-203 and SLG-301 WW #2 Sluice Gate and Final Sluice Gate, respectively,** shall be eliminated from the specification.



O. Section 17311, PLC Hardware and Software, Part 2 – Products, Subpart 2.08 Operator Interface Terminals (OIT), Paragraph B.1.a. shall be revised as follows:

“a. Allen-Bradley Panel View Plus 6 series, 1500 model”

P. Section 17480, Instrument Lists and Report, Part 1 – General, Subpart 1.04 Instrument Schedule shall be revised as follows:

“1.04 INSTRUMENT SCHEDULE

Primary Element	Location	Tag	Loop Description	Comments
Submersible Level	Diversion Structure ¹	LE/LIT-101	Diversion Box Level	0 – 8'
Level Sensor	Mechanical Bar Screen	LIT-111A	Channel Influent Level Transmitter	By Mfr
Level Sensor	Mechanical Bar Screen	LIT-111B	Channel Effluent Level Transmitter	By Mfr
Level Sensor	Manual Bar Screen	LIT-112A	Channel Influent Level Transmitter	By Mfr
Level Sensor	Manual Bar Screen	LIT-112B	Channel Effluent Level Monitor	By Mfr
Float Switch	Wet Well	LSL-202	Wet Well Low Level	Elev. 965.0
Float Switch	Wet Well	LSH-202	Wet Well High Level	Elev. 974.0
Float Switch	Wet Well	LSHH-202	Wet Well High High Level	Elev. 976.0
Level Sensor	Wet Well	LT-201	Wet Well Level	0 – 20'
Float Switch	Vault Vault	LSH-203	Valve Vault High Level	Elev. 971.0
Float Switch	Wet Well	LSL-210	Wet Well Sump Low Level	Elev. 956.0
Level Sensor	Storage Tank ¹	LE/LIT-401	Storage Tank Level	0 – 35'
Float Switch	Storage Tank	LSH-402	Storage Tank High Level	Elev. 1023.0
Float Switch	Storage Tank	LSHH-402	Storage Tank High High Level	Elev. 1025.0
Float Switch	Modulating Structure	LSL-410	Sump Low Level	By Mfr
Float Switch	Modulating Structure	LSH-410	Sump High Level	By Mfr
Float Switch	Modulating Structure	LSHH-410	Sump High High Level	By Mfr
Level Sensor	Bioxide Tank #1	LE/LIT-610	Tank Level	0 – 10'
Level Sensor	Bioxide Tank #2	LE/LIT-620	Tank Level	0 – 10'
Float Switch	Bioxide Containment	LS-600	Flood Level	Elev. 998.0
Float Switch	Mixing PS Sump Pump	LSL-930	Mixing PS Sump Low Level	Elev. 982.0
Float Switch	Mixing PS Sump Pump	LSH-930	Mixing PS Sump High Level	Elev. 985.0
Float Switch	Mixing PS Sump Pump	LSHH-930	Mixing PS High High Level	Elev. 990.0
Flow Switch	Shower/Eyewash	FS-640	Shower/Eyewash	



			Flow Switch	
Temperature Switch	PS Electrical Room	TE/TSH-131	High Temp Alarm	
Temperature Switch	Tank Electrical Room	TE/TSH-431	High Temp Alarm	
Pressure Switch	PS Odor Control	PSL-501	Fan Suction Low Pres SW	By Mfr
Pressure Switch	PS Odor Control	PSH-502	Fan Discharge Pres SW	By Mfr
Pressure Transmitter	PS Odor Control	PT-503	Fan Discharge Pres Transmitter	By Mfr
Pressure Switch	Tank Odor Control	PSL-511	Fan Suction Low Pres SW	By Mfr
Pressure Switch	Tank Odor Control	PSH-512	Fan Discharge High Pres SW	By Mfr
Pressure Transmitter	Tank Odor Control	PT-513	Fan Discharge Pres Transmitter	By Mfr
Pressure Transmitter	ST Discharge Pipe	PIT-411	Tank Level	0 - 35'
Smoke Detector	Screen Room	SD-121	Smoke Alarm	
Smoke Detector	Screen Room	SD-122	Smoke Alarm	
Gas Detector	PS Electrical Room	AIT-201	Common Gas Alarm	
Gas Sensors	PS Screen Room	AS-141A,B,C	LEL, H2S, O2	
Gas Sensors	Pump Wet Well	AS-221A,B,C	LEL, H2S, O2	
Gas Sensors	PS Valve Vault	AS-222A,B,C	LEL, H2S, O2	
Gas Sensors	PS Odor Control Room	AS-510A, B, C	LEL, H2S, O2	
Gas Sensors	Loadout Area	AS-142A, B, C	LEL, H2S, O2	
Gas Detector	Storage Tank Odor Control Room	AIT-561	Common Gas Alarm	
Gas Sensors	Storage Tank Odor Control Room	AS-561A, B, C	LEL, H2S, O2	
Gas Detector	Mixing Pump Station	AIT-901	Common Gas Alarm	
Gas Sensors	Mixing Pump Station	AS-901A,B,C	LEL, H2S, O2	

Note: A second redundant unit is required at the Diversion Structure and Storage Tank."

Q. Section 17480, Instrument Lists and Report, Part 1 – General, Subpart 1.05 Input/Output Schedule shall be revised as follows:

"1.05 INPUT/OUTPUT SCHEDULE

TAG	DESCRIPTION	TYPE	RTU	MODULE	CHANNEL
LIR-101	DIVERSION BOX LEVEL ¹	AI	PS	1	0
ZI-101	DIVERSION BOX WEIR GATE POSITION FEEDBACK ¹	AI	PS	1	1
ZI-102	DIVERSION BOX SLIDE GATE POSITION FEEDBACK	AI	PS	1	2
ZI-110	MECHANICAL SCREEN INFL GATE POSITION FEEDBACK	AI	PS	1	3
ZI-111	MECHANICAL SCREEN EFFL GATE POSITION FEEDBACK	AI	PS	2	0
ZI-112	MANUAL SCREEN INFL GATE POSITION FEEDBACK	AI	PS	2	1



ZI-113	MANUAL SCREEN EFFL GATE POSITION FEEDBACK	AI	PS	2	2
LIR-111A	MECHANICAL BAR SCREEN BS-110 INFL LEVEL	AI	PS	2	3
LIR-111B	MECHANICAL BAR SCREEN BS-110 EFFL LEVEL	AI	PS	3	0
LIR-112A	MANUAL BAR SCREEN BS-112 INFL LEVEL	AI	PS	3	1
LIR-112B	MANUAL BAR SCREEN BS-112 EFFL LEVEL	AI	PS	3	2
	SPARE	AI	PS	3	3
SI-201	WW PUMP NO. 1 P-201 SPEED FEEDBACK	AI	PS	4	0
SI-202	WW PUMP NO. 2 P-202 SPEED FEEDBACK	AI	PS	4	1
SI-203	WW PUMP NO. 3 P-203 SPEED FEEDBACK	AI	PS	4	2
SI-204	WW PUMP NO. 4 P-204 SPEED FEEDBACK	AI	PS	4	3
LIR-201	WET WELL LEVEL	AI	PS	5	1
	SPARE	AI	PS	5	0
	SPARE	AI	PS	5	2
	SPARE	AI	PS	5	3
ZC-101	DIVERSION BOX WEIR GATE WG-101 POSITION COMMAND ¹	AO	PS	6	0
ZC-102	DIVERSION BOX SLIDE GATE SG-102 POSITION COMMAND	AO	PS	6	1
	SPARE	AO	PS	6	2
	SPARE	AO	PS	6	3
ZC-110	MECHANICAL SCREEN INFL GATE POSITION COMMAND	AO	PS	7	0
ZC-111	MECHANICAL SCREEN EFFL GATE POSITION COMMAND	AO	PS	7	1
ZC-112	MANUAL SCREEN INFL GATE POSITION COMMAND	AO	PS	7	2
ZC-113	MANUAL SCREEN EFFL GATE POSITION COMMAND	AO	PS	7	3
SC-201	WW PUMP NO. 1 P-201 SPEED CONTROL	AO	PS	8	0
SC-202	WW PUMP NO. 2 P-202 SPEED CONTROL	AO	PS	8	1
SC-203	WW PUMP NO. 3 P-203 SPEED CONTROL	AO	PS	8	2
SC-204	WW PUMP NO. 4 P-204 SPEED CONTROL	AO	PS	8	3
YR-101	WEIR GATE SG-101 IN REMOTE ¹	DI	PS	9	0
XA-101	WEIR GATE SG-101 ALARM ¹	DI	PS	9	1
ZSO-101	WEIR GATE SG-101 OPEN POSITION ¹	DI	PS	9	2
ZSC-101	WEIR GATE SG-101 CLOSED POSITION ¹	DI	PS	9	3
YR-102	SLIDE GATE SG-102 IN REMOTE	DI	PS	9	4
XA-102	SLIDE GATE SG-102 ALARM	DI	PS	9	5



ZSO-102	SLIDE GATE SG-102 OPEN POSITION	DI	PS	9	6
ZSC-102	SLIDE GATE SG-102 CLOSED POSITION	DI	PS	9	7
YR-110	SLIDE GATE SG-110 IN REMOTE	DI	PS	9	8
XA-110	SLIDE GATE SG-110 ALARM	DI	PS	9	9
ZSO-110	SLIDE GATE SG-110 OPEN POSITION	DI	PS	9	10
ZSC-110	SLIDE GATE SG-110 CLOSED POSITION	DI	PS	9	11
YR-111	SLIDE GATE SG-111 IN REMOTE	DI	PS	9	12
XA-111	SLIDE GATE SG-111 ALARM	DI	PS	9	13
ZSO-111	SLIDE GATE SG-111 OPEN POSITION	DI	PS	9	14
ZSC-111	SLIDE GATE SG-111 CLOSED POSITION	DI	PS	9	15
YR-112	SLIDE GATE SG-112 IN REMOTE	DI	PS	10	0
XA-112	SLIDE GATE SG-112 ALARM	DI	PS	10	1
ZSO-112	SLIDE GATE SG-112 OPEN POSITION	DI	PS	10	2
ZSC-112	SLIDE GATE SG-112 CLOSED POSITION	DI	PS	10	3
YR-113	SLIDE GATE SG-113 IN REMOTE	DI	PS	10	4
XA-113	SLIDE GATE SG-113 ALARM	DI	PS	10	5
ZSO-113	SLIDE GATE SG-113 OPEN POSITION	DI	PS	10	6
ZSC-113	SLIDE GATE SG-113 CLOSED POSITION	DI	PS	10	7
YID-110A	MECHANICAL BAR SCREEN IN AUTO	DI	PS	10	8
YID-110B	MECHANICAL BAR SCREEN RUN STATUS	DI	PS	10	9
XA-110	MECHANICAL BAR SCREEN FAULT	DI	PS	10	10
YID-120A	COMPACTOR IN AUTO	DI	PS	10	11
YID-120B	COMPACTOR RUN STATUS	DI	PS	10	12
XA-120	COMPACTOR FAULT	DI	PS	10	13
	SPARE	DI	PS	10	14
	SPARE	DI	PS	10	15



YID-201A	WW PUMP NO. 1 P-201 RUN STATUS	DI	PS	11	0
YID-201B	WW PUMP NO. 1 P-201 IN HAND	DI	PS	11	1
YID-201C	WW PUMP NO. 1 P-201 VFD/PLC SELECTOR SW STATUS	DI	PS	11	2
XA-201	WW PUMP NO. 1 P-201 COMMON ALARM	DI	PS	11	3
YID-202A	WW PUMP NO. 2 P-202 RUN STATUS	DI	PS	11	4
YID-202B	WW PUMP NO. 2 P-202 IN HAND	DI	PS	11	5
YID-202C	WW PUMP NO. 2 P-202 VFD/PLC SELECTOR SW STATUS	DI	PS	11	6
XA-202	WW PUMP NO. 2 P-202 COMMON ALARM	DI	PS	11	7
YID-203A	WW PUMP NO. 3 P-203 RUN STATUS	DI	PS	11	8
YID-203B	WW PUMP NO. 3 P-203 IN HAND	DI	PS	11	9
YID-203C	WW PUMP NO. 3 P-203 VFD/PLC SELECTOR SW STATUS	DI	PS	11	10
XA-203	WW PUMP NO. 3 P-203 COMMON ALARM	DI	PS	11	11
YID-204A	WW PUMP NO. 4 P-204 RUN STATUS	DI	PS	11	12
YID-204B	WW PUMP NO. 4 P-204 IN HAND	DI	PS	11	13
YID-204C	WW PUMP NO. 4 P-204 VFD/PLC SELECTOR SW STATUS	DI	PS	11	14
XA-204	WW PUMP NO. 4 P-204 COMMON ALARM	DI	PS	11	15
YID-251	WW SUMP PUMP NO. 1 SP-251 RUN STATUS	DI	PS	12	0
YID-252	WW SUMP PUMP NO. 1 SP-251 IN REMOTE	DI	PS	12	1
XA-251	WW SUMP PUMP NO. 1 SP-251 ALARM	DI	PS	12	2
YID-261	WW SUMP PUMP NO. 2 SP-261 RUN STATUS	DI	PS	12	3
YID-262	WW SUMP PUMP NO. 2 SP-261 IN REMOTE	DI	PS	12	4
XA-261	WW SUMP PUMP NO. 2 SP-261 ALARM	DI	PS	12	5
LAL-210	WW SUMP PIT LOW LEVEL ALARM	DI	PS	12	6



ZSO-231	WW PLUG VALVE PV-231 OPEN POSITION	DI	PS	12	7
ZSC-231	WW PLUG VALVE PV-231 CLOSED POSITION	DI	PS	12	8
YID-500	WW ODOR CONTROL FAN B-500 RUN STATUS	DI	PS	12	9
XA-500	WW ODOR CONTROL FAN B-500 RUN OVERLOAD	DI	PS	12	10
AAH-142	PUMP STATION LOADOUT ROOM GAS ALARM	DI	PS	12	11
AAH-510	PUMP STATION ODOR CONTROL ROOM GAS ALARM	DI	PS	12	12
AAH-222	PUMP STATION VALVE VAULT GAS ALARM	DI	PS	12	13
AAH-221	PUMP STATION WET WELL GAS ALARM	DI	PS	12	14
AAH-141	PUMP STATION SCREEN ROOM GAS ALARM	DI	PS	12	15
SDA-123	PUMP STATION SCREEN ROOM SMOKE ALARM	DI	PS	13	0
LAL-202	PUMP STATION WET WELL LOW LEVEL ALARM	DI	PS	13	1
LAH-202	PUMP STATION WET WELL HIGH LEVEL ALARM	DI	PS	13	2
LAHH-202	PUMP STATION WET WELL HIGH HIGH LEVEL ALARM	DI	PS	13	3
LAH-203	PUMP STATION VALVE VAULT HIGH LEVEL ALARM	DI	PS	13	4
YI-701	PUMP STATION GENERATOR IN AUTO	DI	PS	13	5
YA-701	PUMP STATION GENERATOR PRE-SHUTDOWN ALARM	DI	PS	13	6
YR-701	PUMP STATION GENERATOR RUN STATUS	DI	PS	13	7
XA-701	PUMP STATION GENERATOR SHUTDOWN ALARM	DI	PS	13	8
LAL-701	PUMP STATION GENERATOR LOW FUEL ALARM	DI	PS	13	9
ZI-702A	PUMP STATION ATS IN NORMAL POSITION	DI	PS	13	10
ZI-702B	PUMP STATION ATS IN EMERGENCY POSITION	DI	PS	13	11
TAH-131	PUMP STATION ELECTRICAL ROOM HIGH TEMP ALARM	DI	PS	13	12
	SPARE	DI	PS	13	13
	SPARE	DI	PS	13	14



	SPARE	DI	PS	13	15
	SPARE	DI	PS	14	0
	SPARE	DI	PS	14	1
	SPARE	DI	PS	14	2
	SPARE	DI	PS	14	3
	SPARE	DI	PS	14	4
	SPARE	DI	PS	14	5
	SPARE	DI	PS	14	6
	SPARE	DI	PS	14	7
	SPARE	DI	PS	14	8
	SPARE	DI	PS	14	9
	SPARE	DI	PS	14	10
	SPARE	DI	PS	14	11
	SPARE	DI	PS	14	12
	SPARE	DI	PS	14	13
	SPARE	DI	PS	14	14
	SPARE	DI	PS	14	15
MC-110	MECHANICAL BAR SCREEN ENABLE COMMAND	DO	PS	15	0
HS-201	PUMP NO. 1 P-201 RUN COMMAND	DO	PS	15	1
HS-202	PUMP NO. 2 P-202 RUN COMMAND	DO	PS	15	2
HS-203	PUMP NO. 3 P-203 RUN COMMAND	DO	PS	15	3
HS-204	PUMP NO. 4 P-204 RUN COMMAND	DO	PS	15	4
HS-251	WET WELL NO. 1 SUMP PUMP RUN COMMAND	DO	PS	15	5
HS-261	WET WELL NO. 2 SUMP PUMP RUN COMMAND	DO	PS	15	6
MCO-231	PLUG VALVE PV-231 OPEN COMMAND	DO	PS	15	7
MCC-231	PLUG VALVE PV-231 CLOSE COMMAND	DO	PS	15	8
	SPARE	DO	PS	15	9
	SPARE	DO	PS	15	10
	SPARE	DO	PS	15	11
	SPARE	DO	PS	15	12
	SPARE	DO	PS	15	13
	SPARE	DO	PS	15	14
	SPARE	DO	PS	15	15
LI-401	WW STORAGE TANK LEVEL ¹	AI	ST	1	0
ZI-421	WWST DISCHARGE VALVE MCV-421 POSITION FEEDBACK	AI	ST	1	1
LI-610	WWST BIOXIDE STORAGE TANK NO. 1 T-610 LEVEL	AI	ST	1	2



LI-620	WWST BIOXIDE STORAGE TANK NO. 2 T-620 LEVEL	AI	ST	1	3
SI-801	WWST BLOWER NO. 1 B-801 SPEED FEEDBACK	AI	ST	2	0
SI-811	WWST BLOWER NO. 2 B-811 SPEED FEEDBACK	AI	ST	2	1
SI-901	WWST MIXING PUMP NO. 1 M-901 SPEED FEEDBACK	AI	ST	2	2
SI-911	WWST MIXING PUMP NO. 2 M-911 SPEED FEEDBACK	AI	ST	2	3
SI-921	WWST MIXING PUMP NO. 3 M-921 SPEED FEEDBACK	AI	ST	3	0
LI-411	WT STORAGE TANK LEVEL (SECONDARY)	AI	ST	3	1
	SPARE	AI	ST	3	2
	SPARE	AI	ST	3	3
ZC-421	WWST DISCHARGE VALVE MCV-421 POSITION COMMAND	AO	ST	4	0
SC-901	WWST MIXING PUMP NO. 1 M-901 SPEED COMMAND	AO	ST	4	1
SC-911	WWST MIXING PUMP NO. 2 M-911 SPEED COMMAND	AO	ST	4	2
SC-921	WWST MIXING PUMP NO. 3 M-921 SPEED COMMAND	AO	ST	4	3
SC-801	WWST BLOWER NO. 1 B-801 SPEED COMMAND	AO	ST	5	0
SC-811	WWST BLOWER NO. 2 B-811 SPEED COMMAND	AO	ST	5	1
	SPARE	AO	ST	5	2
	SPARE	AO	ST	5	3
LAH-402	WW STORAGE TANK HIGH LEVEL ALARM	DI	ST	6	0
LAHH-402	WW STORAGE TANK HIGH HIGH LEVEL ALARM	DI	ST	6	1
YR-421	WWST DISCHARGE VALVE MCV-421 IN REMOTE	DI	ST	6	2
XA-421	WWST DISCHARGE VALVE MCV-421 ALARM	DI	ST	6	3
ZSO-421	WWST DISCHARGE VALVE MCV-421 OPEN POSITION	DI	ST	6	4
ZSC-421	WWST DISCHARGE VALVE MCV-421 CLOSED POSITION	DI	ST	6	5
XA-410	WWST FLOW CONTROL VAULT SUMP PUMP ALARM	DI	ST	6	6
LAHH-410	WWST FLOW CONTROL VAULT SUMP HIGH LEVEL ALARM	DI	ST	6	7
TAH-431	WWST ELECTRICAL ROOM HIGH TEMP ALARM	DI	ST	6	8
ZSO-422	WWST PLUG VALVE PV-422 OPEN POSITION	DI	ST	6	9
ZSC-422	WWST PLUG VALVE PV-422 CLOSED POSITION	DI	ST	6	10
XA-630	WWST CHEMICAL FEED SYSTEM ALARM	DI	ST	6	11
XA-640	WWST SHOWER/EYEWASH FLOW ALARM	DI	ST	6	12
YID-	WWST ODOR CONTROL FAN B-510 RUN STATUS	DI	ST	6	13



510					
XA-510	WWST ODOR CONTROL FAN B-510 RUN OVERLOAD	DI	ST	6	14
YA-710	WWST GENERATOR PRE-SHUTDOWN ALARM	DI	ST	6	15
YR-710	WWST GENERATOR RUN STATUS	DI	ST	7	0
XA-710	WWST GENERATOR SHUTDOWN ALARM	DI	ST	7	1
LAL-710	WWST GENERATOR LOW FUEL ALARM	DI	ST	7	2
ZI-711A	WWST ATS IN NORMAL POSITION	DI	ST	7	3
ZI-711B	WWST ATS IN EMERGENCY POSITION	DI	ST	7	4
YID-801A	WWST BLOWER NO. 1 B-801 RUN STATUS	DI	ST	7	5
YID-801B	WWST BLOWER NO. 1 B-801 IN REMOTE	DI	ST	7	6
YID-801C	WWST BLOWER NO. 1 B-801 VFD/PLC SEL SW STATUS	DI	ST	7	7
XA-801	WWST BLOWER NO. 1 B-801 ALARM	DI	ST	7	8
YID-811A	WWST BLOWER NO. 2 B-811 RUN STATUS	DI	ST	7	9
YID-811B	WWST BLOWER NO. 2 B-811 IN REMOTE	DI	ST	7	10
YID-811C	WWST BLOWER NO. 2 B-811 VFD/PLC SEL SW STATUS	DI	ST	7	11
XA-811	WWST BLOWER NO. 2 B-811 ALARM	DI	ST	7	12
	SPARE	DI	ST	7	13
	SPARE	DI	ST	7	14
	SPARE	DI	ST	7	15
YID-901A	WWST MIXING PUMP NO. 1 M-901 RUN STATUS	DI	ST	8	0
YID-901B	WWST MIXING PUMP NO. 1 M-901 IN REMOTE	DI	ST	8	1
YID-901C	WWST MIXING PUMP NO. 1 M-901 VFD/PLC SEL SW STATUS	DI	ST	8	2
XA-901	WWST MIXING PUMP NO. 1 M-901 ALARM	DI	ST	8	3
YID-911A	WWST MIXING PUMP NO. 1 M-911 RUN STATUS	DI	ST	8	4
YID-911B	WWST MIXING PUMP NO. 1 M-911 IN REMOTE	DI	ST	8	5
YID-911C	WWST MIXING PUMP NO. 1 M-911 VFD/PLC SEL SW STATUS	DI	ST	8	6



XA-911	WWST MIXING PUMP NO. 1 M-911 ALARM	DI	ST	8	7
YID-921A	WWST MIXING PUMP NO. 1 M-921 RUN STATUS	DI	ST	8	8
YID-921B	WWST MIXING PUMP NO. 1 M-921 IN REMOTE	DI	ST	8	9
YID-921C	WWST MIXING PUMP NO. 1 M-921 VFD/PLC SEL SW STATUS/RUN STATUS	DI	ST	8	10
XA-921	WWST MIXING PUMP NO. 1 M-921 ALARM	DI	ST	8	11
AAH-561	WWST ODOR CONTROL ROOM GAS ALARM	DI	ST	8	12
AAH-901	WWST MIXING PS GAS ALARM	DI	ST	8	13
XA-930	WWST MIXING PS SUMP PUMP SP-930 ALARM	DI	ST	8	14
LAHH-930	WWST MIXING PS SUMP HIGH HIGH LEVEL ALARM	DI	ST	8	15
	SPARE	DI	ST	9	0
	SPARE	DI	ST	9	1
	SPARE	DI	ST	9	2
	SPARE	DI	ST	9	3
	SPARE	DI	ST	9	4
	SPARE	DI	ST	9	5
	SPARE	DI	ST	9	6
	SPARE	DI	ST	9	7
	SPARE	DI	ST	9	8
	SPARE	DI	ST	9	9
	SPARE	DI	ST	9	10
	SPARE	DI	ST	9	11
	SPARE	DI	ST	9	12
	SPARE	DI	ST	9	13
	SPARE	DI	ST	9	14
	SPARE	DI	ST	9	15
HS-801	WWST BLOWER NO. 1 B-801 RUN COMMAND	DO	ST	10	0
HS-811	WWST BLOWER NO. 2 B-811 RUN COMMAND	DO	ST	10	1
HS-901	WWST MIXING PUMP NO. 1 M-901 RUN COMMAND	DO	ST	10	2
HS-911	WWST MIXING PUMP NO. 2 M-911 RUN COMMAND	DO	ST	10	3
HS-921	WWST MIXING PUMP NO. 3 M-921 RUN COMMAND	DO	ST	10	4
	SPARE	DO	ST	10	5
	SPARE	DO	ST	10	6
	SPARE	DO	ST	10	7
	SPARE	DO	ST	10	8



	SPARE	DO	ST	10	9
	SPARE	DO	ST	10	10
	SPARE	DO	ST	10	11
	SPARE	DO	ST	10	12
	SPARE	DO	ST	10	13
	SPARE	DO	ST	10	14
	SPARE	DO	ST	10	15

Note: A second redundant unit is required at the Diversion Structure and Storage Tank."

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: _____

ADDRESS: _____

SIGNATURE OF BIDDER: _____

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. 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.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled "MWDBE Participation Form". The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form." The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the "MWDBE Participation Form", the "Quote Summary Form" and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter "None" on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. 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.
 - b. Included documentation of advertising in the above publications with the bidders good faith efforts package
 - c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event

- d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities
- e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.
- f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).
- g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE 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.
- h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs and/or Veteran-Owned businesses 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.
- i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.
- j. Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.
- k. 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
- l. 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.
- m. 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.
- n. 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.
- o. 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

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

q. 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 review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.



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
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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 defined 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
 (www.lfucglexington.ky.gov) (www.vosb.com)

Business	Contact	Email Address	Phone
LFUCG	Sherita Miller	smiller@lexington.ky.gov	859-258-3323
Commerce Lexington – Minority Business Development	Tyrone Tyra	tyra@commercelexington.com	859-226-1625
Tri-State Minority Supplier Diversity Council	Susan Marston	smarston@tsmsdc.com	502-365-9762
Small Business Development Council	Shawn Rogers UK SBDC	shawn.rogers@uk.gov	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@orywbenc.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@nwboe.org	800-675-5066
Small Business Administration	Robert Coffey	robertco@lexington.gov	502-582-5971
LaVoz de Kentucky	Andres Cruz	lavoze@ky.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 city council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE 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 MWDBE 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 MWDBE 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.

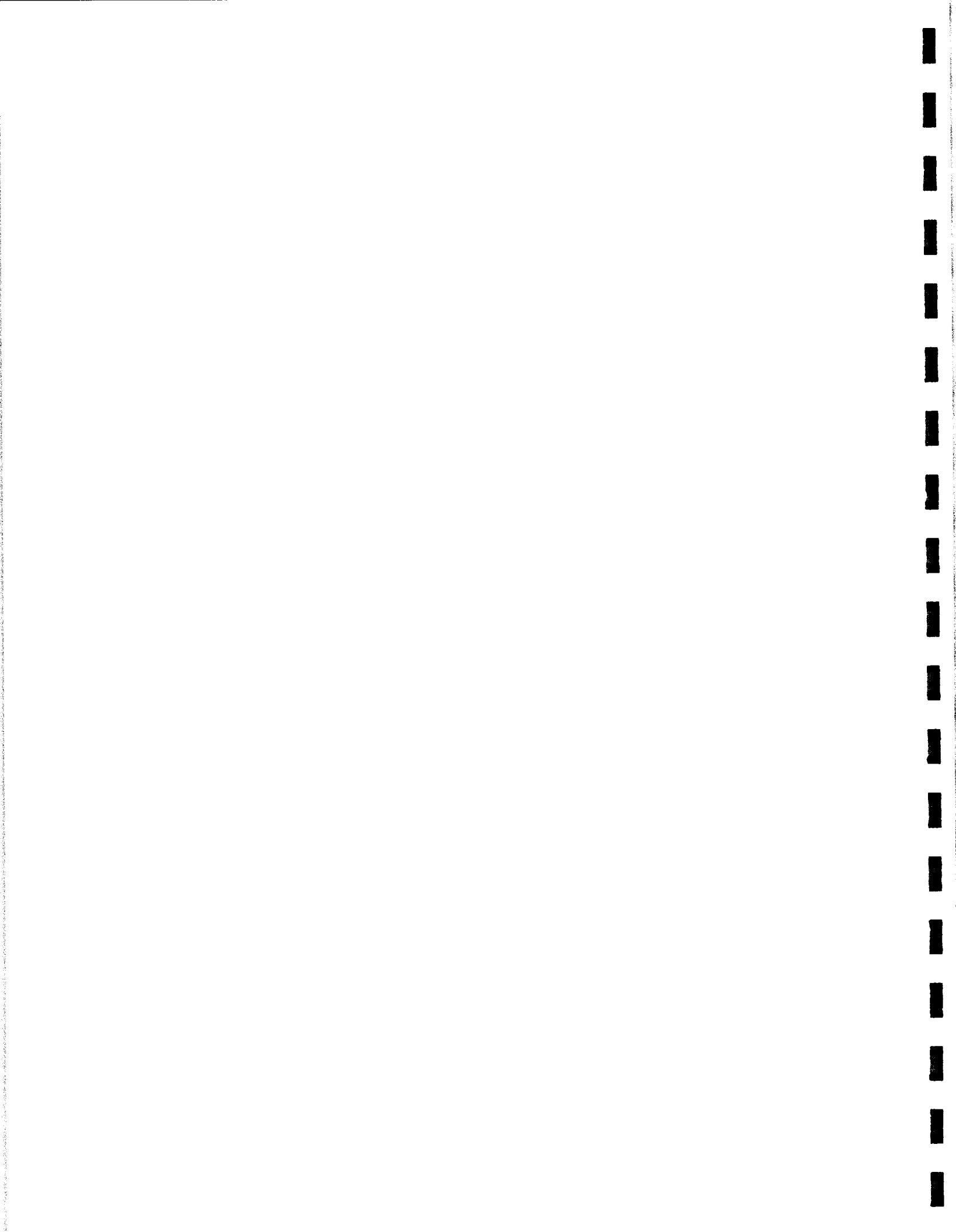
Company

Company Representative

Date

Title

West Hickman 7 WWS (Contract No. 2) Equipment Manufacturer (circle one) – Bid Basis	
Solids Handling Submersible & Dry Pit Pumps	ABS Flygt KSB Fairbanks Nijhuis
Mechanical Bar Screen	Headworks Huber Duperon
Screenings Compactor	Headworks Huber Duperon
Screening Conveyor	Headworks Huber Duperon
Sump Pumps	Myers Flygt Hydromatic Zoeller
Odor Control Absorber	ECS Environmental Solutions/Calgon Daniel Company Evoqua
Odor Control Chemical Feed System	Evoqua Others (List)
Check Valves	Apco Golden Anderson Val-matic
Modulating Plug Valve	Dezurik Golden Anderson Henry Pratt
Slide/Sluice Gates	Aquanox Waterman Golden Harvest
Electric Actuators	Limitorque Auma EIM
Generator	Generac Caterpillar Cummins/ONAN MTU/Detroit Diesel Kohler
Level Transmitters	Endress+Hauser Foxboro Siemens Yokogawa
VFDs	Square D Eaton Allen Bradley
SCADA PLC's	Allen Bradley Compactlogix
Motor Control Centers	Square D Cutler Hammer Allen Bradley
Blowers	Aerzen Kaeser
Jet Mixing System	Evoqua Jet Tech K _L a Mass Transfer
Ground Storage Tank	Crom Precon Preload



SECTION 02515 - VALVES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to furnish and install all valves shown on the Drawings and/or specified herein.

PART 2 - PRODUCTS

2.01 GATE VALVES

- A. Gate valves shall conform with AWWA C-509 standard, and shall be of the resilient seat type, iron body, fully bronze mounted, non-rising stem and have a design working pressure of 250 psi. All assembly bolts shall be stainless steel. Valves shall be of standard manufacturer and of the highest quality both as to materials and workmanship.
- B. All gate valves shall be furnished with mechanical joint connections, unless otherwise shown on the Drawings or specified hereinafter.
- C. An epoxy coating conforming to AWWA C-550 shall be applied to the interior and exterior ferrous surfaces of the valve except for finished or seating surfaces.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working water pressure cast on the body of the valve.
- E. Gate valves 12" and smaller shall be installed in a vertical position. Gate valves greater than 12" shall have the bonnet mounted in the horizontal position and have a bevel gear actuator. Gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counter-clockwise). All valve operating nuts shall be set within a cast iron valve box. There shall be a maximum 36" depth of valve operating nut. Contractor must use extension stems, if necessary, to raise operator nut within 36" of final grade.

2.02 GATE VALVES - BURIED

- A. Gate valves shall conform to the Specifications of Section 02515, Paragraph 2.01, except be designed for buried service, have mechanical joint ends, have all exterior surfaces shop painted with two coats of Fed. Spec. TT-V-51F Asphalt Varnish, with 2-inch square nut operator in a vertical position for use in a valve box.

2.03 MODULATING PLUG VALVE

- A. Plugs shall be solid one piece, cast of ASTM A536 ductile iron. The plug shall have a cylindrical seating surface eccentrically offset from the center of the shaft. Plug shall not contact the seat prior to 90% closed. Plug facing shall be Chloroprene (CR), or other resilient facing suitable for the application.
- B. Bodies shall be of ASTM A126 Class B cast iron. Port shall be rectangular. Port area shall be 100% of Standard class pipe area. Bearings shall be sleeve type and made of sintered, oil-impregnated permanently lubricated type 316 stainless steel per ASTM A743 Grade CF8M.
- C. Seats shall be 1/8" thick welded overlay of not less than 95% pure nickel. Seat shall be at least 1/2" wide and raised. The raised surface shall be completely covered

with nickel to insure that the resilient plug face contacts only the nickel seat.

- D. Adjustable Packing shall be of the multiple V-ring type, with a packing gland follower. Shaft seals shall permit inspection, adjustment or complete replacement of packing without disturbing any part of the valve or actuator assembly except the packing gland follower.
- E. Grit Excluders made of PTFE shall be provided to prevent the entry of grit and solids into the bearing areas.
- F. Pressure ratings shall be bi-directional and 175 psi (1,207 kPa) on sizes 3"-12" (80-300mm) and 150 psi (1,034 kPa) for 14"-36" (350-900mm). Every valve shall be given a certified hydrostatic and seat test, with test reports being available upon request.
- G. Worm gear actuators shall be provided on all valves six inches and larger. Actuators shall be enclosed in a cast iron housing, with outboard seals to protect the bearings and other internal components. The actuator shaft and gear quadrant shall be supported on permanently lubricated bronze bearings.
- H. Eccentric plug valves and actuators shall meet or exceed the latest revisions of AWWA C517 and other applicable standards. Flanged ends shall be per ANSI B16.1 and mechanical joint ends per AWWA C111.
- I. Eccentric plug valves and actuators shall be model PEF as manufactured by DeZURIK Water Controls, or approved equal.

2.04 ELECTRIC VALVE ACTUATOR

- A. All electric actuators shall conform to the requirements of AWWA Standard C540-93.
- B. Actuators shall contain motor, gearing, manual over-ride, limit switches, torque switches, drive coupling, integral motor controls, position feedback transmitter (where required) and mechanical dial position indicator.
- C. The motor shall be specifically designed for actuator service. The motor will be of the indication type with class F insulation and protected by means of thermal switches imbedded in the motor windings. Motor enclosure will be totally enclosed, non-ventilated.
- D. Motors will be capable of operating as designated on the electrical drawings as 120-volt/1PH/60 hertz power or 480-volt/3 phase/60 hertz power
- E. Actuator enclosure shall be NEMA 4 (watertight). All external fasteners on the electric actuator will be stainless steel. Fasteners on limit switch and terminal compartments shall be captured to prevent loss while covers are removed.
- F. All gearing shall be grease lubricated and designed to withstand the full stall torque of the motor.
- G. Manual over-ride shall be by handwheel. Manual operation will be via power gearing to minimize required rimpull and facilitate easy changeover from motor to manual operation when actuator is under load. Return from manual to electric mode of operation will be automatic upon motor operation. A seized or inoperable motor shall not prevent manual operation.

- H. Limit switches shall be furnished at each end of travel. Limit switch adjustment shall not be altered by manual operation. Limit switch drive shall be by counter gear. Limit switches must be capable of quick adjustment requiring no more than five (5) turns of the limit switch adjustment spindle. A minimum of twelve (12) heavy-duty contacts shall be provided for each actuator. Contacts shall be of silver and capable of reliably switching low voltage DC source from the control system furnished by others.
- I. Mechanically operated torque switches shall be furnished at each end of travel. Torque switches will trip when the valve load exceeds the torque switch setting. The torque switch adjustment device must be calibrated directly in engineering units of torque.
- J. All wiring shall be terminated at a plug and socket connector.
- K. Actuators will be furnished with mechanical stops that restrict the valve/actuator travel.
- L. Actuator must be capable of the following valve closing times/operating speeds: quarterturn valves – 60 seconds closing time, gate valves and sluice gates – 12 inches per minute operating speed.
- M. Actuators will be capable of operating in an ambient temperature range of –20 to +175 degrees F (without motor controls) and –20 to +160 degrees F (with motor controls).
- N. All actuators in open/close service will be furnished with integral motor controls consisting of reversing starters, control transformer, phase discriminator, monitor relay (to signal fault conditions such as thermal switch trip, torque switch tripped in mid-travel, wrong phase sequence or phase failure), “open-stop-close” pushbuttons, “local-off-remote” selector switch in addition to red and green indicating lights. An interface with the control system must be furnished with optical isolators to separate incoming voltage signals from the internal motor controls.
- O. Actuators in modulating service will be selected such that the required dynamic valve torque is no more than 60% of the electric’s actuator’s maximum rated breakaway torque. Power gearing in modulating actuators shall have zero backlash between the motor and actuator output.
- P. All actuators in modulating service will be furnished with a 4-20mA feedback signal in addition to the following motor controls: reversing starters, control transformer, phase discriminator, monitor relay, positioner, “open-stop-close” pushbuttons, “local-off-remote” selector switch in addition to red and green indicating lights. The positioner shall be capable of accepting a 4-20 mADC command signal and positioning the valve by comparing the command signal with the present valve position as indicated by the feedback potentiometer mounted inside the actuator. The positioner shall be field adjustable to fail to the “open”, “closed”, or “last position” on loss of 4-20 mADC command signal.
- Q. All pushbuttons, selector switch and indicating lights are to be furnished in a separate NEMA 4 enclosure for remote mounting for each valve (if required).
- R. All terminal connections for the customer use shall be located in a sealed terminal compartment that is separated from controls components by means of a double watertight seal.

- S. All actuators shall be manufactured by AUMA Actuators, Inc. or approved equal.

2.05 VALVE BOXES - BURIED VALVES

- A. Valve boxes shall be of 5-1/4 inch standard cast iron, two-piece, screw type valve box with drop cover marked "WATER", "SEWER", "DRAIN", as applicable. Valve boxes for gate valves larger than 8 inches shall be three-piece. Valve boxes shall be accurately centered over valve operating nut, and backfill thoroughly tamped about them. Valve boxes shall not rest on the valves but shall be supported on crushed stone fill. They shall be set vertically and properly cut and/or adjusted so that the tops of boxes will be at grade in any paving, walk or road surface, and in grass plots, fields, woods or other open terrain. Valve boxes and covers shall be as manufactured by Tyler Corporation, Opelika Foundry, Bingham & Taylor, or equal.
- B. Contractor shall furnish two (2) 6-foot T-handle operating wrenches for underground valves. Nut operator extensions for all valves buried deeper than 3 feet shall be provided with stem extensions sufficient to raise operator nut to within 3 feet of finished grade.
- C. Valve boxes shall have extension stems, where necessary when operating nut is raised to be within 3 feet of the existing grade.
- D. Wherever valve boxes fall outside of the pavement, the top of the box shall be set in a cast-in-place concrete slab 18" x 18" x 4" thick with the top of the slab and box flush with the top of the ground. This provision shall apply to all new and all existing valve boxes which fall within the limits of the contract, unless otherwise stated on the plans or ordered by the Engineer.

2.06 TAPPING SLEEVE AND VALVE

- A. All tapping sleeves, saddles, and valves shall be designed for a working pressure of at least 250 psig for 12-inch and smaller. The valves shall be designed for a minimum differential pressure of 250 psi and a minimum internal test pressure of 500 psi unless otherwise noted on the Drawings.
- B. Contractor to verify the type of existing pipe and the outside diameter of the pipe on which the tapping sleeve is to be installed.
- C. Tapping sleeves shall be ductile iron dual compression type unless otherwise specified on the Drawings. The Drawings may require the use of corrosion resistant tapping sleeves in addition to polywrap in areas with corrosive soils. The sleeves shall be made in two halves which can be assembled and bolted around the main. Sleeves shall meet the requirements of NSF 61. Outlet flanges shall conform to the flange requirements of AWWA C110.
- D. The horizontal tapping valve shall conform to the applicable requirements of AWWA C509. All tapping valves, 3-inches through 12-inches NPS, shall be ductile iron body, resilient-seated, nut-operated, non-rising stem gate valves suitable for buried service. The valve interior and exterior shall be epoxy coated at the factory by the valve manufacturer in accordance with AWWA C550 (6-8 mill average, 4 mil minimum). The tapping valves shall have flanged inlets with mechanical joint outlets enclosed bevel gears, bypass valve, rollers, tracks, and scrapers.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All valves shall be installed in accordance with details on the Contract Drawings and with the manufacturer's recommendations.
- B. All valves shall be anchored in accordance with the details on the Contract Drawings.

END OF SECTION

SECTION 11420 - MECHANICAL SCREENS AND SCREENINGS COMPACTORS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment, delivering, installing, testing, and placing into service the mechanical screen and screening compactor equipment with all appurtenances complete as shown on the Drawings and more fully described hereinafter.
- B. The Contractor shall install a screenings transfer system (chute) between the screen and the screenings compactor, provided by the same manufacturer as the screen and screening compactor. Contractor shall be responsible for properly supporting the screenings transfer system.
- C. The screening equipment and compactor shall be provided complete with all accessories, special tools, spare parts, mountings, anchor bolts and other appurtenances as specified and as may be required for a complete and operating installation. Any modifications or changes to the building, in addition to those shown on the Drawings, necessary to facilitate the screen and screenings compactor shall be the responsibility of the Contractor at no additional cost to the Owner. The screen shall be provided in sections to facilitate removal from the building through the doorways.
- D. It shall be the Contractor's responsibility to install the mechanical screen and screenings compactor and appurtenances with the necessary operating clearances with the structural elements and equipment shown on the Contract Drawings.
- E. Layout, dimensions, and elevations shown on the Drawings are representative of the mechanical screens and screenings compactors. Any costs for re-design, materials, or construction due to requirements of the mechanical screens and screenings compactors equipment ultimately furnished shall be the responsibility of the Contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals: Section 01300
- B. Operating & Maintenance Manuals: Section 01780

1.03 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

- A. The mechanical screen shall be designed to remove screenings from raw wastewater and to discharge the screenings in chutes for conveyance to screenings compactor. The screen shall be designed for operation in a rectangular channel as shown on the Contract Drawings. Screen shall be a mechanically cleaned and chain driven design. Debris collected on the bars shall be lifted above deck level by multiple chain-mounted rakes, which pass upward through the screen on the upstream side with tines between the bars. The screenings shall be discharged to a chute connected to the head frame. The chute shall discharge via gravity to the screenings compactor located on the downstream side of the screen. The screen shall consist essentially of the frame, screen field, dead plate, rake assembly (chain assembly, bearings, rakes, drive sprockets, roller chains), screen drive, chute, local controls, motors, gearboxes, and appurtenances specified or otherwise required for a complete and properly operating installation.

Mechanical Screen

Parameter	Value
Number of units required	1
Channel width at screen, per screen	3 FT
Channel invert at screen, elevation	965.6
Operating floor elevation (top of channel)	979.6
Maximum upstream water surface elevation (WSEL)	973.0
Minimum screen field width, per screen	2'
Installed angle, degrees from vertical	75
Flow rate per screen - maximum (peak flow)	10.0 mgd
Flow rate per screen - minimum	10.0 mgd
Max headloss allowable at peak flow, clean screen ⁽¹⁾	8.98"
Max headloss allowable at peak flow, 30% blind ⁽¹⁾	10.21"
Discharge elevation above upper operating floor, minimum	5'
Bar spacing (clear space), maximum	0.25 inch
Minimum raking capacity (cf/hr), per screen	5.83 ft ³ /hr
Rake travel speed (feet per minute)	Low Speed: 23 ft/s, High Speed: 46 ft/s
⁽¹⁾ Headloss calculation(s) shall be based on the assumption that the water depth within the channel downstream of screen equals 3-ft.	
⁽²⁾ All components, including the gear reducer, shall be designed to withstand, without damage or permanent distortion, the maximum headloss allowable (full screen blinding).	

- B. The heavy duty screw type screenings compactor shall be suitable for installation and operation with the screen and shall accept screenings, compress and dewater them and deliver them to the screenings conveyor as shown on the Drawings. The screenings compactor shall also be equipped with a washing zone. The screenings compactor shall be provided by the same manufacturer as the screens and shall be connected to the screens by a covered chute as specified herein.

Screenings Compactor

Parameter	Value
Number of units	1
Number of hopper inlets per unit	1
Screw length, minimum (ft)	30 ft.
Minimum capacity (cf/hr), total	Maximum 133 ft ³ /hr
Feed concentration, % dry solids content	0-5%
Compactor discharge concentration, % dry solids content	25-30%
Minimum screenings volume reduction, %	35-40%
Minimum screw diameter, inches	11-1/4"
Maximum screw rotational speed, rpm	15 rpm

1.04 MANUFACTURER

- A. The mechanical screen and screenings compactor unit shall be provided by a single manufacturer with a minimum of five (5) years' experience in designing and manufacturing screening equipment of similar type, size and capacity. The mechanical screen and screenings compactor shall be manufactured by Headworks, Inc. or Huber Technology, Inc., or approved equal. The Headworks, Inc. Model shall be Bar Screen MS2.
- B. To assure unity of responsibility, the mechanical screens and screenings compactors, chute, controls, motors, VFDs, gearboxes, and appurtenances specified and other auxiliary equipment, and materials specified in this Section shall be furnished and coordinated by the screen manufacturer (Manufacturer) who shall assume responsibility for the satisfactory operation of the entire screening system.
- C. 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 equipment. Upon request, the Contractor shall submit evidence of the proposed manufacturer's ability to promptly fill replacement orders.
- D. Quality Assurance: All screening equipment shall be of approved design and make products of manufacturers who have built equipment of similar type, size and capacity. Upon request, the Manufacturer shall provide evidence of at least five (5) installations in which similar sized equipment has provided satisfactory performance for a minimum of five (5) years in a similar application.
 - 1. The Contractor shall obtain the screening equipment, controls and appurtenances from the screen manufacturer, as a complete and integrated package to insure proper coordination and compatibility and operation of the system.
 - 2. All components made of stainless steel shall meet the acid passivation requirements of ASTM A380. Stainless steel components shall be fabricated in a manner to prevent contamination with carbon steel.
 - 3. Provide fabrication in compliance with all applicable ASTM standards or equivalent international standards.
 - 4. The equipment manufacturer's shop welds, welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirements of the latest edition of ANSI/AWS D1.6 "Structural Welding Code - Steel" published by the American Welding Society or equivalent standard.
 - 5. Perform all welding in the factory using shielded arc, inert gas, MIG or TIG method. Add filler wire to all welds to provide for a cross section and weld metal equal to or greater than the parent metal. Fully penetrate butt welds to the interior surface and provide gas shielding to interior and exterior of the joint.
- E. 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.
- F. 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 screening equipment now in operation under the specified conditions of service and screen rating constitute grounds for disqualification of the screen manufacturer, supplier, or both, unless such poor performance has been corrected.
2. Failure to successfully comply with the provisions of subparagraphs A through G, inclusive, will constitute grounds for disqualification of screen manufacturer.

1.05 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 screening products meet the required Specifications.
- D. Descriptive literature 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 mechanical screen and screenings compactor.
 1. Descriptive Literature:
 - a. Equipment dimensions and weight.
 - b. Materials of Construction (including required coating).
 - c. Complete motor nameplate data as defined by NEMA.
 - d. Gear reducer data including service factor, efficiency, torque rating and materials.
 - e. Shop drawing data for accessory items.
 - f. Certified setting plans, with tolerances, for anchor bolts.
 - g. List of recommended spare parts other than those specified.
 - h. Shop and field inspection reports.
 - i. Qualifications of field service engineer.
 - j. Recommendations for short and long-term storage.
 - k. Shop and field testing procedures, set up and equipment to be used.

- l. Special tools.
 - m. Schematic control and power wiring diagrams including interconnecting and internal wiring diagrams.
 - n. Control panel drawings and heat load / dissipation calculations.
 - o. Manufacturer's literature as needed to supplement certified data.
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 mechanical screens and screenings compactors units, as well as the location of the nearest permanent service headquarters.
- F. Calculations:
- 1. Maximum headloss and velocity at peak flow for clean screens.
 - 2. Maximum headloss and velocity at peak flow for 30% blinded screen conditions to verify screens can handle peak flows.
 - 3. Structural calculations of screen design strength to handle the maximum head differential across the screens (maximum water level upstream and no water downstream) to verify screens can handle full blinded conditions.
 - 4. Calculations shall be signed and sealed by a Professional Engineer.

1.06 TESTS

A. Shop Tests:

- 1. All equipment shall be tested in the shop of the manufacturer in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents and that it will operate in the manner specified or implied.

B. Field Tests:

- 1. The field tests shall be made on each mechanical screen and screenings compactor unit by the Contractor in the presence of and as directed by the Engineer.
- 2. The Contractor shall give at least two (2) week's notice to the Owner and Engineer when the field tests are to be accomplished so that the Owner and Engineer may have a representative present at the said tests.
- 3. Before any screening equipment is rotated, the Contractor shall make certain that no debris is present in screening channels. Any damage done to equipment while starting up shall be assumed to be caused by debris and shall be replaced at the Contractor's expense.

4. During the test, the screening equipment shall be checked for proper alignment of the rake and bar screen, operated at maximum rated speed to confirm smooth operation and no undue noise, vibration, overheating or overloading of drive motors and components. Controls shall be checked to verify screening equipment operates as specified. Safety interlocks and devices shall be checked for proper operation.
5. Contractor shall be responsible for making all adjustments necessary to place equipment in specified working order at time of above tests.
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 screening equipment, the Contractor shall furnish the services of accredited representatives of the equipment manufacturer who shall supervise the installation, adjustment, and field tests of each screening unit and give instructions to the operating personnel. As one condition necessary to acceptance of any screening equipment, the Contractor shall submit a certificate from the manufacturer, stating that the installation of the equipment 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.

1.07 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 one (1) year. This one (1) year minimum shall not replace a standard manufacturer's guarantee if it exceeds one (1) year.

1.08 WARRANTY

- A. The Contractor guarantees and warrants that during the first one year of operation, the mechanical screens and screenings compactors will operate satisfactorily and continuously according to the operating conditions and performance requirements specified herein, and that after due notice has been given by the Owner, he or the equipment 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.

PART 2 - PRODUCTS

2.01 MECHANICAL SCREENS

- A. Frame:
 1. Framework of screen shall be constructed of 304 stainless steel and cross section with a minimum thickness 0.158". Various parts fastened by welding, riveting, or bolting shall be braced as necessary to insure a rigid structure. The side frames shall be minimum 0.158" formed to a channel profile. The minimum bottom thickness shall be 0.158". The frame shall have support beams with minimum U-profile thickness of 0.158" on the front above the maximum water line. No braces, gussets or stiffeners shall be inside the Screen Frame that will allow for screenings to collect.
 2. All parts shall be designed and manufactured to handle the forces that may be exerted on the screen during fabrication, shipping, erection, and proper operation according to the Operation and Maintenance Manual. All components shall be so designed that jamming at any point will not result in structural failure, but will cause the drive motor to stall. All components, including the gear reducer, shall be designed to withstand, without damage or permanent distortion, the full stalling torque of the drive motor.
 3. Frame width and height shall be customized to fit the specified channel dimensions, discharge height, and hydraulic force requirements.
 - a. The Screen Frame shall be supplied in flanged subassemblies not more than 20' long and complete with drive chains and rake bars installed. The flanged subassemblies shall allow for installation in sections and be bolted together onsite and removal through doorways.
 4. The unit shall be supported and anchored on the operating floor and rest on the bottom of the channel.
 5. Bolts and nuts shall be of Type 316 stainless steel. Anchor bolts shall be a minimum 0.75" diameter Type 316 stainless steel furnished by the Contractor.
 6. Neoprene rubber seals with a minimum thickness of 0.25" and stainless steel backing plates will be mounted along the upstream edges of the frame to seal the outer edge of the frame against the channel walls.
 7. The lower entry shall consist of a curved plate (level at upstream end and curved to the level where rakes meet bars) to direct flow onto the bars.
 8. Covers which are easily removable shall be provided with turn locks and handles for easy maintenance. Covers shall be constructed of one of the following:
 - a. Clear impact-resistant polycarbonate material of 0.25" thickness

b. Type 304 stainless steel plates of 0.047" minimum thickness

B. Screenfield and Deadplate:

1. Screen bars shall be constructed of Type 304 stainless steel. The bar rack shall consist of bars with a "continuous taper" or "teardrop" shaped cross section with a shape factor value at or below 1.0. The maximum cross-sectional thickness of the bar shall be 0.315". Round or rectangular bars shall not be used.
2. Bars shall be supported from framework and be readily removable. The screen bars shall be replaceable without any welding or cutting. Replacement screen bars shall be available from the screen manufacturer.
3. Bars shall be fastened to a dead plate. Bars shall extend a minimum of 7.8" above the maximum water level.
4. The screen field shall be accurately constructed to give a clear opening of 0.25" between the bars. There shall be no space wider than the opening between the bars which would permit passage of larger solids through the screen.
5. Dead plate of Type 304 stainless steel plate (minimum thickness is 0.158") shall extend to the point of discharge. Dead plate shall be true and flat such that a close clearance between the raking tines and the plate can be maintained during the cleaning cycle. The back side of the dead plate shall be constructed to guarantee a maximum gap between rake bar and dead plate, leading to the discharge chute without interruption.

C. Screen Cleaning:

1. Chains shall be Heavy Duty roller type with a minimum weight of 6 lbs/ft and made of Type 304 stainless steel of high tensile strength and resistance to corrosion. Chain rollers shall be constructed of Stainless Steel. The average ultimate strength of the chain shall be minimum 31,000 pound-force (137,500 Newtons). Chain Pins shall be a hardened Stainless Steel.
2. A chain guide shall be securely fixed to the screen frame for the full height of travel and shall not protrude into the flow. The type of chain guide, minimum thickness of material and size shall be an L-Profile 0.156", Type 304 stainless steel. Replaceable wear strips on chain guides located below the water level shall not be allowed. Drive chains, chain guides, chain sprockets, bearings, and axles shall be fully replaceable without having to remove the screen from the channel.
3. The Upper Sprocket shall be made of Type 304 stainless steel. The Upper Sprocket shall have a 4.92" pitch, minimum diameter of 13" and a minimum tooth width of 1.06".
4. Upper Bearings shall be as follows:
5. UCFX 4 – Bolt Flange Bearings mounted in the Take-Up Frame assembly. The bearings shall be grease-lubricated. The take up screw shall be an Acme Lead Screw made of 18-8 stainless steel. No threaded rod shall be allowed.
- 6.

The Lower Turn-guides shall measure:

Pitch	125mm
Disk Width	25.4mm
Outer Diameter	271mm

Inner Diameter 231mm

7. The raking tines shall have the tooth profile precision cut from a single continuous bar of sufficient thickness and depth to insure adequate stiffness and strength to cope with the specified duty cycle. The rakes shall run in guides on both sides to ensure engagement. The rakes shall clean the bars from the upstream side of the screen. The rakes shall be fabricated from Type 304 stainless steel as follows:
 - a. Rake bar thickness 0.375" minimum
 - b. Reinforcement profile 0.1575" minimum
 - c. Side sheets thickness 0.2362" minimum
8. Stainless steel rakes shall have a shovel shape to prevent screenings from falling back to the channel. Flat rakes without this feature are not permitted. Rake tines shall penetrate into the screen bar spacing to insure that screenings are completely cleared during each lifting operation. During each cleaning stroke, the raking tines shall engage into the bottom of the bar screen grids.

D. Scraper:

Screenings transported to the top of the screen shall be discharged positively by means of a scraper mechanism to the discharge chute. The scraper mechanism shall be attached to the side frames and be fitted with neoprene shock absorber elements or a compression spring that allows the scraper to return to its resting position smoothly without any shock. The scraper shall be connected with the frame through a pair of minimum 20" long scraper arms. A minimum 0.375" thick scraper blade made of a combination of synthetic and other material shall be provided on the scraper

E. Discharge Chute:

1. A discharge chute (minimum thickness of 0.156") shall be provided for each screen to divert screenings discharged from the screen to a screenings compactor. The discharge chute shall be made of Type 304 stainless steel. The discharge chute shall be mounted at an angle of 30 degrees from vertical. Panels are positioned on both sides to protect from splashing.
2. A discharge chute cover shall be provided on the back of the screen at the operating level, easily removable with turn locks and handles for maintenance. Covers shall be constructed of one of the following:
 - a. Clear impact-resistant polycarbonate material of 0.25" thickness
 - b. 304 stainless steel plates of 0.047" minimum thickness

F. Drive Mechanism:

1. The drive mechanism for the rakes shall incorporate a shaft constructed of Type 304 stainless steel. The drive shaft shall have a minimum diameter of 3.125" and a minimum wall thickness of 0.203".
2. The motor shall be inverter duty and, rated for continuous operation in a Class I Division 1 environment. The drive unit, including the reduction gearbox, shall be directly shaft-mounted and shall be positioned to facilitate maintenance work.
3. The rake mechanism shall be capable of 2 cleaning speeds. Normal (slow) speed shall have between a 10 to 15 second cleaning interval (between rakes) and high (fast) speed shall have between a 5 to 10 second cleaning interval.

G. Speed Reducer:

1. Speed reducers shall be of the helical or bevel gear type fully enclosed in a weatherproof casing of cast iron or welded steel. Reducers shall have ball or roller bearings throughout with all moving parts immersed in oil. Shafts shall be of high strength alloy steel ground to required tolerances. Bevel gearing shall be in compliance with ANSI/AGMA Standards 2003-A86 and shall be carbonized to a hardness of 58-62 HRC for durability. All ball or roller bearings shall be B-10 rated and manufactured by a member of the Antifriction Bearing Manufacturer's Association for 100,000 hour life (minimum). At least one bearing on each shaft shall be of the combined radial and thrust type.
2. Reducer units shall meet the standards of the American Gear Manufacturers Association for such equipment under moderate shock, 24-hour, Class II service with a service factor of 1.25 (minimum) and an AGMA rating plate showing compliance shall be affixed to each unit. The output capacity of the speed reducer shall be equal to the motor horsepower less reducer losses.
3. Speed reducers running on a positive circulation of lubricating oil shall have sight windows for inspection of oil flow. A drain shall be provided in each casing. A sight glass shall be provided such that oil level may be inspected from operator access level.
4. All seals shall be double lip, spring-loaded type and made of nitrile rubber.
5. Speed reducers and motors requiring coupling shall be coupled by means of approved all-metal flexible couplings, furnished and installed complete with coupling guards, if not otherwise guarded.

2.02 SCREENINGS COMPACTOR

- A. Shafted Screw Conveyor/Compactor shall consist of a Shafted Screw, Sieve Zone, Wash Zone, Press Zone, Transport Zone, Collection Pan, Discharge Tube, drive system and controls. Unless specified otherwise hereinafter, stainless steel shall be Type 304. All mechanical parts shall be designed to handle the forces that may be exerted on the screenings compactor during fabrication, shipping, erection, and operation.
- B. The screenings compactor shall be capable of continuous operation and of handling all wash water flow and screenings conveyed from the screen. The unit shall be capable of operating with and without wash water. Manufacturer shall provide calculations to show the screenings compactor is sufficiently sized to convey the maximum amount of screenings and wash water that the screening equipment can deliver. The system shall be designed to receive, positively convey and compact screenings discharged from the screens. The screenings shall be

introduced into the inlet hopper directly over the Sieve Zone, washed in the Wash Zone, compacted in the Press Zone, conveyed through the Transport Zone, and discharged from the Discharge Tube into a suitable receptacle. The excess liquid shall drain through holes in the inlet trough.

C. The Shafted Screw Conveyor/Compactor shall be designed to handle capacity, reduce screenings volume and produce dry screenings content to meet the performance requirement identified in paragraph 1.03 above.

D. Shafted Screw Assembly:

1. The Shafted Screw Assembly shall have stainless steel flights with a minimum thickness of 0.2" in the sieve zone, a minimum thickness of 0.4" in the washing zone, and a minimum thickness of 0.8" in the press zone.
2. The Shafted Screw shall be manufactured from one concentric flight welded to form a single spiral.
3. The minimum diameter of the Shafted Screw assembly shall be 8-1/16" in diameter and shall be constant over the length of the assembly.
4. The Shafted Screw shall have one abrasive resistant Brush Assembly. The Brush shall be Nylon and shall be fixed to the screw with adjustable clamps.
5. The Pitch of the screw shall reduce to 66% of the screw outer diameter in the Press Zone area.
6. The final Quarter-Pitch of the Shafted Screw shall be Hard Faced.
7. The screw shall be supported at the drive end by an independent thrust and radial load bearing or by a spherical roller thrust bearing which is installed in grease packed housing fitted with lip seals to prevent the ingress of moisture.

E. Sieve Zone:

1. The Sieve Zone shall be tubular in design with an integral collection pan and a chute to accept screenings from the mechanical screen.
2. The Sieve Zone shall be manufactured from minimum 14 gauge 304 stainless steel plate. Plate perforations shall be a maximum diameter of 0.2" and minimum 11 gauge perforated 304 stainless steel. An acceptable alternative would be a Sieve Zone constructed of 304 stainless steel wedge wires with slot openings of 0.125".
3. The Sieve Zone shall include one Inlet Hopper to direct screenings from the mechanical screens into the Shafted Screw Conveyor/Compactor. The Inlet Hoppers shall be constructed of minimum 14 gauge 304 stainless steel and shall be bolted to the Transport Zone of the U-Trough

F. Transport Zone:

1. The Transport Zone shall be tubular in design and constructed of minimum 11 gauge 304 stainless steel.
2. The Transport Zone shall be fitted with Wear Bars constructed of minimum 0.375" thick Carbon Steel or Hardox 400 Abrasion resistant plate. The Wear Bars shall be bolted from the outside of the Transport Zone. Welded Wear Bars shall not be allowed.

G. Wash Zone:

1. Wash Zone shall be tubular in design with an integral collection pan located directly under the zone. The Wash Zone may wash screenings and reduce the organic content. Compactor shall continue operation and meet performance both with and without wash zone supply water.
2. Wash Zone shall be constructed of minimum 14 gauge 304 stainless steel plate. Plate perforations shall be maximum 0.2" in diameter and minimum 11 gauge perforated 304 stainless steel. Wash zone may also be constructed of 304 stainless steel wedge wires with slot openings of 0.125".
3. Wash Zone shall consist of a spray header fitted with at least one spray nozzle to provide cleaning of screenings before compacting. The Wash Zone supply water shall be approximately 10 GPM at minimum 40 psi. The Wash Zone shall include solenoid valves and isolation valves. The screenings compactor manufacturer shall provide solenoid valves and isolation valves, shipped loose to control the flow of water. All interconnecting piping, valves, etc. between the water source, the Wash Zone and the solenoid valve shall be supplied and installed by the Contractor.

H. Press Zone:

1. The Press Zone design shall tubular in design with an integral collection pan located directly under the zone.
2. The Press Zone shall be constructed of minimum 11 gauge Type 304 stainless steel.

I. Collection Pan:

1. Collection Pan shall be a U-Tough design located directly under the Sieve, Wash and Press Zones. Periodically, water may be introduced into the collection pan to flush organics and other fines to the drain. Compactor shall continue operation and meet performance both with and without collection pan supply water.
2. Collection Pan shall be constructed of minimum 14 gauges 304 stainless steel and attached to the compactor body with quick release clamps.
3. Collection Pan shall have a minimum 0.75" diameter threaded inlet water supply line connection. Supply water shall be approximately 10 GPM at minimum 40 psi. Water shall flow down to the base of the collection pan to a drain outlet of minimum 3" diameter.
4. Collection Pan water supply shall include solenoid valve(s) with bypass and isolation valves for manual operation. The screenings compactor manufacturer shall furnish solenoid valves and isolation valves, shipped loose to control the flow of water. All interconnecting piping, valves, etc. between the water source, the Collection Pan and the solenoid and isolation valves shall be provided by the Contractor.

J. Discharge Tube:

1. Discharge Tube shall be cylindrical and constructed of minimum 14 gauge Type 304 stainless steel. The discharge tube shall increase in diameter over its length in order to reduce the potential for plugging.
2. Discharge Tube shall direct and discharge screenings at a clear discharge height that allows for placement of a dumpster (by others) to collect the screenings.
3. Discharge Tube shall include an integral bagging system. The bagging system shall consist of a plastic bag holder that shall mount on the discharge tube. The holder shall be readily removable for inspection and service. The holder shall provide for a consumable

260 feet high-strength biodegradable polyethylene tube/bag to receive screenings directly from the compactor.

4. Rear leg, front leg and intermediate leg supports, as required, shall be furnished for rigid support to the concrete slab.

K. Speed Reducer:

1. Speed reducers shall be provided for the screenings compactors. The design shall utilize a shaft mounted parallel helical type gear reducer driven by a direct coupled motor. The reducer shall have a cast iron housing. The service factor shall be minimum 1.0. (A shaft mounted worm gear type reducer shall be used for vertical mount drives).
2. Speed reducers shall be of the helical or bevel gear type fully enclosed in a weatherproof casing of cast iron or welded steel. Reducers shall have ball or roller bearings throughout with all moving parts immersed in oil. Shafts shall be of high strength alloy steel ground to required tolerances. Bevel gearing shall be in compliance with ANSI/AGMA Standards 2003-A86 and shall be carbonized to a hardness of 58-62 HRC for durability. All ball or roller bearings shall be B-10 rated and manufactured by a member of the Antifriction Bearing Manufacturer's Association for 100,000 hour life (minimum). At least one bearing on each shaft shall be of the combined radial and thrust type.
3. Reducer units shall meet the standards of the American Gear Manufacturers Association for such equipment under moderate shock, 24-hour, Class II service with a service factor of 1.4 (minimum) and an AGMA rating plate showing compliance shall be affixed to each unit. The output capacity of the speed reducer shall be equal to the motor horsepower less reducer losses.
4. Speed reducers running on a positive circulation of lubricating oil shall have sight windows for inspection of oil flow. A drain shall be provided in each casing. A sight glass shall be provided such that oil level may be inspected from operator access level.
5. Speed reducers and motors requiring coupling shall be coupled by means of approved all-metal flexible couplings, furnished and installed complete with coupling guards, if not otherwise guarded.

L. Safety Devices and Limit Switches:

1. Safety Trip Cords

- a. The screw compactor shall be furnished with safety trip cords running on all sides of the hopper inlet with a safety stop switch in compliance with OSHA standards.
- b. Trip cabling shall be stranded galvanized aircraft cable and orange colored nylon outer sheathing. Cabling shall be supported by stainless steel eyebolts every 4 feet. Wire clamps shall be stainless steel.
- c. Safety switch shall be housed in a NEMA 7 enclosure and shall have 2 SP/DT micro-switch and stainless steel external hardware. Switch shall be maintained once activated and shall require a manual reset.
- d. If a trip cord signal is received from the safety trip cord switch, when the motor is running, the compactor shall alarm and stop.
- e. Emergency trip cord and safety switch shall be Conveyor Components Company Model RS-2X, or equal.

2. Zero Speed Switch (for Headworks units)

- a. Provide non-contacting, proximity-type speed switch on the screw press to detect zero speed condition. The zero speed switch shall consist of a sensor with internally mounted pre-amplifier and a transmitter output unit. The switch shall be located on the non-driven end.
 - b. The sensor shall utilize magnetic proximity effect to detect equipment rotational speed without physical connection to the rotating equipment. Sensors shall provide output pulses in proportion to rotational speed by detection of the rotating flights of a screw press assembly. The sensor shall operate satisfactorily with air gaps of up to 4". The sensor/pre-amplifier shall be provided complete with mounting flange, threaded body, locknut, and ferrous mass of mounting on screw flight.
 - c. The amplifier/output switch unit shall provide two SPDT contacts that operate on detection of an under speed operating condition. The SPDT contact outputs shall be rated for 5A at 120 volts AC. The unit shall include an adjustable start-up delay of 0 to 60 seconds to override zero speed alarm during initial acceleration. Units shall operate on 120 volt AC power. Provide set point adjustment range of 2 to 3,000 pulses per minute.
 - d. If a zero speed signal is received from the zero speed switch, when the motor is running, the compactor shall alarm and stop.
 - e. Zero speed detection switches shall be Milltronics MFA-4P with Milltronics XPP-5 sensor, or equal.
3. Photoelectric Sensor (for Huber units)
- a. Provide photoelectric proximity sensor (light distance sensor) with an adjustable scanning distance for use as a level limit survey providing one switching point. The enclosure rating shall be IP 69K. The electrical shall be coordinated with the Contractor and shall be 10-30VDC. Exact sensor location shall be designated by the manufacturer of the screen and compactor for identification of the material backup in the chute between the screen discharge and the compactor inlet.
 - b. If a proximity sensor signal is received from the sensor, when the motor is running, the compactor shall alarm and stop.
 - c. Photoelectric proximity sensor shall be Sick WT24-2B210 or equal.

2.03 ELECTRICAL AND CONTROL REQUIREMENTS

- A. All electrical appurtenances, with the exception of the control panel, furnished by the equipment manufacturer shall be rated for installation in a Class I, Division 1 hazardous location within the screenings areas.
- B. All conduit, couplings, fittings, and fasteners furnished by the equipment manufacturer shall be braided flexible coupling conduit rated for the conditions noted.
- C. Electrical Requirements:

Motors	Screen	Screenings Compactor
VFD	Yes	No
Rating	460V, 3 ph, 60 Hz	460V, 3 ph, 60 Hz
Horsepower, Max	5	5
Speed, rpm	1800	1800
Enclosure	TEFC-XP	TEFC-XP
Insulation	Class H	Class H
Inverter Duty	Yes	No
Service Factor	1.0	1.15
Space Heater	No	No
Motor Winding Temperature Switch	No	No

2.04 VARIABLE FREQUENCY DRIVES

- A. The speed control for variable speed pumps shall be Variable Frequency Drives, as specified in Division 16 suitable for installation as shown on the Drawings.
- B. The Variable Frequency Drives shall be supplied by the Manufacturer and shall be completely coordinated with the pumps and pump driving motors and shall include all internal auxiliaries required to meet the functional specifications.
- C. The Variable Frequency Drives shall be compatible with the motors provided by the Manufacturer.

2.05 CONTROL PANELS

- A. The screen and compactor shall be provided with a separate Local Control Station (LCS) located at the equipment. Controls for each LCS shall include the following features:
 1. NEMA 7 rating suitable for a Class I, Division 1 hazardous location.
 2. Screen LCS shall have Hand/Off/Remote switch, Forward/Off/Reverse-Jog switch (maintained in the Forward position and spring return to center from the Reverse Jog position), and a maintained-type mushroom-head emergency E-stop button. The Forward/Off/Reverse Jog switch shall only be energized when the Hand/Off/Remote switch is in the Hand position.
 3. Compactor LCS shall have Hand/Off/Remote switch, Forward/Off/Reverse-Jog switch (maintained in the Forward position and spring return to center from the Reverse Jog position), and a maintained-type mushroom-head emergency E-stop button. The Forward/Off/Reverse Jog switch shall only be energized when the Hand/Off/Remote switch is in the Hand position.
 4. In addition each compactor shall have a remote Emergency Stop Station (LLCS).
- B. The screen shall be supplied with a combined Screen/Compactor Local Control Panel (CP) to be located away from the equipment in the electrical room. These CP shall be vendor furnished and shall include the following features:
 1. In addition the compactor shall have a remote Emergency Stop Station (LLCS).

2. The CP shall be painted steel and rated NEMA 12 suitable for unclassified locations. Panel shall be supplied with a flange mounted disconnect switch and main circuit breaker. Power supply to panel shall be 480VAC, three phase, 60Hz AC.
3. A variable frequency drive (VFD) shall be provided in the LCP for control of the screen drive system. VFDs shall be as specified in Section 16446, Variable Frequency Drives.
4. Design of the control panel shall be with 120VAC logic.
5. For the bar screen, dual input Ultrasonic level indicating transmitters (LITs) as manufactured by Siemens shall be provided, these transmitters shall be mounted inside the CPs. Two ultrasonic level transducers shall be provided for each bar screens, refer to contract drawings for mounting location. Refer to Division 17 for additional requirements.
6. Programmable Logic Controllers (PLC) shall be furnished for an integrated PLC-based control system. The PLC shall be Allen-Bradley CompactLogix series furnished in accordance with Section 17311.
7. The supplier shall furnish an integrated PLC-based control system to monitor and control the operation of each screen and screenings compactor.
8. Front panel devices, as a minimum, shall include an Allen-Bradley PanelView Plus 6 1000 Operator Interface Terminal (OIT), Control Power On (blue indicating lamp), Emergency Pushbutton (mushroom type), and a non-resettable mechanical elapsed time meter.
9. The OIT shall display the process and equipment using a graphic representation of the actual screen/compactor system. It shall display all parameters being monitored including alarms. Also, allow for adjustment of timers and set points by the operator. The graphic screens shall be tailored specific to this project.
10. All the PLC adjustable set points and control parameters shall be through the OIT.
11. The PLC shall have an Ethernet port and connect to the PS-RTU panel to allow control and set point adjustment from remote.
12. The Supplier shall coordinate with Instrumentation and control system subcontractor for addressing and tagging.
13. Discrete Inputs (from remote dry contact):
 - a. Screen Level High (override from level float switch)
 - b. Screen LCS Auto
 - c. Screen LCS Forward
 - d. Screen LCS E-Stop
 - e. Compactor LCS Auto
 - f. Compactor LCS Forward
 - g. Compactor LCS E-Stop
 - h. Compactor Zero Speed Switch
 - i. Compactor Pull Cord activated

- j. Compactor Fail
 - k. System Enable (from plant PLC)
 - l. Level High Differential (from level transmitter)
 - m. Level High-High Differential (from level transmitter)
- C. Discrete Outputs (rated 5A @ 120VAC):
- 1. Screen Switch In Auto (to pump station PLC)
 - 2. Screen Running at Low Speed (to pump station PLC)
 - 3. Screen Running at High Speed (to pump station PLC)
 - 4. Screen Common Fault (to pump station PLC)
 - 5. Compactor Switch In Auto (to pump station PLC)
 - 6. Compactor Running (to pump station PLC)
 - 7. Compactor Common Fault (to pump station PLC)
- D. Analog Inputs (4-20mA):
- 1. Screen channel upstream Level
 - 2. Screen channel downstream Level
- E. All other equipment manufacturer recommended safety alarms shall be included.
- F. All accessories and appurtenances required for a complete and operational system shall be provided. Refer to division 17 for additional requirements.
- G. SCREEN CONTROL OPERATIONS:
- 1. The Bar Screen shall operate in the manual and automatic mode. In the manual mode initiated by the operator and in the automatic mode based on channel differential level and repeat cycle timers.
 - 2. Each LCS includes the following selector switches a Hand/Off/Remote (HOR) switch a Forward/Off/Reverse-Jog (FOR) switch, and an Emergency Stop Pushbutton Switch.
 - 3. When the Hand/Off/Remote (HOR) switch on the LCS is in the hand position, the screen shall be controlled from the LCS as follows:
 - a. When the FOR selector switch on the LCS is in the Forward position, the screen shall run in the forward direction at slow speed.
 - b. When the FOR selector switch on the LCS is in the Off position, the screen shall not run.
 - c. When the FOR selector switch on the LCS is held in the Reverse position, the screen shall run in the reverse direction.
 - 4. When the HOR switch on the LCS is in the Off position, the screen shall not run.

5. When the HOR switch on the LCS is in the Remote position, the screen shall be controlled from the OIT at the CP as follows:
 - a. When the On/Off/Auto (OOA) System Enable selector on the CP OIT is in the On position, the screen shall run.
 - b. When the OOA System Enable selector on the CP OIT is in the Off position, the screen shall not run.
 - c. When the OOA System Enable selector on the CP OIT is in the Automatic position, the screen shall cycle on and off based on the repeat cycle timer or level mode based on the differential level. The repeat cycle timer shall be adjustable from the OIT (initially set at 60 minutes) during the repeat cycle the screen shall run for a predetermined time span (initially set at 15 minutes) one screen run continuously at slow speed, as configured on the VFD drive or PLC. In the automatic mode the high differential level set point (adjustable from the OIT) will override the automatic timer control, and start the screen and shall run in fast speed, as configured on the VFD or PLC drive.

Upon detection of a jam, by high motor current, the screen shall attempt to dislodge the item by alternating and reversing the motor a preset period of time before stopping and alarming. Upon overload the screen shall alarm and shutdown.

H. COMPACTOR CONTROL OPERATIONS:

1. When the HOR switch on the LCS is in the Hand position, the compactor shall be controlled from the LCS as follows:
 - a. When the Forward/Off/Reverse (FOR) selector switch on the LCS is in the Forward position, the compactor shall run in the forward direction.
 - b. When the FOR selector switch on the LCS is in the Off position, the compactor shall not run.
 - c. When the FOR selector switch on the LCS is held in the Reverse position, the compactor shall run in the reverse direction
2. When the HOR switch on the LCS is in the Off position, the compactor shall not run.
3. When the HOR switch on the LCS is in the Remote position, the compactor shall be controlled from the OIT at the CP as follows:
 - a. Sequence of operation for compactor is initiated based on the run time of the associated screen. The compactor shall run whenever the associated screen is in operation. The compactor start, initiates a wash cycle.
 - b. Wash cycle:
 - 1) Wash water supply is activated: ON/OFF mode with adjustable timers for each operational condition
 - 2) Drive runs forward also controlled by timers with adjustable ON/OFF sequence
 - 3) Wash cycle is followed by discharge cycle: screw is running forward for an adjustable time
 - 4) Pan wash is activated
 - 5) Wash cycle finished

- c. The screen, compactor, spray, and all spray washes shall alarm and stop immediately if any of the e-stop pushbuttons are pressed.
- d. Compactor shall have the ability to clear blocking automatically: if current monitoring relay senses high load condition the screw stops and a clearing cycle is initiated: the screw stops immediately and reverses (time is adjustable at operator interface) and starts running forward. The number of attempts to clear the blocking is also adjustable – if screw is not cleared after allowed number of attempts or the overload is sensed during reversing, the system stops immediately and an alarm signal is rendered. Compactors shall also be furnished with over-torque and overload safety devices.

2.06 SPARE PARTS

- A. The Contractor shall furnish all special tools (one per like piece of equipment) necessary to disassemble, service, repair and adjust the equipment.
- B. The Contractor shall furnish spare parts as recommended by the equipment manufacturer in addition to those listed below.
- C. Equipment General Provisions and shall include the following at a minimum:
 - 1. Mechanical screens (per screen)
 - a. One (1) set of rake bars and rake plates
 - b. Five (5) feet of chain
 - c. Two (2) wipers for scraper (or one pair of wear pads)
 - d. One year supply of all recommended lubricants
 - 2. Screenings Compactors (per compactor)
 - a. One (1) set of wear bars
 - b. One (1) cleaning brush
 - c. One year supply of all recommended lubricants
 - 3. Control Devices
 - a. Two of all relay, timer or control device used in the system
 - b. Two sets of spare fuses for each type used in the system
 - c. One indicating lamp for each type used in the system

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 manufacturer 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 screening equipment. 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 insure that the work is done in a manner fully approved by the respective equipment manufacturer. The manufacturer's representatives shall specifically supervise the installation of the screen and compactor. 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 screen is started, with follow-up visits upon start-up of each subsequent screen.
- 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. 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, 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 screening equipment, and after inspection, operation, testing and adjustment have been completed by the manufacturer's representative, each mechanical screen and screenings compactor shall be given a running test in the presence of the Engineer, such tests as necessary to indicate that the screening equipment, motors, and drives generally conform to the operating conditions specified and its ability to operate without vibration or overheating. The screening equipment and motors shall operate at the specified speed and capacities without undue noise or vibration. Any undue noise or vibration in the equipment, which is deemed objectionable by the Engineer, will be sufficient cause for rejection of the units.
- C. A thirty-day operating period of the mechanical screens and screenings equipment will be required before acceptance. If equipment performance does not meet the Specifications, corrective measures shall be taken or the equipment shall be removed and replaced with equipment which satisfies the conditions specified.
- D. 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 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. See Section 01450 for Startup and Training requirements.

END OF SECTION

SECTION 11421 - MECHANICAL SCREENS AND SCREENINGS COMPACTORS DUPERON**PART 1 - GENERAL****1.01 SCOPE OF WORK**

- A. Provide all labor, materials, equipment, delivering, installing, testing, and placing into service all mechanical screen and screenings compactor equipment with all appurtenances complete as shown on the Drawings and more fully described hereinafter.
- B. The Contractor shall install a screenings transfer system (chute) between the screens and the screenings compactors, provided by the same manufacturer as the screens and screening compactors. Contractor shall be responsible for properly supporting the screenings transfer system.
- C. The screening equipment and compactors shall be provided complete with all accessories, special tools, spare parts, mountings, anchor bolts and other appurtenances as specified and as may be required for a complete and operating installation. Any modifications or changes to the building, in addition to those shown on the Drawings, necessary to facilitate the screens and screenings compactors shall be the responsibility of the Contractor at no additional cost to the Owner.
- D. It shall be the Contractor's responsibility to install the mechanical screen and screenings compactors and appurtenances with the necessary operating clearances with the structural elements and equipment shown on the Contract Drawings.
- E. Layout, dimensions, and elevations shown on the Drawings are representative of the mechanical screens and screenings compactors. Any costs for re-design, materials, or construction due to requirements of the mechanical screens and screenings compactors equipment ultimately furnished shall be the responsibility of the Contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals: Section 01300
- B. Operating & Maintenance Manuals: Section 01780

1.03 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

- A. The mechanical screen shall be designed to remove screenings from raw wastewater and to discharge the screenings into washer compactors. The screens shall be designed for operation in a rectangular channel as shown on the Contract Drawings. Screen shall be a mechanically cleaned bar screen with link system design. The mechanically cleaned bar screen shall have a head sprocket only, with no sprockets, bearings, idlers, or similar drive components under water to trap the chain. Equipment featuring reciprocating rake arms or lower bearings/sprockets/tracks below the water is not acceptable. The design shall be such to ensure that all maintenance can be accomplished at the operating floor level or above. No part of the drive system including sprockets shall be located below the water surface at maximum design flow.
- B. Screening equipment shall be designed to run continuously (24/7), without operator supervision. Screen cleaning system shall be front cleaning and front return design, to prevent the potential of "carry-over" of screenings material.

- C. Debris collected on the bars shall be lifted above deck level by multiple link-mounted scrapers and debris blades. The screenings shall be discharged to a chute connected to the head frame. The chute shall discharge via gravity to the screenings compactors located on the downstream side of the screen. The screen shall consist essentially of the frame, screen field, dead plate, seals, rake assembly (link system, scrapers, debris blades, drive unit, bearing), gearbox, screen drive, local controls and appurtenances specified or otherwise required for a complete and properly operating installation.

Mechanical Screen

Parameter	Value
Number of units required	1
Channel width at screen, per screen	3 FT
Channel invert at screen, elevation	965.6
Operating floor elevation (top of channel)	979.6
Maximum upstream water surface elevation (WSEL)	973.0
Minimum screen field width, per screen	2.2
Installed angle, degrees from vertical	75
Flow rate per screen - maximum (peak flow)	10.0 mgd
Flow rate per screen - minimum	10.0 mgd
Max headloss allowable at peak flow, clean screen ⁽¹⁾	8.98"
Max headloss allowable at peak flow, 30% blind ⁽¹⁾	10.21"
Max head differential across the screen ⁽²⁾	2 ft
Discharge elevation above upper operating floor, minimum	5'
Bar spacing (clear space), maximum	0.25 inches
Minimum raking capacity (cf/hr), per screen	5.83 ft ³ /hr
Rake travel speed (feet per minute)	Min Speed: 2.33 ft/min. Max Speed: 9.33 ft/min.
⁽¹⁾ Headloss calculation(s) shall be based on the assumption that the water depth within the channel downstream of screen equals 3-ft.	
⁽²⁾ All components, including the gear reducer, shall be designed to withstand, without damage or permanent distortion, the maximum headloss allowable (full screen blinding).	

- D. The heavy duty screw type screenings washer compactor shall be suitable for installation and operation with the screen and shall accept screenings, compress and dewater them and deliver them to the screenings dumpster as shown on the Drawings. The screenings compactor shall also be equipped with a washing zone. The screenings washer compactors shall be provided by the same manufacturer as the screens and shall be connected to the screens by a covered chute as specified herein.

Screenings Compactor

Parameter	Value
Number of units	1
Number of hopper inlets per unit	1
Screw length, minimum (ft)	30 ft
Minimum capacity (cf/hr), total	133 ft ³ /hr
Feed concentration, % dry solids content	0 - 5 %
Compactor discharge concentration, % dry solids content	30 - 60 %
Screenings volume reduction, %	80 %
Minimum screw diameter, inches	11 - 1/4 "
Maximum screw rotational speed, rpm	2.2 rpm

1.04 MANUFACTURER

- A. The mechanical screen and screenings compactor units shall be provided by a single manufacturer with a minimum of five (5) years' experience in designing and manufacturing screening equipment of similar type, size and capacity. The mechanical screens and screenings compactors shall be manufactured by Duperon Corporation or approved equal.
- B. To assure unity of responsibility, the mechanical screens and screenings compactors, chute, controls, motors, VFDs, gearboxes, and appurtenances specified and other auxiliary equipment, and materials specified in this Section shall be furnished and coordinated by the screen manufacturer (Manufacturer) who shall assume responsibility for the satisfactory operation of the entire screening system.
- C. 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 equipment. Upon request, the Contractor shall submit evidence of the proposed manufacturer's ability to promptly fill replacement orders.
- D. Quality Assurance: All screening equipment shall be of approved design and make products of manufacturers who have built equipment of similar type, size and capacity. Upon request, the Manufacturer shall provide evidence of at least five (5) installations in which similar sized equipment has provided satisfactory performance for a minimum of five (5) years in a similar application.
 - 1. The Contractor shall obtain the screening equipment, controls and appurtenances from the screen manufacturer, as a complete and integrated package to insure proper coordination and compatibility and operation of the system.
 - 2. All components made of stainless steel shall meet the acid passivation requirements of ASTM A380. Stainless steel components shall be fabricated in a manner to prevent contamination with carbon steel.
 - 3. Provide fabrication in compliance with all applicable ASTM standards or equivalent international standards.
 - 4. The equipment manufacturer's shop welds, welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirements of the latest edition of ANSI/AWS D1.6 "Structural Welding Code - Steel" published by the American Welding Society or equivalent standard.
 - 5. Perform all welding in the factory using shielded arc, inert gas, MIG or TIG method. Add filler wire to all welds to provide for a cross section and weld metal equal to or greater than the parent metal. Fully penetrate butt welds to the interior surface and provide gas shielding to interior and exterior of the joint.
- E. 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.
- F. 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 screening equipment now in operation under the specified conditions of service and screen rating constitute grounds for disqualification of the screen manufacturer, supplier, or both, unless such poor performance has been corrected.
2. Failure to successfully comply with the provisions of subparagraphs A through G, inclusive, will constitute grounds for disqualification of screen manufacturer.

1.05 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 screening products meet the required Specifications.
- D. Descriptive literature 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 mechanical screen and screenings compactor.
 1. Descriptive Literature:
 - a. Equipment dimensions and weight.
 - b. Materials of Construction (including required coating).
 - c. Complete motor nameplate data as defined by NEMA.
 - d. Gear reducer data including service factor, efficiency, torque rating and materials.
 - e. Shop drawing data for accessory items.
 - f. Certified setting plans, with tolerances, for anchor bolts.
 - g. List of recommended spare parts other than those specified.
 - h. Shop and field inspection reports.
 - i. Qualifications of field service engineer.
 - j. Recommendations for short and long-term storage.
 - k. Shop and field testing procedures, set up and equipment to be used.

- l. Special tools.
 - m. Schematic control and power wiring diagrams including interconnecting and internal wiring diagrams.
 - n. Control panel drawings and heat load / dissipation calculations.
 - o. Manufacturer's literature as needed to supplement certified data.
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 mechanical screens and screenings compactors units, as well as the location of the nearest permanent service headquarters.

F. Calculations:

- 1. Maximum headloss and velocity at peak flow for clean screens.
- 2. Maximum headloss and velocity at peak flow for 30% blinded screen conditions to verify screens can handle peak flows.
- 3. Structural calculations of screen design strength to handle the maximum head differential across the screens (maximum water level upstream and no water downstream) to verify screens can handle full blinded conditions.
- 4. Calculations shall be signed and sealed by a Professional Engineer.

1.06 TESTS

A. Shop Tests:

- 1. All equipment shall be tested in the shop of the manufacturer in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents and that it will operate in the manner specified or implied.

B. Field Tests:

- 1. The field tests shall be made on each mechanical screen and screenings compactor unit by the Contractor in the presence of and as directed by the Engineer.
- 2. The Contractor shall give at least two (2) week's notice to the Owner and Engineer when the field tests are to be accomplished so that the Owner and Engineer may have a representative present at the said tests.
- 3. Before any screening equipment is rotated, the Contractor shall make certain that no debris is present in screening channels. Any damage done to equipment while starting up shall be assumed to be caused by debris and shall be replaced at the Contractor's expense.

4. During the test, the screening equipment shall be checked for proper alignment of the rake and bar screen, operated at maximum rated speed to confirm smooth operation and no undue noise, vibration, overheating or overloading of drive motors and components. Controls shall be checked to verify screening equipment operates as specified. Safety interlocks and devices shall be checked for proper operation.
5. Contractor shall be responsible for making all adjustments necessary to place equipment in specified working order at time of above tests.
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 screening equipment, the Contractor shall furnish the services of accredited representatives of the equipment manufacturer who shall supervise the installation, adjustment, and field tests of each screening unit and give instructions to the operating personnel. As one condition necessary to acceptance of any screening equipment, the Contractor shall submit a certificate from the manufacturer, stating that the installation of the equipment 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.

1.07 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 one (1) year. This one (1) year minimum shall not replace a standard manufacturer's guarantee if it exceeds one (1) year.

1.08 WARRANTY

- A. The Contractor guarantees and warrants that during the first one year of operation, the mechanical screens and screenings compactors will operate satisfactorily and continuously according to the operating conditions and performance requirements specified herein, and that after due notice has been given by the Owner, he or the equipment 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.

PART 2 - PRODUCTS

2.01 MECHANICAL SCREEN

A. Frame:

1. Framework of screen shall be constructed of 304 stainless steel bent plate with minimum of 3/16" cross section. Horizontal members shall be of 304 stainless steel bent plate with a minimum thickness of 3/16". The side frames shall be connected to the support frames. The support frames shall be securely anchored to the operating floor. A 304 stainless steel channel bottom plate shall be an integral part of the bar screen assembly to fully engage scrapers in the bar screen at the base of the unit and assure that the raking mechanism reaches the bottom of the screen to prevent debris accumulation. The minimum bottom plate thickness shall be 3/16". No braces, gussets or stiffeners shall be inside the Screen Frame that will allow for screenings to collect
2. All parts shall be designed and manufactured to handle the forces that may be exerted on the screen during fabrication, shipping, erection, and proper operation according to the Operation and Maintenance Manual. All components shall be so designed that jamming at any point will not result in structural failure, but will cause the drive motor to stall. All components, including the gear reducer, shall be designed to withstand, without damage or permanent distortion, the full stalling torque of the drive motor.
3. Frame width and height shall be customized to fit the specified channel dimensions, discharge height, and hydraulic force requirements. The mechanical screen assembly shall be shipped in one piece. Screen construction shall allow for disassembly in the event modular construction is required.
4. The unit shall be supported and anchored on the operating floor and at the bottom of the channel.
5. Anchor bolts shall be a minimum 3/8" diameter furnished by the Contractor. Bolts and nuts shall be of Type 304 stainless steel. Anti-galling compound shall be used to assemble all stainless steel nuts, bolts and fasteners.
6. Stainless steel backing plates will be mounted along the upstream edges of the frame to seal the outer edge of the frame against the channel walls.
7. The unit is anchored to the channel floor at the toe of the unit to prevent the flow from passing under the screen. The channel bottom plate directs flow into the screen.
8. Link slide assembly shall be provided per manufacturer standard design and shall be constructed of UV Stable UHMW PE rollers and 304 stainless steel supports and components.
9. Screen enclosure / covers which are easily removable shall be provided with handles and turn locks for "no tool required" access. A 14 gauge. (minimum thickness) #4 brushed satin finish 304 stainless steel enclosure shall be installed to cover the screen above the

operating deck level. Front Enclosure shall be provided with knurled knobs for "no tool required" access and stainless steel doors with polycarbonate viewing pane for access to equipment. Removable panels shall be constructed of 304 stainless steel with a minimum thickness of 16 gauge. Alignment notches shall be included to support repositioning of removable panels. Rear Enclosure shall have hinged removable doors and shall be secured with a lift-slide-latch handle. Rear removable door shall include an integral viewing door that shall be secured with a lift-slide-latch handle to provide access for a quick look inside.

B. Screenfield and Deadplate:

1. Screen bars shall be constructed of 316 stainless steel and be "tear-shaped" with a hydraulic coefficient shape factor of 0.76 and the minimum dimensions of 0.25 inch x 0.75 inch x 0.13 inch.
2. Bars shall be supported from framework and shall be individually replaceable without welding or cutting. Replacement screen bars shall be available from the screen manufacturer.
3. There shall be no space wider than the opening between the bars which would permit passage of larger solids through the screen.
4. Dead plate of 304 stainless steel plate (minimum thickness is ¼") shall be flat and true; span the entire width of the unit; transition from bar screen and extend to the discharge point.

C. Screen Cleaning:

1. The equipment shall have multiple scrapers on the bar screen at one time cleaning continuously from bottom to top, the entire width of the bar screen. Units which have single raking arms or that require cycle times shall not be allowed.
2. Manufacturer's equipment shall have a head sprocket only, with no sprockets, bearings, idlers, or similar drive components under water to trap the chain. Equipment featuring reciprocating rake arms or lower bearings/sprockets/tracks below the water is not acceptable.
3. The link system shall have jam evasion capability by flexing around and collecting large objects such as a 2 X 4 board, bowling ball, grease balls and surges of solids at peak loading times without overloading and shutting down the unit. The link system shall be such that it bends in one direction only which allows it to become its own lower sprocket and frame and shall have a 1,000 pound lifting capacity.
4. The link system shall be stainless steel castings and have a minimum ultimate strength of 60,000 lbs with a minimum cross section of 1.5 inches and weighing a minimum of 4.5 lbs each. Links and pins shall be constructed of 304 stainless steel material. Retaining rings shall be constructed of 302 stainless steel.
5. Scrapers shall be spaced 21 inches apart. To provide long product life the scraper shall move at no greater than 28 inches per minute at standard operating speed of ½ rpm allowing for approximately 1 debris discharge per minute. Staging Scrapers and Thru Bar Scrapers shall be a maximum ratio of 3:1 per manufacturer recommendations. At least one scraper every 84 inches shall fully penetrate the bar screen, cleaning all three sides of the bars as well as through to the cross members in openings of 0.25, 0.375 and 0.50 inches.
6. Staging Scrapers shall be 1 inch thick x 4 inches x screen width UV Stable UHMW-PE with a serrated edge.

7. Thru Bar Scrapers shall be minimum 0.375 inch thick 304 stainless steel.
8. A 304 stainless steel and UV Stable UHMW-PE debris blade assembly, which does not require a separate drive, shall be installed to assist in removing debris from the scraper on the mechanically cleaned bar screen unit as recommended by the manufacturer.
9. Return guide/Closeouts shall be 304 stainless steel and shall assure proper alignment of scrapers as they enter the bar screen and assure that there is no space wider than the clear opening between bars to prevent passage of larger solids than allowed through the screen.
10. Screenings transported to the top of the screen shall be discharged positively by means of a scraper mechanism to the discharge chute. Cleaning mechanisms that utilize shock absorbers, springs, or other dampening or hydraulic actuators are unacceptable.
11. A discharge chute shall be provided for each screen to divert screenings discharged from the screen to a screenings compactor. The discharge chute shall be constructed of 304 stainless steel with a minimum thickness of 11 gauge. The discharge chute shall be bolted to the dead plate.

D. Drive Mechanism:

1. The Drive Head shall be located at the top of the mechanically cleaned bar screen. The drive mechanism for the rakes shall incorporate a solid shaft constructed of AISI 1018 steel or Type 304 stainless steel. The drive shaft shall have a minimum diameter of 3-1/8 inch. The drive output shaft rotation shall be constant and in one direction in order to reduce maintenance and increase product life.
2. Drive Sprockets shall be coated ASTM A48, CL40 cast iron with ASTM A536 80-55-06 ductile cast iron end castings.
3. Bearing shall be greased ball bearing type, non self-aligning, sealed and lubricated and shall have a 24/7/365 L10 life of 20 years. Non-sealed bearings are not acceptable.
4. Screen operates continuously, speed is controlled by set points established by water level differential. Discharge intervals vary from once every minute to once every 15 seconds (or 4 times a minute).

E. Speed Reducer:

1. Speed reducer shall be a double-reduction, cycloidal style and shall comply with all applicable AGMA standards. The speed reducer shall be capable of a 4/1 speed range with variable output speeds between 0.50 to 2.2 output RPMs (in high flow conditions). The speed reducer shall produce an output torque of 11,417 in.lb. and have a gear ratio of 809:1.

2.02 SCREENINGS COMPACTOR

- A. The screenings compactor shall be of the dual auger design. The system shall be designed to receive, wash, positively convey and compact screenings discharged from the mechanical screen(s). The compactor shall be capable of continuous operation and of handling all wastewater screenings received from the mechanical screen, in addition to the washer compactor's wash water flows. Compactor shall have the ability to process multiple pieces of clothing, variable volumes of debris, and unprocessed septage or grease. Compactor shall be equipped with a self-regulating, active pressure zone designed to accept non-standard wastewater debris in its original form, such as rocks, broken concrete, and metal (bolts, short

pipe, etc.) up to 4 inches long. Manufacturer shall provide calculations to show the screenings compactor is sufficiently sized to convey the maximum amount of screenings that the screening equipment can deliver.

- B. The screenings shall be introduced into the inlet hopper directly over the Sieve Zone, washed in the Wash Zone, compacted in the Press Zone, conveyed through the Transport Zone, and discharged from the Discharge Tube into a suitable receptacle. The excess liquid shall drain through holes in the inlet trough.
- C. Each compactor shall be designed to handle capacity per paragraph 1.03. The compactor shall reduce screenings volume by a minimum of 50% and produce dry screenings content per paragraph 1.03.
- D. Unless specified otherwise hereinafter, stainless steel shall be grade 304. All mechanical parts shall be designed to handle the forces that may be exerted on the Washer Compactor during fabrication, shipping, erection, and operation.
- E. Auger (shafted screw assemblies):
 - 1. Dual augers shall provide positive displacement action, be orientated on top of each other and rotate in opposing directions. The augers shall be intermeshed and shall be of 1 left hand and 1 right hand lead.
 - 2. Augers shall be constructed of 304 stainless steel with flights welded to a solid shaft. Minimum thickness of Auger flights shall be 3/8 inch with 4 inch flight pitch.
 - 3. Augers shall be float mounted in a Delrin or equivalent, thrust and plane bearing arrangement that allows movement for accommodation of irregular debris. Stainless steel fasteners shall be provided to hold the auger support in place.
- F. Frame / Housing:
 - 1. The compactor housing shall be constructed of 304 stainless steel with a minimum thickness of 11 gauge and connect to 3/8 inch thick flanges.
 - 2. Housing shall be furnished with minimum 1/2 inch diameter water supply line connection fitting. Wash port manifold shall be integrated prior to the compaction housing and delivers 3 to 5 GPM. The Washer Compactor manufacturer shall provide all solenoid valves and isolation valves, required to control the flow of wash water. All interconnecting piping, valves, etc. between the water source, and Washer Compactor housing and the solenoid and isolation valves shall be supplied and installed by the Contractor.
 - 3. Drain connection shall be 3 inch NPT (minimum).
 - 4. Rear leg, front leg and intermediate leg supports, as required, shall be furnished for rigid support to the concrete slab. Anchor bolts shall be a minimum 1/2 inch diameter 304 stainless steel furnished by the Contractor. Anti-galling compound shall be used to assemble all stainless steel nuts, bolts and fasteners.
- G. Discharge Tube:
 - 1. Discharge Tube shall be constructed of minimum 14 gauge 304 stainless steel. The discharge tube shall increase in diameter/size over its length in order to reduce the potential for plugging.
 - 2. Discharge Tube shall direct and discharge screenings at a clear discharge height that allows for placement of a dumpster (provided by Owner) to collect the screenings.

3. Supports shall be furnished, as required for rigid support of the tubing to the concrete slab.
- H. Bagging System:
1. Cassette Holder shall be constructed of 304 stainless steel and ABS Plastic with a continuous bagger cassette, 230 ft (80 meters) in length, minimum.
- I. Speed Reducer:
1. Speed reducer shall have a maximum output of 2.2 RPM, 809:1 reduction ratio with 18,900 in-lb. of output torque.
- J. Thrust Bearings:
1. Thrust bearings shall be Delrin or equivalent, self-lubricating and be capable of withstanding minimum 2000 Lb. of thrust load (each auger) at 2.2 RPM for life of machine.
- K. Screw Supports:
1. Screw supports shall be UHMW plane type, self-lubricating and fastened into place using stainless steel fasteners.
- L. Spur Gears:
1. Spur gears shall be 17-4 PH stainless steel.
- M. Safety Devices and Limit Switches:
1. Safety Trip Cords
 - a. Each screw compactor shall be furnished with safety trip cords running on all sides of the hopper inlet with a safety stop switch in compliance with OSHA standards.
 - b. Trip cabling shall be stranded galvanized aircraft cable and orange colored nylon outer sheathing. Cabling shall be supported by stainless steel eyebolts every 4 feet. Wire clamps shall be stainless steel.
 - c. Safety switch shall be housed in a NEMA 7 enclosure and shall have 2 SP/DT micro-switch and stainless steel external hardware. Switch shall be maintained once activated and shall require a manual reset.
 - d. If a trip cord signal is received from the safety trip cord switch, when the motor is running, the compactor shall alarm and stop.
 - e. Emergency trip cord and safety switch shall be Conveyor Components Company Model RS-2X, or equal.
 2. Chute Level Sensor
 - a. Install a level sensor in the chute between the screen and compactor to detect compactor not turning.

2.03 ELECTRICAL AND CONTROL REQUIREMENTS

- A. All electrical appurtenances, with the exception of the control panel, furnished by the equipment manufacturer shall be rated for installation in a Class I, Division 1 hazardous location within the screenings areas.
- B. All conduit, couplings, fittings, and fasteners furnished by the equipment manufacturer shall be rigid aluminum and liquid tight, PVC coated, flexible metal conduit rated for the conditions noted.
- C. Electrical Requirements:

Motors	Screen	Screenings Compactor
VFD	Yes	Yes
Rating	460V, 3 ph, 60 Hz	460V, 3 ph, 60 Hz
Horsepower, Max	5	5
Speed, rpm	1800	1800
Enclosure	TEFC-XP	TEFC-XP
Insulation	Class H	Class H
Inverter Duty	Yes	Yes
Service Factor	1.0	1.15
Space Heater	No	No
Motor Winding Temperature Switch	Yes	Yes

2.04 VARIABLE FREQUENCY DRIVES

- A. The speed control for variable speed pumps shall be Variable Frequency Drives, as specified in Division 16 suitable for installation as shown on the Drawings.
- B. The Variable Frequency Drives shall be supplied by the Manufacturer and shall be completely coordinated with the pumps and pump driving motors and shall include all internal auxiliaries required to meet the functional specifications.
- C. The Variable Frequency Drives shall be compatible with the motors provided by the Manufacturer.

2.05 CONTROL PANELS

- A. Each screen and each compactor shall be provided with a separate Local Control Station (LCS) located at the equipment. Controls for each LCS shall include the following features:
 - 1. NEMA 7 rating suitable for a Class I, Division 1 hazardous location.
 - 2. Screen LCS shall have FOR and HOR switches and a maintained-type mushroom-head emergency stop button (Estop).
 - 3. Compactor LCS shall have FOR and HOR switches and a maintained-type mushroom-head emergency stop button (Estop).

- B. Each screen shall be supplied with a combined Screen/Compactor Local Control Panel (CP) to be located away from the equipment in the electrical room. These CP shall be vendor furnished and shall include the following features:
1. In addition each compactor shall have a remote Emergency Stop Station (LLCS).
 2. The CP shall be painted steel and rated NEMA 12 suitable for unclassified locations. Panel shall be supplied with a flange mounted disconnect switch and main circuit breaker. Power supply to panel shall be 480VAC, three phase, 60Hz AC.
 3. A variable frequency drive (VFD) shall be provided in the LCP for control of the screen drive system. VFDs shall be as specified in Section 16446, Variable Frequency Drives.
 4. Design of the control panel shall be with 120VAC logic.
 5. For the bar screen, dual input Ultrasonic level indicating transmitters (LITs) as manufactured by Siemens shall be provided, these transmitters shall be mounted inside the CPs. Two ultrasonic level transducers shall be provided for each bar screens, refer to contract drawings for mounting location. Refer to Division 17 for additional requirements.
 6. Programmable Logic Controllers (PLC) shall be furnished for an integrated PLC-based control system. The PLC shall be Allen-Bradley CompactLogix series furnished in accordance with Section 17311.
 7. The supplier shall furnish an integrated PLC-based control system to monitor and control the operation of each screen and screenings compactor.
 8. Front panel devices, at a minimum, shall include as a minimum an Allen-Bradley PanelView Plus 6 1000 Operator Interface Terminal (OIT), Control Power On (blue indicating lamp), Emergency Pushbutton (mushroom type), and a non-resettable mechanical elapsed time meter.
 9. The OIT shall display the process and equipment using a graphic representation of the actual screen/compactor system. It shall display all parameters being monitored including alarms. Also, allow for adjustment of timers and set points by the operator. The graphic screens shall be tailored specific to this project.
 10. All the PLC adjustable set points and control parameters shall be through the OIT.
 11. The PLC shall have an Ethernet port and connect to the PS-RTU panel to allow control and set point adjustment from remote.
 12. The Supplier shall coordinate with Instrumentation and control system subcontractor for addressing and tagging.
 13. Discrete Inputs (from remote dry contact):
 - a. Screen Level High (override from level float switch)
 - b. Screen LCS Auto
 - c. Screen LCS Forward
 - d. Screen LCS E-Stop
 - e. Compactor LCS Auto
 - f. Compactor LCS Forward
 - g. Compactor LCS E-Stop

- h. Compactor Pull Cord activated
- i. Compactor Fail
- j. System Enable (from plant PLC)
- k. Level High Differential (from level transmitter)
- l. Level High-High Differential (from level transmitter)

C. Discrete Outputs (rated 5A @ 120VAC):

- 1. Screen Switch In Auto (to pump station PLC)
- 2. Screen Running at Low Speed (to pump station PLC)
- 3. Screen Running at High Speed (to pump station PLC)
- 4. Screen Common Fault (to pump station PLC)
- 5. Compactor Switch In Auto (to pump station PLC)
- 6. Compactor Running (to pump station PLC)
- 7. Compactor Common Fault (to pump station PLC)

D. Analog Inputs (4-20mA):

- 1. Screen channel upstream Level
- 2. Screen channel downstream Level

E. All other equipment manufacturer recommended safety alarms shall be included.

F. All accessories and appurtenances required for a complete and operational system shall be provided. Refer to division 17 for additional requirements.

G. SCREEN CONTROL OPERATIONS:

- 1. The Bar Screens shall operate in the manual and automatic mode. In the manual mode initiated by the operator and in the automatic mode based on channel differential level and repeat cycle timers.
- 2. Each LCS includes the following selector switches a Hand/Off/Remote (HOR) switch a Forward/Off/Reverse-Jog (FOR) switch, and an Emergency Stop Pushbutton Switch.
- 3. When the Hand/Off/Remote (HOR) switch on the LCS is in the hand position, the screen shall be controlled from the LCS as follows:
 - a. When the FOR selector switch on the LCS is in the Forward position, the screen shall run in the forward direction at slow speed.
 - b. When the FOR selector switch on the LCS is in the Off position, the screen shall not run.
 - c. When the FOR selector switch on the LCS is held in the Reverse position, the screen shall run in the reverse direction.

4. When the HOR switch on the LCS is in the Off position, the screen shall not run.
5. When the HOR switch on the LCS is in the Remote position, the screen shall be controlled from the OIT at the CP as follows:
 - a. When the On/Off/Auto (OOA) System Enable selector on the CP OIT is in the On position, the screen shall run.
 - b. When the OOA System Enable selector on the CP OIT is in the Off position, the screen shall not run.
 - c. When the OOA System Enable selector on the CP OIT is in the Automatic position, the screen shall cycle on and off based on the repeat cycle timer or level mode based on the differential level. The repeat cycle timer shall be adjustable from the OIT (initially set at 60 minutes) during the repeat cycle the screen shall run for a predetermined time span (initially set at 15 minutes) one screen run continuously at slow speed, as configured on the VFD drive or PLC. In the automatic mode the high differential level set point (adjustable from the OIT) will override the automatic timer control, and start the screen and shall run in fast speed, as configured on the VFD or PLC drive.

The screen does not auto reverse, but rather flexes around large debris.

H. COMPACTOR CONTROL OPERATIONS:

1. When the HOR switch on the LCS is in the Hand position, the compactor shall be controlled from the LCS as follows:
 - a. When the Forward/Off/Reverse (FOR) selector switch on the LCS is in the Forward position, the compactor shall run in the forward direction.
 - b. When the FOR selector switch on the LCS is in the Off position, the compactor shall not run.
 - c. When the FOR selector switch on the LCS is held in the Reverse position, the compactor shall run in the reverse direction
2. When the HOR switch on the LCS is in the Off position, the compactor shall not run.
3. When the HOR switch on the LCS is in the Remote position, the compactor shall be controlled from the OIT at the CP as follows:
 - a. Sequence of operation for compactor is initiated based on the run time of the associated screen. The compactor shall run whenever the associated screen is in operation. The compactor start, initiates a wash cycle.
 - b. Wash cycle: Wash water supply runs when compactor starts.
 - c. The screen, compactor, spray, and all spray washes shall alarm and stop immediately if any of the e-stop pushbuttons are pressed.
 - d. Compactor shall have the ability to clear blocking automatically: if current monitoring relay senses high load condition the screw stops and a clearing cycle is initiated: the screw stops immediately and reverses (time is adjustable at operator interface) and starts running forward. The number of attempts to clear the blocking is also adjustable – if screw is not cleared after allowed number of attempts or the overload

is sensed during reversing, the system stops immediately and an alarm signal is rendered. Compactors shall also be furnished with over-torque and overload safety devices.

2.06 SPARE PARTS

- A. The Contractor shall furnish all special tools (one per like piece of equipment) necessary to disassemble, service, repair and adjust the equipment.
- B. The Contractor shall furnish spare parts as recommended by the equipment manufacturer in addition to those listed below.
- C. Equipment General Provisions and shall include the following at a minimum:
 - 1. Mechanical screens (per screen)
 - a. One (1) Drive Clevis Pin
 - b. Four (4) Link Clevis Pins
 - c. Ten (10) Snap/Retaining Rings and Tool
 - d. Four (4) Scraper Nuts
 - e. Four (4) Scraper Bolts
 - f. One (1) Snap Ring Tool
 - g. One (1) "Never Seez" Lubricant (3 oz. Tube)
 - h. One year supply of all recommended lubricants
 - 2. Screenings Compactors (per compactor)
 - a. One (1) Plane Bearing Kit
 - b. One year supply of all recommended lubricants
 - c. Three (3) Continuous bagger cassettes
 - 3. Control Devices
 - a. Two of all relay, timer or control device used in the system
 - b. Two sets of spare fuses for each type used in the system
 - c. One indicating lamp for each type used in the system

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 manufacturer 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 screening equipment. 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 insure that the work is done in a manner fully approved by the respective equipment manufacturer. The manufacturer's representatives shall specifically supervise the installation of the screen and compactor. 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 screen is started, with follow-up visits upon start-up of each subsequent screen.
- 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. 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, 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 screening equipment, and after inspection, operation, testing and adjustment have been completed by the manufacturer's representative, each mechanical screen and screenings compactor shall be given a running test in the presence of the Engineer, such tests as necessary to indicate that the screening equipment, motors, and drives generally conform to the operating conditions specified and its ability to operate without vibration or overheating. The screening equipment and motors shall operate at the specified speed and capacities without undue noise or vibration. Any undue noise or vibration in the equipment, which is deemed objectionable by the Engineer, will be sufficient cause for rejection of the units.
- C. A thirty-day operating period of the mechanical screens and screenings equipment will be required before acceptance. If equipment performance does not meet the Specifications, corrective measures shall be taken or the equipment shall be removed and replaced with equipment which satisfies the conditions specified.
- D. 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 eight (8) 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

General Construction:

- Blasting will be allowed. Contractor is required to complete a pre-blast surveying performed near their facilities. Contact Paragraph 3.038 of the Contract Documents. If blasting is employed for the re provide the Resident Project Representative (RPR) 24-hour notice of the delo the Owner and adjoining property owners as identified by the Owner. Detonal hours of 2:00 PM to 4:00 PM each day.
- LFUCG RMP specifications and standard details shall prevail over LFUCG sp
- Contractor shall provide temporary restroom facilities for employees, (both site
- Contractor shall coordinate blasting on the pump station and wet weather tank impact the public. See Spec Section 02225 for blasting requirements.
- Staging Area: Contractor shall submit a plan for its staging area. The submitta to any work being initiated.

Contractor Access:

- Contractor shall install a temporary construction entrance off the exit ramp of needed for access to Manhole A-2 on the pump station site. Restore site upon site shall be accessed from the existing paved private road. At all times access truck traffic
- Contractor shall install a temporary access road from Quinton Court to the wet weather tank shall coordinate with Contract No. 1 - New Circle Road and provide as necess security gate to work for Contract No. 1.
- Access plan shall be submitted to and approved by the Engineer and is incide

Maintenance of Access Way:

- Contractor shall maintain all access ways so as to be passable by vehicles an track mud or debris onto public rights-of-way. This includes taking over and pri each site. New Circle Road work at the wet weather storage tank site until this work is co 1 Contractor.
- Contractor shall own or have access to power equipment to daily (sweep) all per to Kurt Zehnder, P.E., Senior Principal Engineer, paved areas free of debris and rocks as directed by the Engineer. Ruting or p addressed immediately as directed by the Engineer.
- Maintenance of access ways is incidental to the installation of the wet weather not 1/2 as stated. Section 02372 Erosion And Sediment Control where

Site Restoration Non-Paved:

- All non-paved site restoration shall be per Method "C" as described in General drawings.

Paved Site Restoration:

- New paving is required as shown on Sheet 03C-04. Damaged pavement shall per Sheet 00G-04 for city streets and KYTC standards for New Circle Road an 02C-02 for additional pavement requirements

Spoils Management:

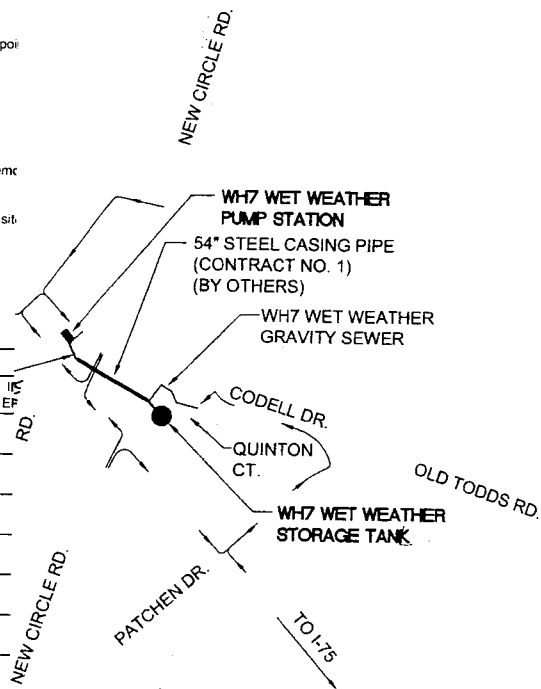
- The Spoils Management Plan is a submittal. Spoils Management and the Spoil the contract and are not pay items.
- The Contractor must secure any spoils disposal sites.

Tree Removal / Protection:

- Tree removal shall be approved by the Engineer. Trees removed shall be remc trees shall be removed from the site and disposed per the General Notes.
- Maintain clearance from the tree indicated on the wet weather pump station sit construction fence

Pipe and Manhole Summary:

MANHOLE TABLE						
MANHOLE NO.	STATION	DIAMETER	NORTHING	EASTING	RIM ELEVATION	REMARKS
A-1	10+00.00 (LINE A)	10'	187291.52	1580117.37	979.60	RD.
A-2	11+24.15 (LINE A)	5'	187173.55	1580156.07	988.28	
C-1	11+22.40 (LINE C)	5'	187336.35	1580013.80	979.60	
C-1A	10+33.70 (TEMP. LINE)	5'	187289.44	1580151.01	979.60	
C-2	12+91.88 (LINE C)	5'	187323.08	1580153.08	979.60	
COMBINATION AIR VALVE & VAULT		5'	187304.52	1580090.09	979.60	
PLUG VALVE VAULT		6' SQ	187354.33	1580045.28	979.60	
BYPASS VAULT		5'	187324.62	1580072.01	979.60	

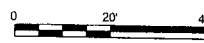


PROJECT ACCESS MAP



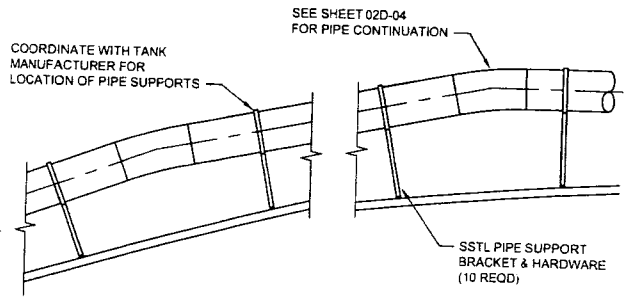
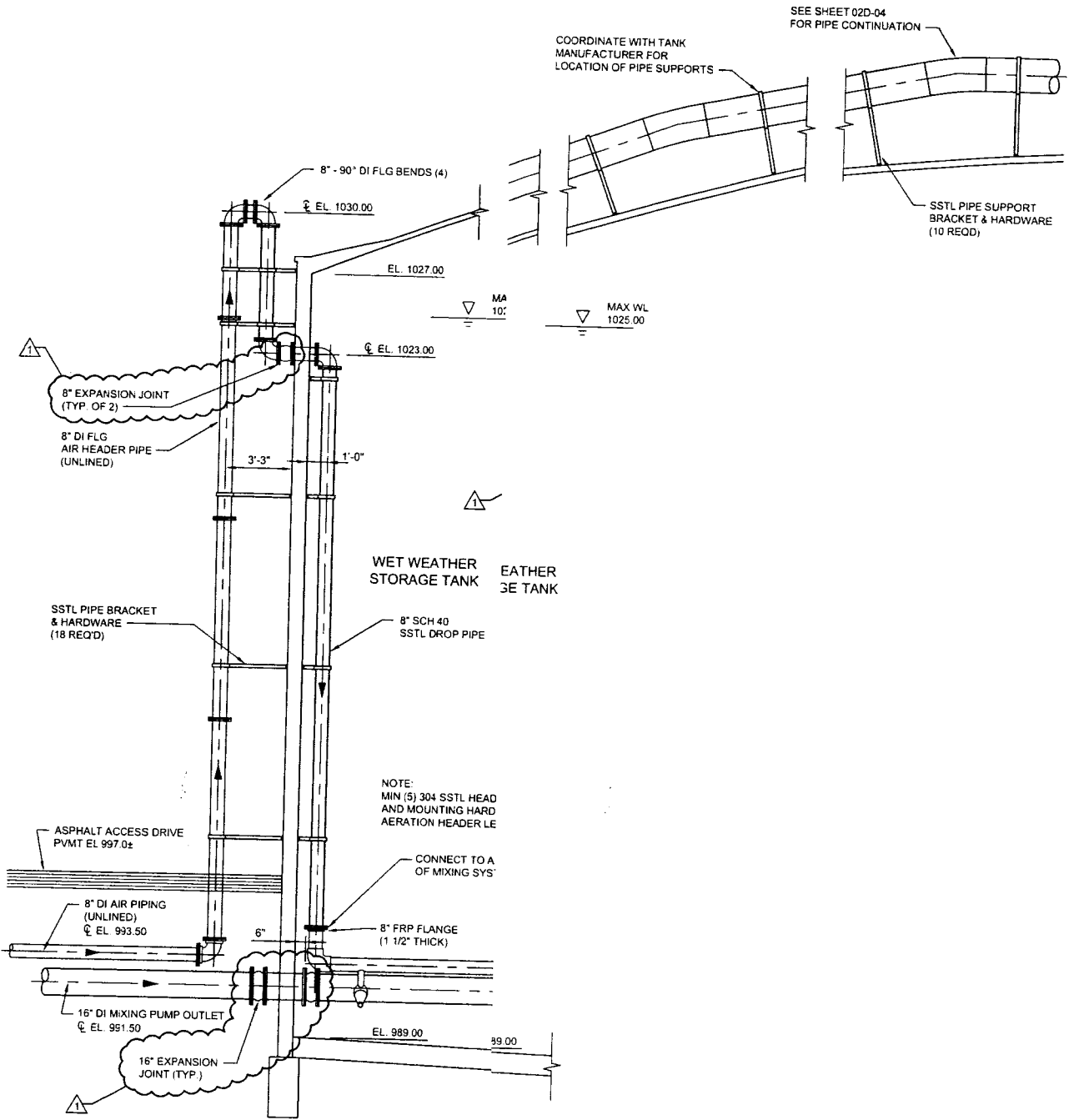
ISSUE	DATE	BY	DESCRIPTION
1	10-25-2017		
A	10-06-2017		

PROJECT SPECIFIC NOTES



FILENAME 00G-05
SCALE N.T.S.

SHEET
00G-05



WET WEATHER STORAGE TANK
EATHER 3E TANK

NOTE:
MIN (5) 304 SSSL HEAD
AND MOUNTING HARD
AERATION HEADER LE

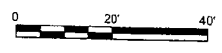
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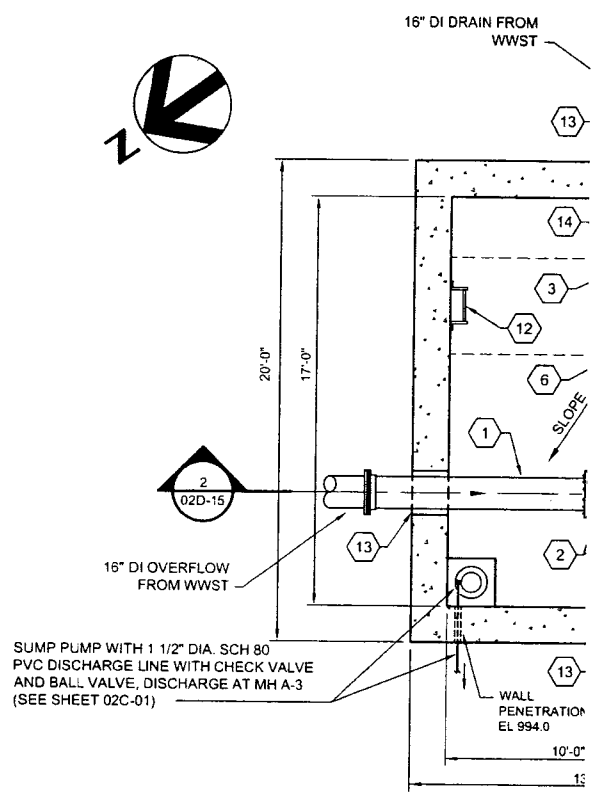
ANK

**STORAGE TANK
DETAILS**



FILENAME | 02D-10
SCALE | AS SHOWN

SHEET
02D-10

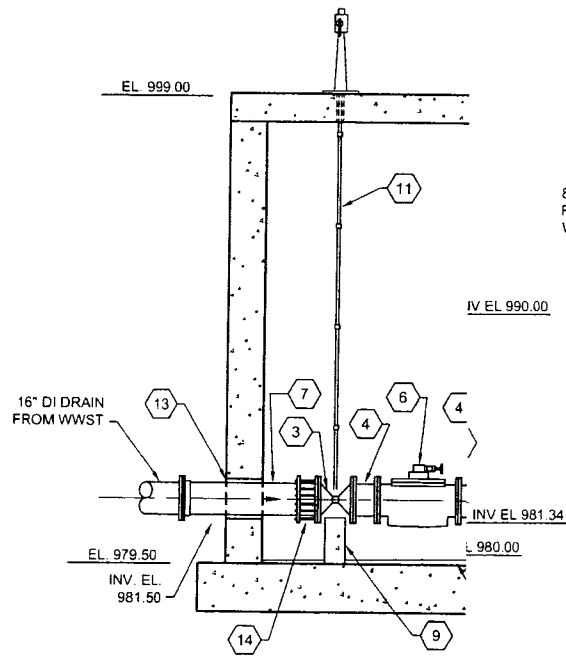


KEY NOTES:

- 1 16" DI MJ X PE PIPE
- 2 16" DI FLEX COUPLING ADAPTOR
- 3 16" DI FLG PLUG VALVE WITH MOTORIZED ACTUATOR
- 4 16" DI FLG SPOOL PIECE
- 5 16" X 16" DI FLG TEE
- 6 16" DI ELECTRIC OPERATED MODULATING PLUG VALVE
- 7 16" DI MJ X PE PIPE
- 8 STAINLESS STEEL VALVE STEM GUIDE SUPPORT
- 9 CONCRETE PIPE SUPPORT
- 10 72" X 48" ALUM ACCESS HATCH WITH SAFETY GRATE
- 11 STAINLESS STEEL VALVE STEM
- 12 ALUM. LADDER W/LADDER UP DEVICE
- 13 20" DIA. OPENING WITH LINK SEAL GASKET
- 14 16" DI FLEX COUPLING ADAPTER
- 15 20" DI FORCE MAIN
- 16 2" PVC SCH 80 PIPE, FITTINGS AND VALVES
- 17 2" PVC TRU-UNION PVC BALL VALVE
- 18 2" PVC TRU-UNION CHECK VALVE
- 19 TYPICAL CHEMICAL INJECTION ASSEMBLY, SEE SHEET 03C-05
- 20 36" X 36" ALUM ACCESS HATCH WITH SAFETY GRATE
- 21 CHEMICAL FEED VAULT SHALL BE PRECAST CONCRETE
- 22 PROVIDE VENT PER DETAIL
- 23 GROUT FLOOR TO SLOPE TO SUMP

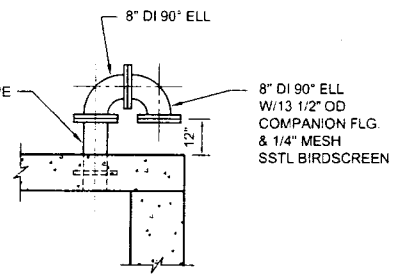
LOWER PLAN

1/4" = 1'-0"



SECTION

1/4" = 1'-0"



VENT DETAIL

3/8" = 1'-0"

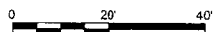
GENERAL NOTES:

- 1 All nuts, bolts and miscellaneous hardware shall be Type 304 Stainless Steel in the Screenings Room, Wet Well and Valve Vault.
- 2 All hatches shall be lockable
- 3 High Performance Paints and Coatings (HPPC) refer to Specifications Section 09961 for Painting and Protective Coating system descriptions



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FLOW CONTROL AND CHEMICAL FEED VAULTS
PLAN AND SECTIONS



FILENAME 02D-15
SCALE 1/4" = 1'-0"

SHEET
02D-15

G1. GENERAL

1. TYPICAL NOTES AND DETAILS ARE PROVIDED TO COVER GENERAL CONSTRUCTION CONDITIONS. THE GENERAL CONTRACTOR SHALL FOLLOW THOSE DETAILS AND NOTES PERTAINING TO THE SPECIFIC NATURE OF THE WORK TO BE PERFORMED.
2. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS (WHERE APPLICABLE) AT THE JOB SITE AS WELL AS THE PROVISIONS OF THE ENTIRE CONSTRUCTION DOCUMENTS AND BRING TO THE ENGINEER ATTENTION ANY DISCREPANCY. IN THE EVENT OF A DISCREPANCY IN THE STRUCTURAL CONSTRUCTION DOCUMENTS, THE NOTE OR DETAIL UTILIZING THE MORE STRICT REQUIREMENT SHALL APPLY.
3. IT IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORMWORK, ETC. AS REQUIRED FOR PROTECTION OF LIFE AND PROPERTY, TO SUPPORT ANY CONSTRUCTION LOADS, AND TO MAINTAIN ALL BUILDING COMPONENTS SAFELY IN PLACE PRIOR TO THEIR FINAL ASSEMBLY AND ANCHORAGE INTO THE COMPLETED STRUCTURE. SEE GEOTECHNICAL REPORT BY HDR ENGINEERING DATED AUGUST 4, 2017 FOR ADDITIONAL INFORMATION.
4. REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND ALL OTHER PERTINENT DRAWINGS FOR THE SIZE AND LOCATIONS OF PIPE, VENT, DUCT, AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THE STRUCTURAL DRAWINGS. ALL DIMENSIONS ARE TO BE CHECKED AND COORDINATED BY THE CONTRACTOR.
5. SHOP DRAWINGS ARE AN AID FOR FABRICATION AND INSTALLATION AND ARE SUPERSEDED BY THE STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING CERTAIN THAT ALL CONSTRUCTION IS IN FULL AGREEMENT WITH THE LATEST STRUCTURAL DRAWINGS. SHOP DRAWING REVIEWS BY THE STRUCTURAL ENGINEER ARE FOR GENERAL CONFORMANCE ONLY AND DO NOT GUARANTEE THAT THE SHOP DRAWINGS ARE CORRECT. SHOP DRAWINGS THAT HAVE BEEN CREATED OR COPIED FROM PARTS OF THE DESIGN DRAWINGS WILL BE REJECTED UPON ARRIVAL AND RETURNED WITHOUT REVIEW.

G2. APPLICABLE SPECIFICATIONS AND CODES

1. APPLICABLE DESIGN CODE: 2013 KENTUCKY BUILDING CODE (INTERNATIONAL BUILDING CODE 2012 INCLUDING LOCAL AMENDMENTS)
2. ACI 318-11
3. ACI 530-11
4. ACI 350-06
5. ASCE 7-10

G3. STRUCTURAL DESIGN CRITERIA

1. LIVE LOADS:
ROOF = 20 PSF
FLOOR = 300 PSF
2. SNOW LOADS:
GROUND SNOW LOAD (P_g) = 15 PSF
SLOPED ROOF SNOW LOAD (P_f) = 11.43 PSF
SNOW EXPOSURE FACTOR (C_e) = 0.9
SNOW LOAD IMPORTANCE FACTOR (I) = 1.10
THERMAL FACTOR (C_t) = 1.10
ROOF SLOPE FACTOR (C_s) = 1.0
3. WIND LOADS:
RISK CATEGORY III
BASIC WIND SPEED (V) = 120 MPH
EXPOSURE FACTOR = C
INTERNAL PRESSURE COEFFICIENT = +/- 0.18
4. SEISMIC LOADS:
RISK CATEGORY = III
SEISMIC IMPORTANCE FACTOR (I) = 1.25
SITE CLASS = C
RESPONSE MODIFICATION FACTOR = 2.0
SPECTRAL RESPONSE COEFFICIENTS:
 $S_s = 0.189$
 $S_1 = 0.091$
 $S_{25} = 0.202$
 $S_{10} = 0.146$
SEISMIC DESIGN CATEGORY = C
BASIC SEISMIC FORCE RESISTING SYSTEM = INTERMEDIATE REINF. MASONRY SHEAR WALLS
DESIGN BASE SHEAR = 57.9 KIPS
RESPONSE MODIFICATION COEFFICIENT = 2
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE

G4. SOILS & FOUNDATIONS

1. FOUNDATIONS HAVE BEEN DESIGNED FOR A MAXIMUM ALLOWABLE BEARING PRESSURE FOR CRUSHED STONE BEARING ON ROCK OF 8,000 PSF AND FOR A MAXIMUM ALLOWABLE ROCK BEARING PRESSURE OF 40,000 PSF AS INDICATED IN THE GEOTECHNICAL REPORT PREPARED BY HDR ENGINEERING, INC. DATED AUGUST 4, 2017.
2. ALL SUB-GRADES SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY PER STANDARD PROCTOR AS REQUIRED BY THE GEOTECHNICAL REPORT. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT A CERTIFIED TECHNICIAN PERFORMS COMPACTION TESTING & VERIFIES THE SOIL COMPOSITION UNDER ALL BEARING SURFACES PRIOR TO POURING CONCRETE IN ANY EXCAVATION.
3. ALL EXISTING UTILITIES AND OTHER SUB-GRADE STRUCTURES SHALL BE LOCATED AND PROTECTED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. ALL SLABS-ON-GRADE SHALL BE UNDERLAIN BY A MINIMUM OF 4" OF ANGULAR SAND (MANUFACTURED SAND) AND 8" OF #57 STONE (OR SHOT ROCK) UNLESS SHOWN OTHERWISE, AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL REPORT.
5. WHEN BELOW EXISTING ROCK ELEVATION, FILL MATERIAL BEHIND STRUCTURAL WALLS SHALL BE OPEN GRADED, #57 STONE OR APPROVED SHOT ROCK. WHEN ABOVE EXISTING ROCK ELEVATION, FILL MATERIAL BEHIND STRUCTURAL WALLS SHALL BE APPROVED STRUCTURAL FILL.
6. PROVIDE GEOTEXTILE FABRIC BETWEEN STONE AND LEAN CLAY BACKFILL LAYERS.
7. ALL FILL MATERIAL SHALL BE PLACED IN LOOSE LAYERS NOT TO EXCEED 8 INCHES AND MECHANICALLY COMPACTED AS REQUIRED BY THE GEOTECHNICAL REPORT.

- F. TRUSS FABRICATOR SHALL SPECIFY HARDWARE REQUIRED AT TRUSS CONNECTION.
- G. ALL COMPONENT WEB MEMBERS REQUIRING LATERAL BRACING SHALL HAVE 2X T-BRACES UNLESS THE COMPONENT ENGINEER PROVIDES OTHER BRACING DESIGN AND DETAILS.
- H. MOISTURE CONTENT OF ALL LUMBER SHALL NOT EXCEED 19%.
- I. ALL TOP CHORD MATERIAL SHALL BE SPECIES GROUP II.
- J. BEARING AREA OF COMPONENT CANNOT BE LARGER THAN THE FRAMING MEMBER USED FOR BEARING.

STRUCTURAL WOOD PANELS (SHEATHING)

- WP1. PROVIDE (1) SIMPSON PSLC PLYWOOD CLIP IN EACH TRUSS. SPACE FOR ALL ROOF SHEATHING.
- WP2. FASTEN ALL SHEATHING WITH 10d NAILS @ 6" o.c. ALONG ALL PANEL EDGES SEE ROOF SHEETING FASTENING SCHEDULE ON 00S-05 FOR INTERMEDIATE SUPPORTS SPACING.

STRUCTURAL SPECIAL INSPECTIONS & TESTS

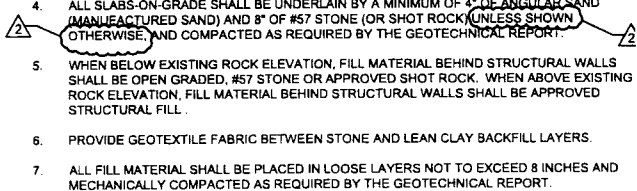
- ST1. STRUCTURAL SPECIAL INSPECTIONS & TESTS ARE REQUIRED FOR THIS PROJECT PER CHAPTER 17 OF THE 2013 KENTUCKY BUILDING CODE (KBC).
- ST2. AN APPROVED AGENCY SHALL BE SELECTED AND BE HIRED BY THE OWNER TO PERFORM THE SPECIAL INSPECTIONS AND / OR TESTS LISTED. THE AGENCY SHALL BE OBJECTIVE, COMPETENT AND INDEPENDENT FROM THE CONTRACTOR RESPONSIBLE FOR THE WORK BEING INSPECTED PER SECTION 1703.1.1 OF THE KBC. THE APPROVED AGENCY SHALL EMPLOY EXPERIENCED PERSONNEL EDUCATED IN CONDUCTING, SUPERVISING AND EVALUATING TESTS AND/OR SPECIAL INSPECTIONS.
- ST3. THE TESTING/INSPECTION AGENCY SHALL PREPARE & PROVIDE ALL REPORTS AND OTHER DOCUMENTATION PER CHAPTER 17 OF THE IBC. PROVIDE COPIES OF REPORTS TO THE CONTRACTOR, OWNER, ARCHITECT, AND STRUCTURAL ENGINEER OF RECORD. THE SPECIAL INSPECTION AGENCY SHALL KEEP A LIST OF ALL NON-COMPLIANCE ITEMS THAT DID NOT MEET THE APPROVED CONSTRUCTION DOCUMENTS AND WHEN/HOW THE ITEMS WERE RESOLVED.
- ST4. REQUIREMENTS FOR SPECIAL INSPECTION ARE PROVIDED WITHIN THESE STRUCTURAL NOTES & IN THE TABLES ON THE FOLLOWING SHEET, WHICH SHALL SERVE AS THE STATEMENT OF SPECIAL INSPECTIONS.
- ST5. THE FOLLOWING IS A LIST OF INSPECTIONS THAT SHALL BE PERFORMED IN ACCORDANCE WITH CHAPTER 17 OF THE 2012 IBC.
 - EXCAVATION AND PROOF ROLLING
 - STRUCTURAL FILL PLACEMENT AND COMPACTION.
 - BACK FILLING
 - REINFORCING STEEL FOR CONCRETE STRUCTURES.
 - ANCHOR ROD, BOLT PLACEMENT
 - CONCRETE CONSTRUCTION
 - MASONRY (LEVEL 1)
 - HIGH STRENGTH BOLTING
 - WELDING
 - EXPANSION ANCHORS AND ADHESIVE BOLTS/ DOWELS/ RODS/ INSTALLATION.

POST INSTALLED ANCHORS

- PA1. FOR ANCHORAGE TO CONCRETE SEE SPECIFICATION 03250.
- PA2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD (EOR) PRIOR TO INSTALLING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
- PA3. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- PA4. SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL POST INSTALLED ANCHOR (MECHANICAL AND ADHESIVE) INSTALLATIONS AS REQUIRED BY THE BUILDING CODE AND APPLICABLE ICC EVALUATION REPORTS. INDEPENDENT ON-SITE PROOF LOAD TESTING MAY BE REQUIRED BY THE EOR. SEE SPECIFICATION 03250 FOR ADDITIONAL DETAILS.
- PA5. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE EOR ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. PRODUCT ICC-ES CODE REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE.
- PA6. FOR TRAINING AND CERTIFICATION REQUIREMENTS FOR INSPECTORS AND INSTALLERS SEE SPECIFICATION 03250.
- PA7. POST INSTALLED ADHESIVE ANCHORS INSTALLED IN EITHER A HORIZONTAL OR INCLINED ORIENTATION REQUIRE INSTALLER TRAINING AND APPROVAL PER BUILDING CODE REQUIREMENTS AND PER SPECIFICATION 03250.

DEFERRED SUBMITTALS

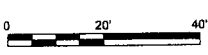
1. PRE-ENGINEERED WOOD TRUSSES.
2. MONORAIL CRANE SYSTEM.



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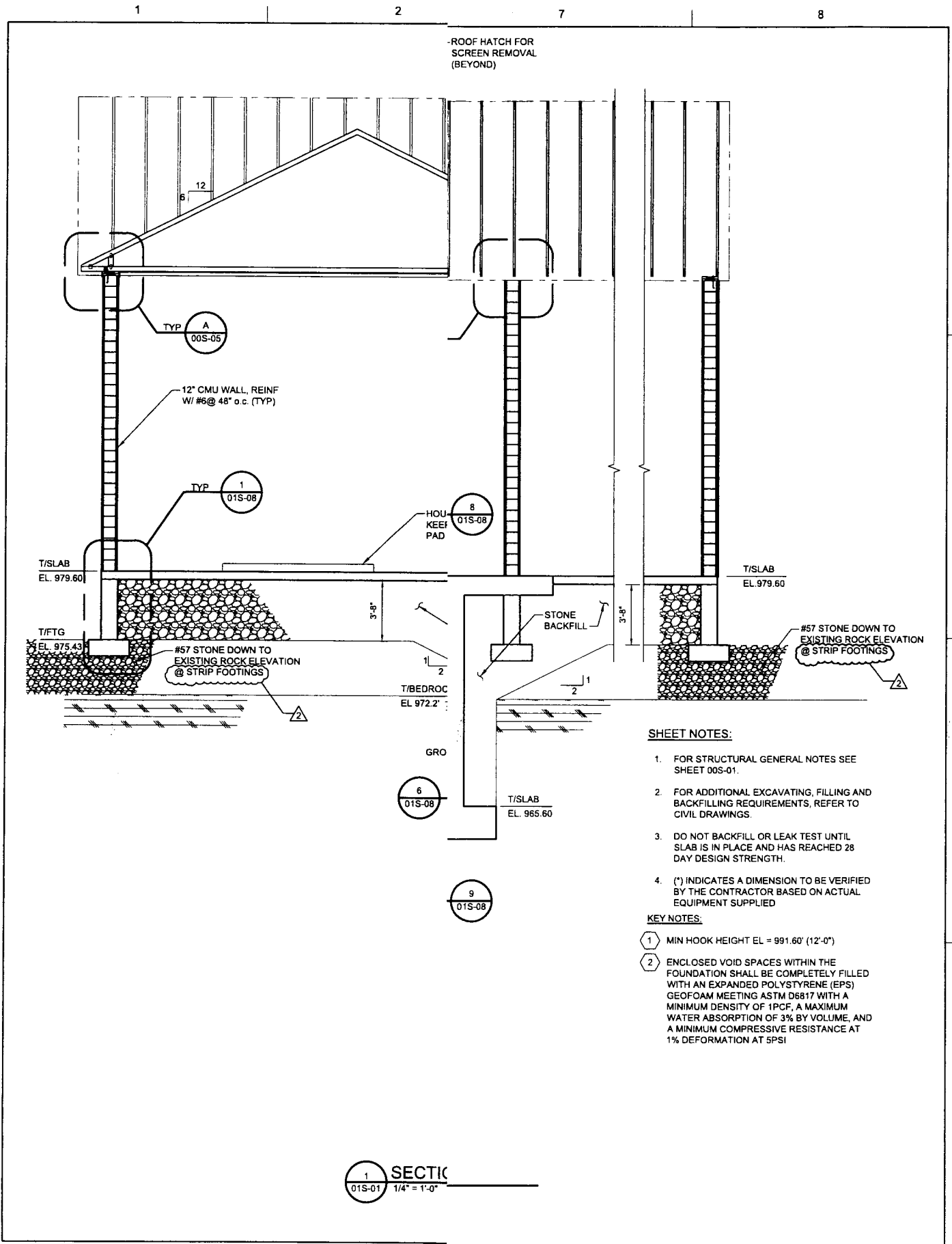


**PUMP STATION / STORAGE TANK
STRUCTURAL GENERAL NOTES**



FILENAME | 00S-01-00S-05
SCALE | AS NOTED

SHEET | 00S-01



-ROOF HATCH FOR SCREEN REMOVAL (BEYOND)

TYP A
00S-05

12" CMU WALL, REINF
W/ #6 @ 48" o.c. (TYP)

TYP 1
01S-08

8
01S-08

T/SLAB
EL. 979.60

T/SLAB
EL. 979.60

T/FTG
EL. 975.43

#57 STONE DOWN TO
EXISTING ROCK ELEVATION
@ STRIP FOOTINGS

STONE
BACKFILL

#57 STONE DOWN TO
EXISTING ROCK ELEVATION
@ STRIP FOOTINGS

T/BEDROC
EL. 972.2'

T/SLAB
EL. 965.60

6
01S-08

9
01S-08

SHEET NOTES:

1. FOR STRUCTURAL GENERAL NOTES SEE SHEET 00S-01.
2. FOR ADDITIONAL EXCAVATING, FILLING AND BACKFILLING REQUIREMENTS, REFER TO CIVIL DRAWINGS.
3. DO NOT BACKFILL OR LEAK TEST UNTIL SLAB IS IN PLACE AND HAS REACHED 28 DAY DESIGN STRENGTH.
4. (*) INDICATES A DIMENSION TO BE VERIFIED BY THE CONTRACTOR BASED ON ACTUAL EQUIPMENT SUPPLIED

KEY NOTES:

- 1 MIN HOOK HEIGHT EL = 991.60' (12'-0")
- 2 ENCLOSED VOID SPACES WITHIN THE FOUNDATION SHALL BE COMPLETELY FILLED WITH AN EXPANDED POLYSTYRENE (EPS) GEOFOAM MEETING ASTM D6817 WITH A MINIMUM DENSITY OF 1PCF, A MAXIMUM WATER ABSORPTION OF 3% BY VOLUME, AND A MINIMUM COMPRESSIVE RESISTANCE AT 1% DEFORMATION AT 5PSI

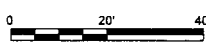
1
01S-01 1/4" = 1'-0"



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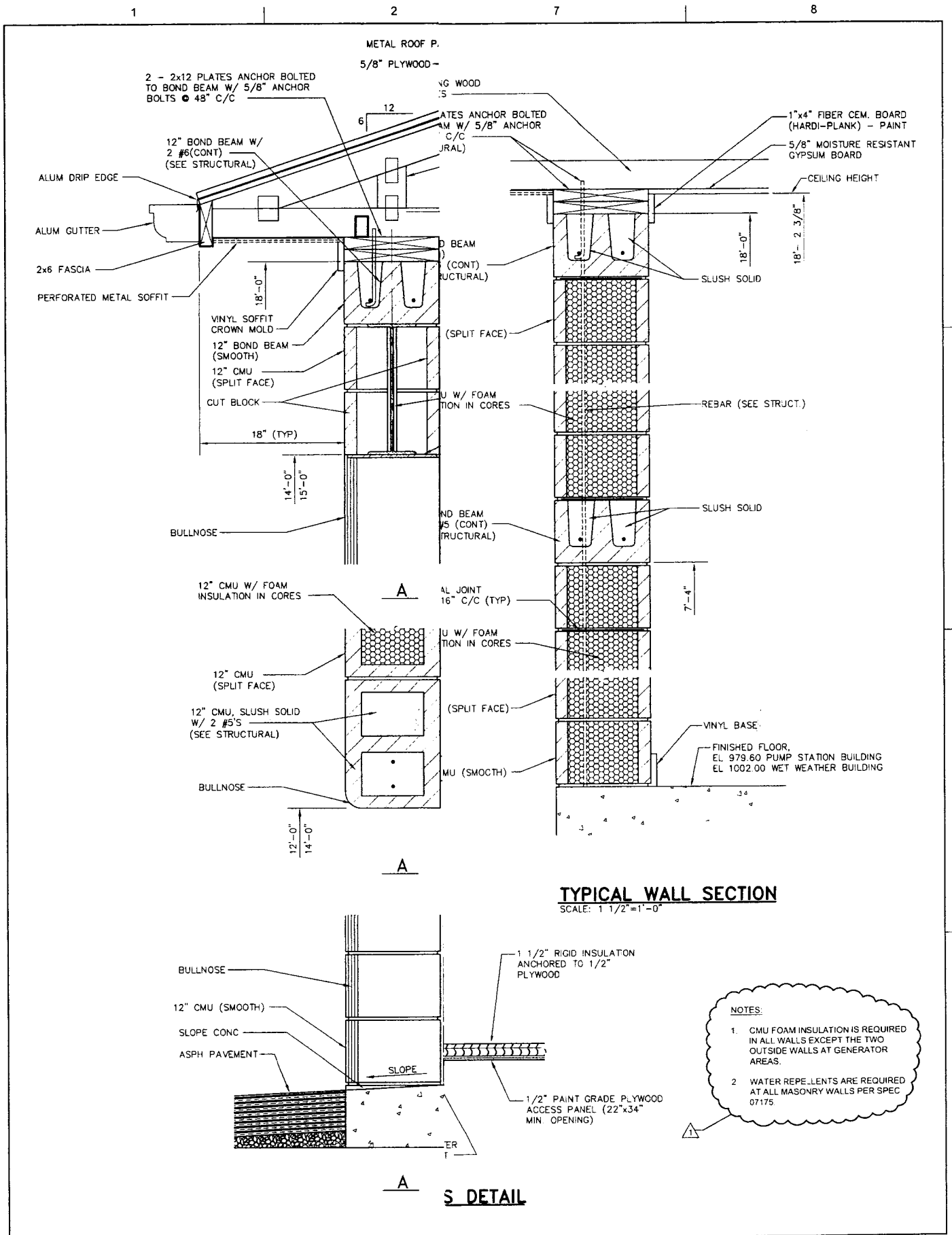
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**PUMP STATION
OVERALL SECTIONS**



FILENAME | 01S-04_06
SCALE | AS NOTED

SHEET
01S-05

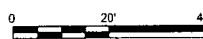


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BUILDING SECTIONS AND DETAILS



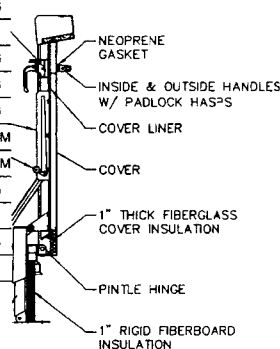
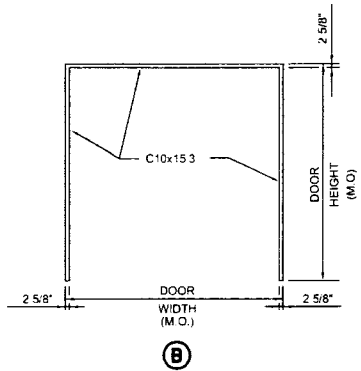
FILENAME: 03A-01
SCALE: AS SHOWN

SHEET
03A-01

DOOR NO	DOOR				MATERIAL
	SIZE			THICK	
	WIDTH	HEIGHT	THICK		
PUMP STATION BUILDING					
PS-1	3'-0"	7'-2"	1 3/4"	FG	
PS-2	18'-0"	10'-0"	-	GS	
PS-3	12'-0"	14'-0"	-	ALUM	
PS-4	14'-0"	15'-0"	-	ALUM	
PS-5	6'-0"	7'-2"	1 3/4"	FG	
PS-6	3'-0"	7'-2"	1 3/4"	FG	
PS-7	6'-0"	7'-2"	1 3/4"	FG	
PS-8	6'-0"	7'-2"	1 3/4"	FG	
PS-9	3'-0"	7'-2"	1 3/4"	FG	
PS-10	3'-0"	7'-2"	1 3/4"	FG	
STORAGE TANK BUILDING					
ST-1	3'-0"	7'-2"	1 3/4"	FG	
ST-2	18'-0"	10'-0"	-	GS	
ST-3	6'-0"	7'-2"	1 3/4"	FG	
ST-4	6'-0"	7'-2"	1 3/4"	FG	
ST-5	3'-0"	7'-2"	1 3/4"	FG	
ST-6	12'-0"	14'-0"	-	ALUM	
ST-7	12'-0"	14'-0"	-	ALUM	
ST-8	3'-0"	7'-2"	1 3/4"	FG	
ST-9	-	-	-	-	
ST-10	3'-0"	7'-2"	1 3/4"	FG	

DOOR FRAME TYPES

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

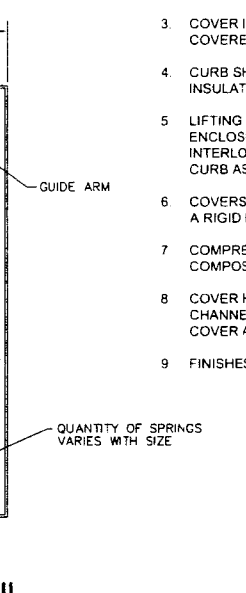


- (1) OCD = OVERHEAD COILING DOOR
- (2) ALUM = ALUMINUM
- (3) FG = FIBERGLASS
- (4) I = INSULATED GLASS
- (5) STL = STEEL
- (6) FRAMED WITH C10x15.3 ON JAMBS AND HEAD
- (7) GS = GALVANIZED STEEL

NOTES:

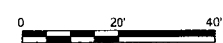
- 1 HATCH SHALL BE 8' X 6' DOUBLE LEAF ROOF HATCH, BILCO TYPE D OR APPROVED EQUAL.
- 2 COVERS SHALL BE 11 GAUGE ALUM WITH HEAVY EXTRUDED EPDM RUBBER GASKET.
- 3 COVER INSULATION SHALL BE FIBERGLASS OF 1" THICKNESS, FULLY COVERED AND PROTECTED BY A 18 GAUGE ALUM LINER.
- 4 CURB SHALL BE 12" IN HEIGHT AND OF 11 GAUGE ALUM WITH CURB INSULATION OF RIGID HIGH-DENSITY FIBERBOARD OF 1" THICKNESS.
- 5 LIFTING MECHANISM SHALL BE COMPRESSION SPRING OPERATORS ENCLOSED IN TELESCOPING TUBES. THE LOWER TUBE SHALL INTERLOCK WITH A FLANGED SUPPORT SHOE WELDED TO THE CURB ASSEMBLY.
- 6 COVERS SHALL AUTOMATICALLY LOCK IN THE OPEN POSITION WITH A RIGID HOLD OPEN ARM.
- 7 COMPRESSION SPRING TUBES SHALL BE AN ANTI-CORROSIVE COMPOSITE MATERIAL.
- 8 COVER HARDWARE SHALL BE BOLTED INTO HEAVY GAUGE CHANNEL REINFORCING WELDED TO THE UNDERSIDE OF THE COVER AND CONCEALED WITHIN THE INSULATION SPACE.
- 9 FINISHES SHALL BE MILL FINISH ALUMINUM.

ROOM NO	ROOM NAME	CONC. WITH SEALER
PUMP STATION BUILDING		
PSB-1	GENERATOR AREA	
PSB-2	ODOR CONTROL ROOM	
PSB-3	DUMPSTER AREA	
PSB-4	ELECTRICAL ROOM	
PSB-5	SCREENINGS ROOM	
STORAGE TANK BUILDING		
STB-1	ODOR CONTROL ROOM	
STB-2	CHEMICAL FEED ROOM	
STB-3	BLOWER ROOM	
STB-4	ELECTRICAL ROOM	
STB-5	GENERATOR AREA	



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BUILDING DETAILS AND SCHEDULES

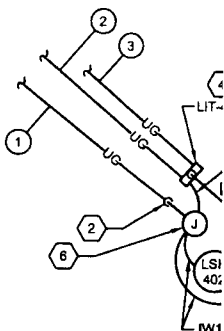


FILENAME 03A-02
SCALE AS SHOWN

SHEET
03A-02

OTHER

ANK



KEY NOTES:

- 1 SUBMERSIBLE LEVEL TRANSDUCER IN STILLING WELL. SEE DETAIL SHEET 03Y-04.
- 2 1" CONDUIT WITH CABLE SUPPLIED WITH EQUIPMENT. ROUTE CONDUIT DOWN SIDE OF TANK, TYPICAL.
- 3 HIGH LEVEL FLOAT SWITCHES MOUNTED INSIDE TANK, COORDINATE EXACT LOCATION, ELEVATION, AND METHOD OF MOUNTING.
- 4 ULTRASONIC LEVEL INDICATOR/TRANSMITTER MOUNTED ON SIDE OF TANK AT 48" ABOVE FINISHED GRADE. PROVIDE STAINLESS STEEL UNISTRUT MOUNTING BRACKET.
- 5 THE AREA INSIDE TANK HAS AN NFPA RATING OF CLASS I, DIVISION 1, GROUP D. THE AREAS AROUND ALL HATCH OPENINGS AND CONCRETE TANK OVERFLOWS HAVE TWO DIFFERENT NFPA CLASSIFICATIONS. THE AREA 3'-0" ALL AROUND EACH TANK OPENING HAS AN NFPA RATING OF CLASS I, DIVISION 1, GROUP D. AN ADDITIONAL 2'-0" AREA (5'-0" FROM TANK OPENING) ALL AROUND EACH TANK OPENING HAS AN NFPA RATING OF CLASS I, DIVISION 2, GROUP D. ALL ELECTRICAL WORK AT THIS STRUCTURE SHALL COMPLY WITH THESE CLASSIFICATIONS.
- 6 NEMA 4X STAINLESS STEEL JUNCTION BOX FOR FLOAT SWITCH INTRINSICALLY SAFE BARRIER. SEE DETAIL SHEET 03Y-04.

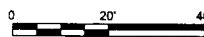
GENERAL NOTES:

- 1 REFER TO SHEET 02E-01 FOR CIRCUIT CALLOUTS.
- 2 REFER TO SHEET 02E-01 FOR UNDERGROUND CONDUIT AND WIRE SCHEDULE.



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**STORAGE TANK
POWER PLAN**

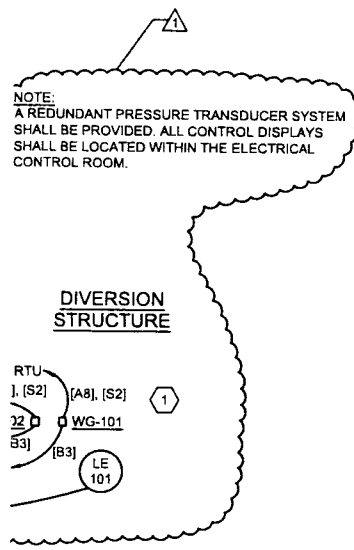


FILENAME 01E-08.dwg
SCALE AS NOTED

SHEET
02E-07

KEY NOTES:

- 1 ALL ELECTRICAL WORK IN THIS ROOM TO COMPLY WITH NFPA HAZARDOUS AREA CLASSIFICATION CLASS I, DIVISION 1, GROUPS C & D.
- 2 FLOAT SIGNALS TO LCP-200.
- 3 ELECTRICAL EQUIPMENT RACK FOR PUMP CABLE TO SINGLE CONDUCTOR TRANSITION. SEE DETAIL SHEET 01E-09.
- 4 NEMA 7 RATED SCREEN AND COMPACTOR CONTROL STATIONS PROVIDED WITH EQUIPMENT, INSTALLED BY CONTRACTOR, COORDINATE EXACT MOUNTING METHOD AND LOCATION.
- 5 SCREEN CONTROL PANEL FCP-110.
- 6 ALL ELECTRICAL WORK IN THIS ROOM TO COMPLY WITH NFPA HAZARDOUS AREA CLASSIFICATION CLASS I, DIVISION 2, GROUPS C & D.
- 7 OVERHEAD GARAGE DOOR OPERATOR PROVIDED WITH EQUIPMENT, INSTALLED BY DOOR INSTALLER. ALL CONDUIT AND WIRING BY ELECTRICAL CONTRACTOR.
- 8 PROVIDE CONDUIT AND CONTROL WIRING AS REQUIRED BY MANUFACTURER.
- 9 OPEN-CLOSE-STOP SWITCH PROVIDED WITH EQUIPMENT, INSTALLED BY ELECTRICAL CONTRACTOR.
- 10 PANEL LPPS WITH TRANSFORMER WALL MOUNTED ABOVE.
- 11 PANEL PPPS WITH TRANSFORMER WALL MOUNTED ABOVE.
- 12 PUMP CONTROL PANEL (PS-RTU).
- 13 GENERATOR REMOTE ANNUNCIATOR PANEL.
- 14 SUBMERSIBLE PRESSURE TRANSDUCER IN STILLING WELL. SEE MOUNTING DETAIL SHEET 03Y-D4.
- 15 NEMA 4X JUNCTION BOX WITH TERMINAL STRIPS FOR CONNECTION OF PRESSURE TRANSDUCER CABLES. MOUNT BOX ON STAINLESS STEEL SUPPORT BRACKET.
- 16 PEDESTAL MOUNTED LCP-251 FOR PUMP PUMP CABLES. PEDESTAL SIMILAR TO DETAIL ON SHEET 01E-09. SIZE ENCLOSURE AS REQUIRED. KEY NOTES 2, 8, 9, 10 & 11 ON SHEET 01E-09 SHALL APPLY.
- 17 SURGE PROTECTION DEVICE.
- 18 NEMA 4X DISCONNECT SWITCH FOR HOIST. COORDINATE EXACT LOCATION AND PROVIDE FINAL CONNECTION TO HOIST.
- 19 HAZARDOUS CLASSIFICATION OF THE ENVELOPE AROUND ALL OPENINGS INTO HAZARDOUS AREAS SHALL BE AS SHOWN IN NFPA 820. ANY ELECTRICAL WORK OR EQUIPMENT IN THESE ENVELOPE AREAS SHALL COMPLY THE PROPER HAZARDOUS CLASSIFICATION.
- 20 12" HOUSEKEEPING PAD TO AVOID 100 YEAR FLOOD PLAIN ELEVATION.



GENERAL NOTES:

- 1. REFER TO SHEET 01E-01 FOR CIRCUIT CALLOUTS.
- 2. REFER TO SHEET 01E-01 FOR UNDERGROUND CONDUIT AND WIRE SCHEDULE.
- 3. REFER TO SHEET 01E-02 FOR PANELBOARD SCHEDULES.
- 4. RECEPTACLES CIRCUITED TO PANEL LPPS, CIRCUIT NUMBER SHOWN, TYPICAL.
- 5. COORDINATE CONDUIT STUB UP LOCATIONS WITH EQUIPMENT SUPPLIED, TYPICAL.
- 6. FOR AREA HAZARDOUS CLASSIFICATION, REFER TO SPECIFICATION SECTION 16050.

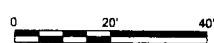


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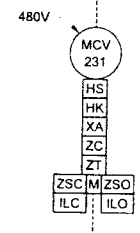
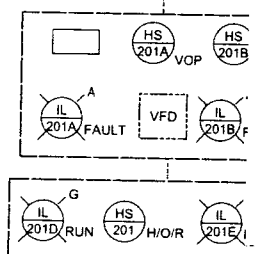
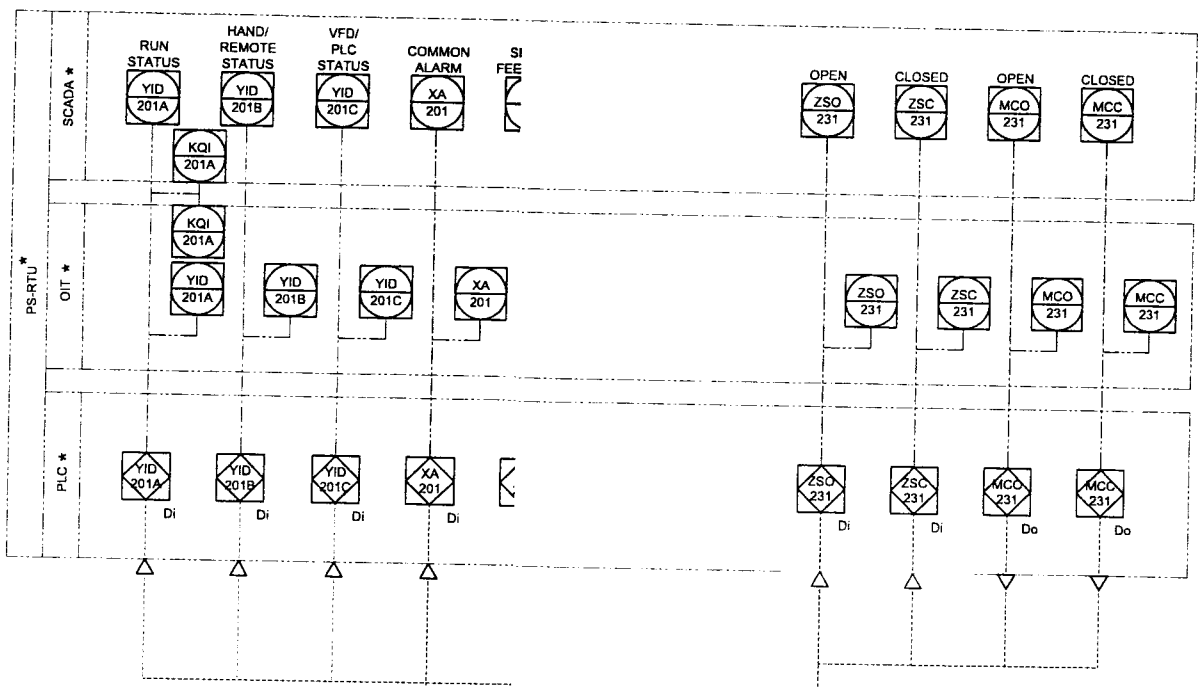
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PUMP STATION UPPER FLOOR PLAN - POWER

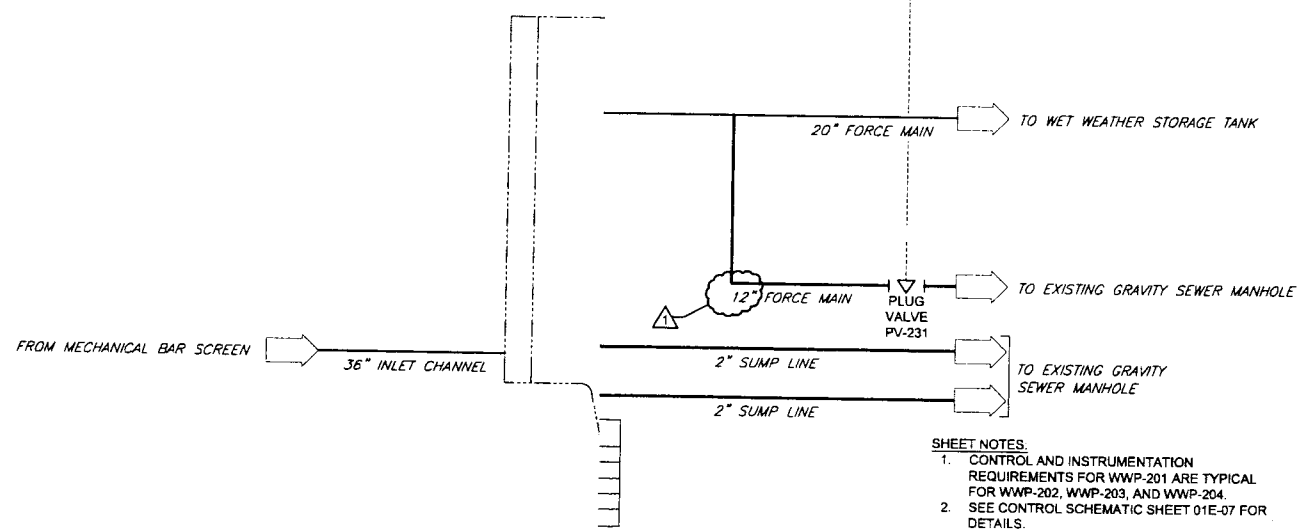


FILENAME | 01E-08.dwg
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SHEET
01E-08



TO LCP-200. SEE SHEET 01Y-04 FOR CONTINUATION

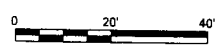


- SHEET NOTES:**
1. CONTROL AND INSTRUMENTATION REQUIREMENTS FOR WWP-201 ARE TYPICAL FOR WWP-202, WWP-203, AND WWP-204.
 2. SEE CONTROL SCHEMATIC SHEET 01E-07 FOR DETAILS.



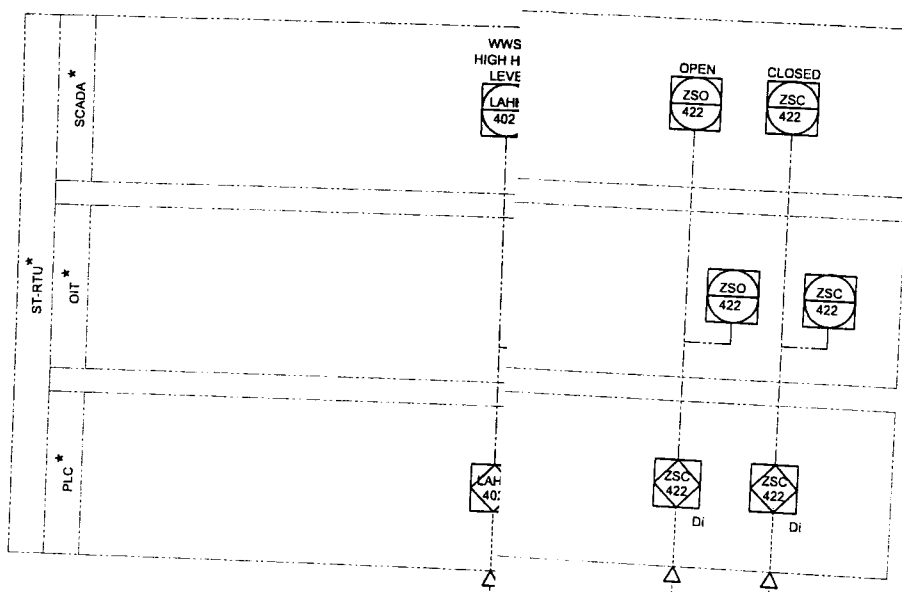
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ISSUE	DATE
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PUMP STATION P&ID



FILENAME 01Y-03.dwg
SCALE N.T.S.

SHEET 01Y-03



NOTE:
 A REDUNDANT PRESSURE TRANSDUCER SYSTEM
 SHALL BE PROVIDED. ALL CONTROL DISPLAYS SHALL
 BE LOCATED WITHIN THE ELECTRICAL CONTROL
 ROOM.

E PROVIDED
 TEMPERATURE
 E

ROOM

* LS
 41
 (FLC)

20" DIP FORCE MAIN

* LE
 401

FROM WET WEATHER
 PUMP STATION → 20" FORCE MAIN

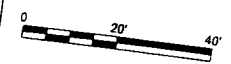
10" GRAVITY SEWER ← FROM COLLECTION SYSTEM

16" GRAVITY SEWER → TO MANHOLE NEAR DIVERSION BOX

MANHOLE



DATE	ISSUE	BY	OTHER
10-25	DA		TANK



STORAGE TANK
 MODULATING STRUCTURE P&ID

FILENAME 02Y-01.dwg
 SCALE

SHEET